

# **FIRE RESISTANCE OF STEEL SECTIONS GALVANIZED TO EN ISO 1461**





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**SCI**, Silwood Park, Ascot,  
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T: +44 (0)1344 636525

F: +44 (0)1344 636570

E:[reception@steel-sci.com](mailto:reception@steel-sci.com)

[www.steel-sci.com](http://www.steel-sci.com)

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# FIRE RESISTANCE OF STEEL SECTIONS GALVANIZED TO EN ISO 1461

**Francisco Meza** BSc MSc PhD

**Nancy Baddoo** MA CEng FICE





# SUMMARY

This design guide provides tables to calculate fire resistances and maximum fire exposure periods for galvanized steel beams, composite beams, columns, and plates in tension, according to the Eurocode design standards (EN 1993-1-2, EN 1994-1-2) and the UK and Irish National Annexes. The design tables are applicable for fire exposure periods of up to 30 minutes, and they clearly show the cases where the use of galvanized steel leads to an increase in fire resistance or fire exposure compared to non-galvanized steel. The Eurocode design tables are given in Appendix A. Additionally, design tables in accordance with BS 5950 are given in Appendix B.

Laboratory and full-scale testing have demonstrated that below approximately 500 °C, a steel section that has been galvanized to EN ISO 1461 has a lower surface emissivity than non-galvanized steel. A galvanized steel section will therefore heat up at a slower rate than an equivalent non-galvanized section.

The lower temperature rise will lead to increased fire resistance for fire exposure periods of up to around 30 minutes.

For sections with moderate section factors ( $105 \text{ m}^{-1} < k_{sh} [A_m/V]_m < 182 \text{ m}^{-1}$ ) the effect is more noticeable for a 15 minute fire resistance period. However, for sections with low section factors ( $33 \text{ m}^{-1} < k_{sh} [A_m/V]_m < 64 \text{ m}^{-1}$ ), the largest benefits are achieved at 30 minutes fire resistance. Sections with section factors falling within these ranges cover a large proportion of UB/UC/hollow sections.

Design examples are also provided to illustrate the use of the tables and the potential advantages of galvanized steel over non-galvanized steel in fire (e.g., increased load resistance or longer fire exposure period for a given load).



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# GALVANIZED STEEL IN CONSTRUCTION

Galvanizing is a corrosion protection process for steel in which the steel is coated with zinc to prevent it from rusting. The process involves dipping cleaned iron or steel components into molten zinc (which is usually around 450 °C) for a few minutes. A series of zinc-iron alloy layers are formed by a metallurgical reaction between the iron and zinc creating a strong bond between steel and the coating. Unlike a paint coating, the metallurgical bond that is formed through galvanizing becomes part of the steel itself and is not merely a chemical or mechanical bond. As a result, galvanized steel has good resistance to mechanical damage during handling, storage, transport and erection.



*Figure 1.1  
Steel frames  
immediately after  
immersion in the  
galvanizing bath*

Galvanized steel is used in construction, transport, agriculture, power transmission and other applications where good corrosion protection and long life are essential. It is a versatile process – components ranging in size from nuts and bolts to large structural sections can be protected by galvanizing.

A typical time of immersion is about four or five minutes, but it can be longer for heavy members that have high thermal inertia or where the zinc is required to coat internal spaces. Upon withdrawal from the galvanizing bath, a layer of molten zinc will be deposited on the steel surface. This cools to exhibit the bright shiny appearance associated with galvanized products. Over a matter of months or years, the initial bright, silvery finish will change to form a duller patina as the surface reacts with oxygen and carbon dioxide. A complex but stable, protective layer is formed which is tightly adherent to the zinc. There is no demarcation between steel and zinc but a gradual transition through the series of alloy layers which provide the metallurgical bond. Conditions in the galvanizing plant such as temperature, humidity and air quality do not affect the quality of the galvanized coating.

In practice, steel sections or components are galvanized in batches - hence the term ‘batch galvanizing’ (also known as ‘general galvanizing’) is used. This batch process should not be confused with other methods of applying zinc coatings to steel that produce thinner, less protective coatings that also lack the metallurgical bond of the batch process.

Batch hot dip galvanizing is a standardized coating with a minimum coating thickness that is specified in accordance with EN ISO 1461<sup>[4]</sup>. The standard specifies a minimum average coating thickness of 85 microns for steel members thicker than 6 mm, and 70 microns for steel members between 3 and 6 mm in thickness. The coating is produced consistently across the component, both inside and out for hollow sections.

**Throughout this document, the term ‘galvanized steel’ refers to batch galvanizing to EN ISO 1461. The design guidance is only applicable to this coating type.**

Properties such as strength, density and stiffness are the same for galvanized steels as for non-galvanized steels. However, this is not the case for properties related to the steel surface, such as emissivity, which determines the rate of temperature increase in a fire.





# DERIVATION OF SURFACE EMISSIVITY FOR GALVANIZED STEEL BY LABORATORY AND FULL-SCALE TESTING

A number of researchers have observed that galvanized steel members reach lower temperatures during fires than equivalent non-galvanized steel members. It was postulated that this effect was due to the lower emissivity of the galvanized surface. Emissivity values of 0.29 – 0.40 were proposed in several studies, compared to the emissivity of a non-galvanized steel surface of 0.7 which is widely used in the prediction of steel temperatures during a fire<sup>[2]</sup>. Although this effect has been recognized for several decades, it is only recently that sufficient weight of evidence has allowed a standardized emissivity value for galvanized steel to be determined.

According to Sala<sup>[3]</sup>, radiation of metal surfaces is based on atomic and molecular vibrations which depend on the chemical composition of a surface layer up to approximately  $10^{-10}$  m thick. As the outer zinc layer of a galvanized surface has a thickness of 5 to  $20 \times 10^{-6}$  m, it is this layer which determines the radiation behaviour of galvanized steel.

The first calorimeter tests to indicate the favourable influence of a galvanized coating on the temperature of steel during a fire were carried out by Heinisuo<sup>[4]</sup>. The specimens were subjected to a heat flow from a cone calorimeter. The derived value of emissivity of galvanized steel members below 420 °C was determined as 0.2.

The Czech Technical University in Prague validated the surface emissivity of galvanized steel in typical fire conditions by carrying out two full scale furnace tests and also testing specimens in a compartment in an experimental building (Figure 2.1)<sup>[5]</sup>. Open and closed steel specimens, one metre in length, were hung from the ceiling of the compartment at the location of the highest expected gas temperature. The arrangement of the specimens ensured an even temperature distribution. Profiles were arranged in pairs (galvanized and non-galvanized). Specimens were isolated at both ends by mineral fibre wool such that the sample simulated an infinite length element and that heat transfer occurred only at the outer surface.



Figure 2.1  
Test specimens  
suspended from  
the compartment  
ceiling<sup>[5]</sup>

The temperature of each specimen was measured by one 2 mm diameter thermocouple, which was placed at the mid-point of each specimen. The gas temperature in the fire compartment was measured by twenty 3 mm thermocouples and seven plate thermocouples. Figure 2.2 shows the temperature rise of the specimens in the compartment.

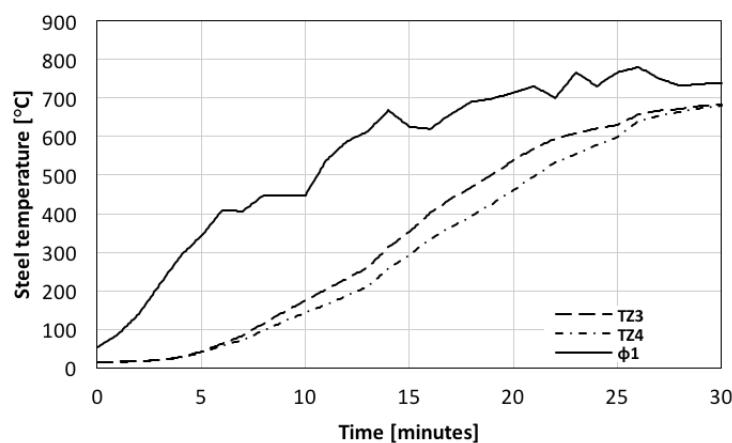


Figure 2.2  
Measured temperature  
rise during fire tests:  
gas temperature ( $\phi_1$ ),  
galvanized IPE (TZ4) and  
non-galvanized IPE (TZ3)<sup>[5]</sup>

The measured temperature rise was compared against the predicted rise assuming a value for the surface emissivity of 0.32, which had been measured previously in horizontal furnace fire tests. Figure 2.3 shows the good correlation between the measured and predicted results, especially in the first 20 minutes of the fire.

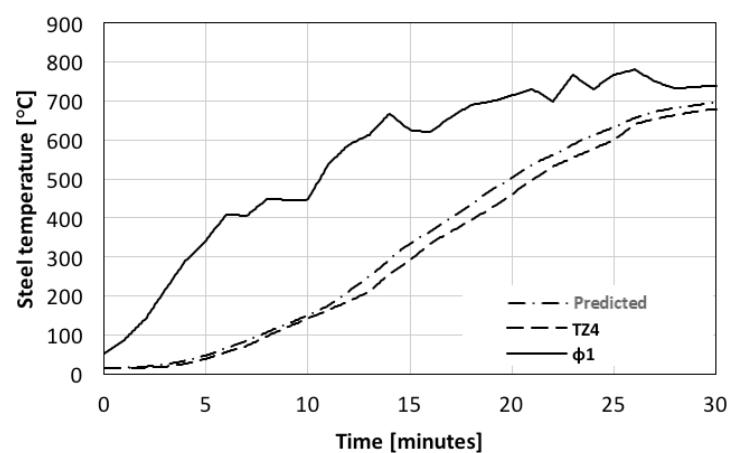


Figure 2.3  
Temperature rise during  
fire tests: measured  
gas temperature ( $\phi_1$ ),  
measured and predicted  
temperature for galvanized  
IPE (TZ4), assuming an  
emissivity = 0.32<sup>[5]</sup>

More recently, Gaigl carried out two full-scale tests and 147 laboratory tests to measure the emissivity of galvanized steel<sup>[6]</sup>. In small-scale laboratory tests, different types of galvanized specimens were heated and the emissivity was deduced by measuring the temperature of the specimens with thermocouples and infrared sensors. These studies demonstrated consistent emissivity values for a range of galvanized steels with different silicon content. Silicon content is important because its presence can influence the thickness and structure of the galvanized coating. The ranges of silicon content associated with consistent emissivity values of 0.35 were those normally encountered in modern structural steels and are defined by Category A and B of EN ISO 14713-2<sup>[7]</sup>. Gaigl also observed that whereas an emissivity of 0.35 was reliably measured for temperatures up to 500 °C, at higher temperatures, changes to coating morphology will increase emissivity to approach that of non-galvanized steel (i.e., 0.7).

An amendment to Eurocode 3, Part 1.2 *Structural Fire Design* (EN 1993-1-2)<sup>[8]</sup>, largely based on the work of Gaigl, will be included in the next revision of the standard, which is due to be published in 2023. The revision is summarised in Table 2.1.

#### **EN 1993-1-2 clause 2.2(2)**

In addition to EN 1991-1-2, the following values of the surface emissivity related to different types of steel may be taken:

Type of steel	$\varepsilon_m$ ( $\leq 500$ °C)	$\varepsilon_m$ ( $> 500$ °C)
Carbon steel		0.70
HDG steel <sup>1</sup>	0.35	0.70

<sup>1</sup> Steel that has been hot dip galvanized according to EN ISO 1461 and with steel composition according to Category A or B of EN ISO 14713-2, Table 1

Table 2.1  
Proposed revision of  
EN 1993-1-2 (as at  
June 2020)

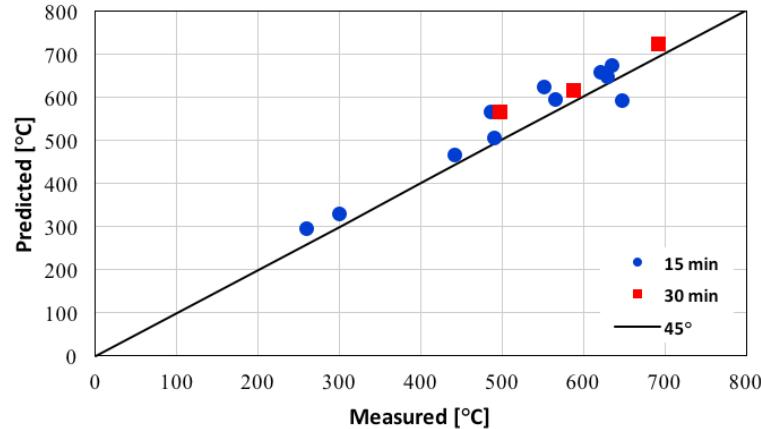
Further supporting studies have been carried out in France. Three sets of standard fire tests were performed at Effectis, France in a joint project by CTICM, Galvazinc and EGGA . In 2016, fire tests were carried out on I and H profile steel columns exposed on four sides. In 2017, further tests were carried out on I and H profile beams exposed on three sides and I profile and hollow section columns exposed on four sides (Figure 2.4).



Figure 2.4  
Specimens in CTICM-  
Galvazinc-EGGA  
tests<sup>[9]</sup> beam tests  
(left) and column  
tests in 2017 (right)

The proposed emissivity for 60 minutes fire resistance was validated through analytical prediction models at CTICM<sup>[9]</sup> and in Prague<sup>[10]</sup>. The comparison of predicted and validated results for the surface emissivity  $\varepsilon_m = 0.35$  is shown in Figure 2.5 for 15 minutes and 30 minutes exposure. These tests show good agreement between the measured and predicted temperatures assuming the surface emissivity = 0.35.

Figure 2.5  
Comparison of  
predicted surface  
emissivity  $\varepsilon_m = 0.35$   
and measured  
results for 15 and 30  
minutes exposure<sup>[10]</sup>







# PERFORMANCE OF GALVANIZED STEEL IN FIRE

Due to the reduction in surface emissivity of the zinc coating described in the previous section, galvanized steel members may experience a smaller temperature increase than equivalent non-galvanized steel members.

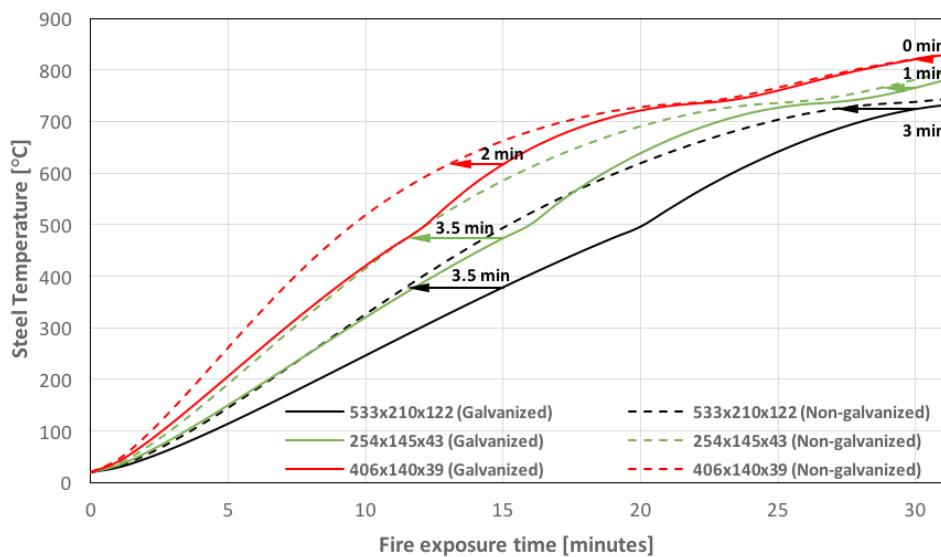
The benefit of the reduced emissivity is most significant for structures that require shorter fire resistance periods, such as car parks or single storey industrial buildings, where the temperature reached by the galvanized steel members is around 500 °C. The reasons for this are: (1) for temperatures lower than 500 °C, the rate at which the temperature increases in a galvanized steel member is given by a surface emissivity of 0.35, while for a non-galvanized steel member this is given by a surface emissivity of 0.70; (2) steel strength is most sensitive to temperature at around 500 °C, and so in this temperature range, small differences in temperature have a pronounced effect on strength loss.

For temperatures below 400 °C, steel does not show any loss in strength. Therefore, for temperatures of around 400 °C, even though the temperature in a galvanized steel member is lower than that in an equivalent non-galvanized steel member, this does not necessarily translate into a significant difference in strength. On the other hand, for temperatures higher than 500 °C, the surface emissivity of galvanized steel is the same as that of non-galvanized steel (0.70), and therefore, as the temperature increases, galvanized steel and non-galvanized steel temperatures converge.

Another important factor that affects the rate at which the temperature in a steel member increases is the section factor. In EN 1993-1-2, the section factor is defined as the surface area of the member exposed to a fire per unit length,  $A_m$ , divided by the volume per unit length,  $V$ . Therefore, a beam exposed to a fire on four sides has a higher section factor than an equivalent one exposed on three sides. This factor has the same effect irrespective of whether the section is galvanized or non-galvanized, as it only depends on the geometric proportions of the cross-section. That is, the larger the section factor, the faster the temperature in the member increases. As a result of this, the largest benefit of using galvanized steel over non-galvanized steel can occur in different cross-sections at different fire exposure times, depending on the section factor of the cross-section.

Figure 3.1 compares the rise in steel temperature of galvanized and non-galvanized steel beams for three different Universal Beam sections (533x210x122, 254x146x43,

406x140x39) exposed to fire from three sides with section factors  $k_{sh} [A_m/V]_m$  of 75  $m^{-1}$ , 109  $m^{-1}$  and 170  $m^{-1}$ , respectively. The figure indicates that for a fire exposure period of 15 minutes, the galvanized steel sections can achieve 3.5 minutes, 3.5 minutes, and 2.0 minutes longer fire resistance period compared to the equivalent non-galvanized steel sections, respectively. For a fire resistance period of 30 minutes, the galvanized steel section with a section factor of 170  $m^{-1}$  (UB 254x146x43) performs very similarly to the equivalent non-galvanized steel section. This is because at 30 minutes fire exposure, the temperature in the galvanized section is 820 °C, which is significantly higher than 500 °C. For the section with a section factor of 75  $m^{-1}$  (UB 533x210x122), however, at 30 minutes fire exposure, there is still a noticeable gain in fire exposure time of 3 minutes.



*Figure 3.1  
Temperature rise  
of galvanized and  
non-galvanized steel  
sections subject to  
the standard nominal  
fire curve*

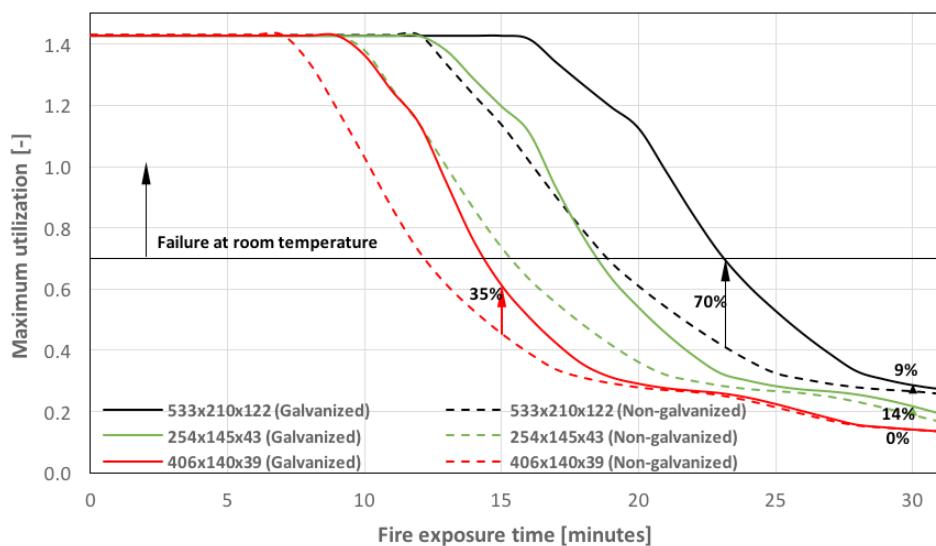
If the gains in fire exposure time using galvanized steel are translated into increased resistance, the advantages are more pronounced. Figure 3.2 compares the resistance versus time behaviour for the galvanized and non-galvanized steel beams previously discussed.

In the figure, the resistance is represented by the maximum utilization that can be achieved by the member, calculated as the ratio of the cross-sectional resistance of the beam in the fire situation to the cross-sectional resistance at room temperature (see Section 5.3 for a definition of the degree of utilization). A degree of utilization of 0.7 is indicated by a horizontal line which corresponds to the largest practical value for which a laterally restrained beam can be designed in the fire situation. This is because beams designed in fire for a degree of utilization larger than 0.7 are likely to fail at room temperature. Bearing this in mind, at 15 minutes of fire resistance, despite the galvanized sections UB 533x210x122 (with a section factor of 75  $m^{-1}$ ) and UB 254x146x43 (with a section factor of 109  $m^{-1}$ ) being able to achieve a greater utilization than their non-galvanized counterparts, there is no benefit in using galvanized steel over non-galvanized steel for these sections. On the other hand, for

section UB 406x140x39, which has the largest section factor ( $170 \text{ m}^{-1}$ ), the maximum utilization of both galvanized and non-galvanized cross-sections is below 0.70 at 15 minutes fire exposure. In this case, using galvanized steel leads to an increase in load carrying capacity of 35 % compared to using non-galvanized steel.

For sections UB 533x210x122 and UB 254x146x43, the maximum utilization that can be achieved by the non-galvanized steel sections decreases below 0.7 at noticeably shorter fire exposures than that of the galvanized sections. For example, for the steel section with the lowest section factor (UB 533x210x122), at 23 minutes fire exposure, when the maximum utilization of the galvanized section decreases to 0.70, it can carry 70 % more load than the non-galvanized section. At 30 minutes of fire exposure, even though the gain in fire resistance time is low for sections UB 533x210x122 and UB 254x146x43 (see Figure 3.1), they show a modest gain of 9 % and 14 % in load carrying capacity, respectively (see Figure 3.2).

Generally speaking, a laterally restrained beam or a tension plate constructed from galvanized steel and with a section factor in the range of  $105 \text{ m}^{-1} < k_{sh} [A_m/V]_m < 182 \text{ m}^{-1}$  can carry above 30 % more load than a non-galvanized section at 15 minutes fire exposure. For laterally restrained beams, the lower bound of this section factor range depends on whether the beam is exposed to fire on three or four sides, or if it works compositely with the slab. Thus, while for beams exposed to fire on four sides the lower bound for the section factor is  $105 \text{ m}^{-1}$ , for a beam exposed to fire on three sides, and for a composite beam this value is  $145 \text{ m}^{-1}$  and  $115 \text{ m}^{-1}$ , respectively. For galvanized steel columns a similar increase in fire resistance at 15 minutes fire exposure is achieved if the section factor is in the range of  $81 \text{ m}^{-1} < k_{sh} [A_m/V]_m < 190 \text{ m}^{-1}$ . For the design at 30 minutes fire exposure, an increase in fire resistance of more than 30 % can be achieved when the galvanized steel member has a section factor in the range of  $33 \text{ m}^{-1} < k_{sh} [A_m/V]_m < 64 \text{ m}^{-1}$ .



*Figure 3.2  
Maximum utilization  
for galvanized and  
non-galvanized steel  
beams exposed to fire  
on three sides*



# THERMAL ANALYSIS OF STEEL MEMBERS

Heat transfer to a steel member is predominantly by two mechanisms; radiation and convection. The member temperature is related to time via a fairly complex differential equation. However, EN 1993-1-2<sup>[8]</sup> and EN 1994-1-2<sup>[11]</sup> provide a simple heat transfer model for steel members which assumes a linear rise in temperature over a small time step. The temperature reached by a steel member at a given time in a fire can then be determined by summing the small increments in temperature  $\Delta\theta_{a,t}$  over the total time of fire exposure.

For each time interval of, say, 5 seconds, solving the simplified heat transfer equation requires one or two iterations. However, the design tables presented in Appendices A and B avoid the need for these calculations, greatly simplifying the design process.

## 4.1 Increase of temperature in steel members

For a steel section, the increase of temperature  $\Delta\theta_{a,t}$  in a small time interval  $\Delta t$  (up to 5 seconds) depends on the net amount of heat which the section acquires during this time; the increase is given by EN 1993-1-2, clause 4.2.5.1 as:

$$\Delta\theta_{a,t} = k_{sh} \frac{A_m/V}{c_a \rho_a} \dot{h}_{net} \Delta t \quad [K] \quad (4.1)$$

where:

$\dot{h}_{net}$  is the design value of net heat flux per unit area [ $\text{W/m}^2$ ]

$c_a$  is the specific heat of steel [ $\text{J/kgK}$ ]

$\rho_a$  is the density of steel [ $\text{kg/m}^3$ ]

$\frac{A_m}{V}$  is the section factor of the member, per unit length [ $\text{m}^{-1}$ ]

$k_{sh}$  is a correction factor, commonly attributed to the shadow effect of flanges

Equation (4.1) has to be solved following an iterative procedure because the specific heat  $c_a$  and the net heat flux  $\dot{h}_{net}$  are both temperature dependent.

## 4.2 Correction factor – shadow effect

The correction factor  $k_{sh}$  reduces the calculated temperature gain for sections whose flanges cause a ‘shadow effect’ on the inner perimeter areas, in order to achieve better agreement between this calculation method and test results.

For I sections under normal fire conditions:

$$k_{sh} = 0.9 \left( \frac{A_m}{V} \right)_b / \left( \frac{A_m}{V} \right) \quad (4.2)$$

Therefore,  $k_{sh} \left( \frac{A_m}{V} \right)$  in Equation (4.1) can be replaced by  $0.9 \left( \frac{A_m}{V} \right)_b$ , where  $\left( \frac{A_m}{V} \right)_b$  is the section factor for a notional box around the section.

For a section exposed to fire on four sides  $(A_m)_b = 2(h + b)$ , while for a section exposed on three sides  $(A_m)_b = 2h + b$ , where  $h$  and  $b$  are the overall height and width of the section, respectively.

For all convex shapes such as rectangular or circular hollow sections fully engulfed in fire,  $k_{sh} = 1.0$ . Therefore, for rectangular and circular hollow sections, and plate sections exposed to fire on four sides,  $k_{sh} \left( \frac{A_m}{V} \right)$  in Equation (4.1) can be replaced by  $P/A_s$ , where  $P$  is the outside perimeter of the cross-section, and  $A_s$  is the cross-sectional area.

For plate sections, since the plate thickness is considerably smaller than the plate width,  $(A_m/V)$  can be approximated by  $2/t$ , where  $t$  is the plate thickness.

For all other cases:

$$k_{sh} = \left( \frac{A_m}{V} \right)_b / \left( \frac{A_m}{V} \right) \quad (4.3)$$

and  $k_{sh} \left( \frac{A_m}{V} \right)$  in Equation (4.1) can be replaced by  $\left( \frac{A_m}{V} \right)_b$ .

## 4.3 Thermal actions - heat flux

The thermal action on a structural member is the heat flux into the member. The net heat flux  $\dot{h}_{net}$  to the surface of a member is given in EN 1991-1-2, clause 3.1<sup>[12]</sup> as the sum of the heat transfers by convection  $\dot{h}_{net,c}$  and by radiation  $\dot{h}_{net,r}$ , expressed as:

$$\dot{h}_{net} = \dot{h}_{net,c} + \dot{h}_{net,r} \quad [\text{W/m}^2] \quad (4.4)$$

The convective heat flux is calculated as:

$$\dot{h}_{net,c} = \alpha_c (\theta_g + \theta_a) \quad [\text{W/m}^2] \quad (4.5)$$

where:

$\alpha_c$  is the coefficient of heat transfer by convection, taken as  $\alpha_c = 25 \text{ [W/m}^2\text{K]}$  when the standard temperature-time curve is used

$\theta_g$  is the gas temperature in the vicinity of the fire exposed member [°C]

$\theta_a$  is the surface temperature of the member [°C]

The radiant heat flux is calculated as:

$$h_{\text{net},r} = \phi \varepsilon_m \varepsilon_f \sigma [(\theta_r + 273)^4 - (\theta_a + 273)^4] \quad [\text{W/m}^2] \quad (4.6)$$

where:

$\phi$  is the configuration factor, conservatively taken as 1.0

$\varepsilon_m$  is the surface emissivity of the member

$\sigma$  is the Stephan Boltzmann constant,  $\sigma = 5.67 \times 10^{-8} \text{ [W/m}^2\text{K}^4]$

$\varepsilon_f$  is the emissivity of the fire, which is generally taken as 1.0

$\theta_r$  is the effective radiation temperature of the fire environment, which for fully fire engulfed members may be taken as  $\theta_r = \theta_g$  [°C]

$\theta_a$  is the surface temperature of the member [°C]

## 4.4 Material properties

### 4.4.1 Thermal properties

#### Emissivity

According to EN 1993-1-2, clause 2.2, the surface emissivity of steel can be taken as 0.70 for all temperatures. Section 2 of this publication describes work over the last 20 years which has demonstrated that this value of surface emissivity is not representative of the behaviour of galvanized steel, and a value of 0.35 is more appropriate for temperatures up to 500 °C. This results in a slower increase in heat.

#### Specific heat

The specific heat of galvanized steel is the same as that of non-galvanized steel and is given in EN 1993-1-2, clause 3.4.1.2 as follows:

$$20 \text{ °C} \leq \theta_a < 600 \text{ °C}$$

$$c_a = 425 + 7.73 \times 10^{-1} \theta_a - 1.69 \times 10^{-3} \theta_a^2 + 2.22 \times 10^{-6} \theta_a^3 \quad [\text{J/kgK}]$$

$$600 \text{ °C} \leq \theta_a < 735 \text{ °C}$$

$$c_a = 666 + \frac{13002}{738 - \theta_a} \quad [\text{J/kgK}]$$

$$735 \text{ °C} \leq \theta_a < 900 \text{ °C}$$

$$c_a = 545 + \frac{17820}{\theta_a - 731} \quad [\text{J/kgK}]$$

$$900 \text{ °C} \leq \theta_a \leq 1200 \text{ °C}$$

$$c_a = 650 \quad [\text{J/kgK}]$$

### Density

The density of galvanized steel is the same as that of non-galvanized steel and is considered to be independent of the steel temperature. The value of the density given EN 1993-1-2, clause 3.2.2 is  $\rho_a = 7850 \text{ kg/m}^3$ .

### 4.4.2 Mechanical properties

Galvanized steel experiences the same reduction in strength and stiffness as a function of temperature exhibited by non-galvanized steel. This reduction is expressed by reduction factors  $k_{y,\theta}$  and  $k_{E,\theta}$ , which are given in EN 1993-1-2 and repeated below in Table 4.1.

Steel Temperature $\theta_a$	Reduction factors at temperature $\theta_a$ relative to the value of $f_y$ and $E_a$ at 20 °C	
	Reduction factor (relative to $f_y$ ) for effective yield strength $k_{y,\theta}=f_{y,\theta}/f_y$	Reduction factor (relative to $E_a$ ) for the slope of the linear elastic range $k_{E,\theta}=E_{a,\theta}/E_a$
20 °C	1.000	1.000
100 °C	1.000	1.000
200 °C	1.000	0.900
300 °C	1.000	0.800
400 °C	1.000	0.700
500 °C	0.780	0.600
600 °C	0.470	0.310
700 °C	0.230	0.130
800 °C	0.110	0.090
900 °C	0.060	0.0675
1000 °C	0.040	0.0450
1100 °C	0.020	0.0225
1200 °C	0.000	0.0000

Table 4.1  
Reduction factors  $k_{y,\theta}$   
and  $k_{E,\theta}$  for steel

NOTE: For intermediate values of the steel temperature, linear interpolation can be used.

### 4.5 Standard temperature-time curve

The standard temperature-time curve is used when the fire resistance of a structural member is given as a time duration. This temperature-time curve is given in EN-1991-1-2, clause 3.2.1, as:

$$\theta_g = 20 + 345 \log_{10}(8t + 1) \quad [\text{°C}] \quad (4.7)$$

where

$\theta_g$  is the gas temperature in the fire compartment [°C]

$t$  is the time [min]

The gas temperature obtained from the standard temperature-time curve was used to calculate the steel temperatures listed in all the tables given in Appendices A and B.



# INTRODUCTION TO THE EUROCODE DESIGN TABLES

## 5.1 General

Two sets of tables are given in Appendix A of this publication for designing galvanized steel members for the fire situation. The first set of tables (Tables A.1.1 to A.1.4) can be used to determine the fire resistance of a galvanized steel member at a fire exposure of 15 minutes or 30 minutes. These tables are in accordance with both the UK and Irish National Annexes (NAs). The second set of tables (Tables A.2.1 to A.2.5) give the maximum fire exposure of a galvanized steel member based on its degree of utilization. The fire exposure tables for beams and tension plates (Tables A.2.1 and A.2.3) are in accordance with both the UK and Irish National Annexes. However, since for columns, the UK and Irish National Annexes lead to different maximum exposures periods, separate tables are provided. The tables in A.2.4 were developed following the UK National Annex, while the tables in A.2.5 were developed following the Irish National Annex.

All the tables were developed using the standard temperature-time curve.

The tables are intended to be used for steel grades S275 and S355, which are the most popular grades used in the UK and Ireland. However, in principle, the tables can also be used for the higher grades included in EN 1993-1-2 or EN 1994-1-2.

The tables are applicable to compression and flexural members with cross-sections classified as Class 1, Class 2 or Class 3 in the fire situation, according to EN 1993-1-2, clause 4.2.2. All the beam and column sections listed in the tables meet this classification requirement for steel grade S355.

The following partial factors for resistance have been used throughout this publication for the calculation of the design resistances. These are the values given in the relevant UK and Irish National Annexes to Eurocode 3:

$$\gamma_{M0} = 1.0$$

$$\gamma_{M,fi} = 1.0$$

Appendix B gives equivalent design tables in accordance with BS 5950-8 .

## 5.2 UK and Irish National Annexes

The Eurocode tables given in Appendix A were developed satisfying the relevant UK and Irish National Annexes. These two National Annexes require different approaches for determining the critical temperature of a member, which have a direct effect on the maximum fire exposure period it can achieve. The UK NA to EN 1993-1-2 gives default values for the critical temperatures for non-composite beams, tension members and columns, based on the degree of utilization. The Irish NA to EN 1993-1-2, on the other hand, does not give equivalent values for the critical temperature, implying that these should be determined in accordance with clause 4.2.4 of EN 1993-1-2. For composite beams neither the UK NA to EN 1994-1-2 nor the Irish NA to EN 1994-1-2 give default values for the critical temperature.

For beams and tension members, the critical temperatures given in the UK NA to EN 1993-1-2 are identical to the critical temperatures obtained by following clause 4.2.4 of EN 1993-1-2. However, for columns the critical temperature given in the UK National Annex are slightly lower, leading to slightly lower fire exposure period.

## 5.3 Degree of utilization

According to EN 1993-1-2, clause 4.2.4, for members with Class 1, Class 2 or Class 3 cross-sections and for all tension members, the degree of utilization  $\mu_0$  at time  $t = 0$  may be obtained from:

$$\mu_0 = E_{fi,d}/R_{fi,d,0} \quad (5.1)$$

where:

$E_{fi,d}$  is the design effect of actions for the fire situation, according to EN 1993-1-2

$R_{fi,d,0}$  is the value of  $R_{fi,d,t}$  for time  $t = 0$

$R_{fi,d,t}$  is the corresponding design resistance in the fire design situation, at time  $t$ .

EN 1994-1-2 does not use the degree of utilization  $\mu_0$  to determine the critical temperature  $\theta_{cr}$  of steel composite members. Instead, it uses the load level for fire design  $\eta_{fi,t}$  parameter, which is defined as follows:

$$\eta_{fi,t} = E_{fi,d}/R_d \quad (5.2)$$

where  $R_d$  is the design resistance for room temperature design.

However, since for a composite beam  $\eta_{fi,t} = \mu_0$ , for consistency, this publication uses the degree of utilization  $\mu_0$  for all types of members.

For tension members, and for beams where lateral-torsional buckling is not a potential failure mode, EN 1993-1-2 gives the option of conservatively taking the degree of utilization  $\mu_0 = \eta_{fi}$ , where  $\eta_{fi}$  is the reduction factor applied to the design value of the

corresponding force or moment for normal temperature design  $E_d$  in order to obtain the design effect of actions for the fire situation  $E_{fi,d}$ . The degree of utilization is thereby given by:

$$\mu_0 = \eta_{fi} = \frac{E_{fi,d}}{E_d} \quad (5.3)$$

Equation (5.3) gives an upper bound value for the degree of utilization for the case in which  $R_d = E_d$ .

The reduction factor  $\eta_{fi}$  depends on the ratio between the characteristic value of the leading variable action and permanent action ( $Q_{k,1}/G_k$ ), the partial factors for permanent and variable actions ( $\gamma_G$  and  $\gamma_{Q,1}$ ), and combination factors ( $\psi_{fi}$ ,  $\psi_{1,1}$ , etc.). Figure 5.1 illustrates the variation of the reduction factor  $\eta_{fi}$  versus the load ratio  $Q_{k,1}/G_k$  for different values of the combination factor  $\psi_{fi} = \psi_{1,1}$  according to the load combination given by Equation (6.10) of EN 1990<sup>[14]</sup>, assuming  $\gamma_G = 1.35$  and  $\gamma_{Q,1} = 1.50$ .

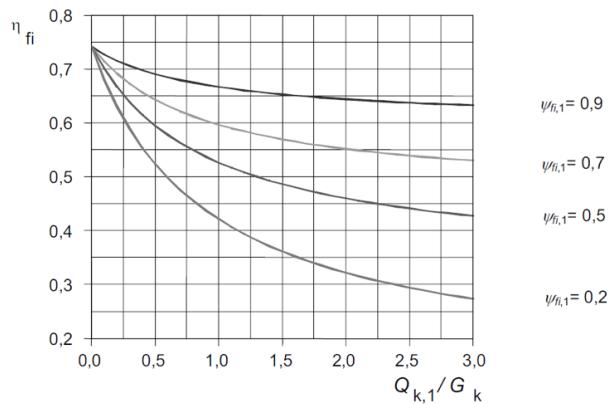


Figure 5.1  
Variation of the reduction factor  $\eta_{fi}$  with the load ratio  $Q_{k,1}/G_k$  (taken from EN 1993-1-2)

As the figure shows, for most practical situations the reduction factor  $\eta_{fi}$  does not exceed 0.7. This implies that tension members and laterally restrained beams designed for a fire situation with a degree of utilization larger than 0.7 are likely not to be able to provide sufficient resistance for normal temperature design. For this reason, the degrees of utilization given in the tables in A.1.1 for laterally restrained beams, A.1.2 for composite beams and in A.1.3 for tension plates were capped at 0.7. This is also the upper bound value for the load ratio used in BS 5950-8<sup>[13]</sup>.

For columns, the upper bound value for the degree of utilization is given by Equation (5.4).

$$\mu_0 = \eta_{fi} \frac{\chi}{\chi_{fi,20^\circ C}} = \frac{E_{fi,d}}{E_d} \frac{\chi}{\chi_{fi,20^\circ C}} \quad (5.4)$$

where:

$\chi$  is the reduction factor for flexural buckling for normal temperature design, according to EN 1993-1-1, clause 6.3.1.2

$\chi_{fi,20^\circ C}$  is the reduction factor for flexural buckling in the fire design situation, according to EN 1993-1-2, clause 4.2.3.2, at time  $t = 0$  (or  $\theta_a = 20^\circ C$ )

The ratio  $\chi/\chi_{fi,20^\circ C}$  in Equation (5.4) depends on the grade of the steel, the non-dimensional slenderness of the column, the axis of buckling and the fabrication process, and can be as large as 1.5. Therefore, columns designed for the fire situation with a degree of utilization larger than 0.7 may still be able to satisfy the ultimate limit state for normal temperature design. For this reason, the degrees of utilization given in the tables in A.1.4 for columns were not capped.

## 5.4 Fire resistance tables

Tables A.1.1-A.1.4 provide a means for easily determining the fire resistance of a galvanized steel member at 15 minutes or 30 minutes fire exposure based on the resistance at room temperature.

The tables list the temperature reached by the member at 15 minutes or 30 minutes of fire exposure. These temperatures were determined following the iterative procedure described in Section 4, where Equation (4.1) is incrementally solved for time intervals of 5 seconds, using the material properties for galvanized steel given in Section 4.4, and the appropriate correction factor of the cross-section and type of fire exposure, as given in Section 4.2.

The resistance of the galvanized steel member can be easily determined from the tables by multiplying the degree of utilization  $\mu_{0,G}$  (or  $\chi_{fi} k_{y,\theta}$  in the case of the columns) by the cross-sectional resistance of the member at room temperature.

The tables also provide (between square brackets “[ ]”) the increase in fire resistance achieved by using galvanized steel compared to non-galvanized steel, which results from the slower increase in temperature exhibited by the galvanized steel.

### 5.4.1 Beams

Tables A.1.1.1 and A.1.1.2 give the fire resistance of laterally restrained galvanized steel beams at 15 minutes and 30 minutes fire exposure. Table A.1.1.1 is used for beams exposed to fire on four sides, such as when the beam is not supporting a slab, while Table A.1.1.2 is used in the case the beam is exposed to fire on three sides, such as when the beam is supporting a concrete slab.

#### 5.4.1.1 Resistance of laterally restrained beams exposed to fire on four sides

A laterally restrained galvanized steel beam exposed to fire on four sides is considered to be subject to a uniform temperature  $\theta_a$ . For this type of member  $E_{fi,d}$  and  $R_{fi,d,0}$  can be determined as follows:

$$E_{fi,d} = M_{fi,Ed}$$

$$R_{fi,d,0} = M_{fi,20^\circ C,Rd} = k_{y,20^\circ C} M_{c,Rd} [\gamma_{M0}/\gamma_{M,fi}] = M_{c,Rd}$$

Therefore, Equation (5.1) becomes:

$$\mu_{0,G} = \frac{M_{fi,Ed}}{M_{c,Rd}} \quad (5.5)$$

where:

$M_{fi,Ed}$  is the design value of the bending moment in the fire situation,

$M_{c,Rd}$  is the design moment resistance of the cross-section for room temperature design, according to EN 1993-1-1, clause 6.2.5, or the reduced moment resistance for room temperature design, allowing for the effects of shear if necessary, according to EN 1993-1-1, clause 6.2.8,

$M_{fi,20^\circ C,Rd}$  is the design moment resistance of the cross-section in the fire situation, at time  $t = 0$ .

When the beam reaches the temperature  $\theta_a$ , the maximum design value of the bending moment the beam can resist is given by:

$$M_{fi,Ed} = M_{fi,\theta,Rd} \quad (5.6)$$

where:

$M_{fi,\theta,Rd}$  is the design moment resistance of the cross-section at the steel temperature  $\theta_a$ .

and the degree of utilization  $\mu_{0,G}$  is given as:

$$\mu_{0,G} = \frac{M_{fi,\theta,Rd}}{M_{c,Rd}} = \frac{W k_{y,\theta} f_y / \gamma_{M,fi}}{W f_y / \gamma_{M,0}} = k_{y,\theta} \quad (5.7)$$

where:

$W$  is the section modulus for bending about the relevant axis,  $W = W_{pl}$  for Class 1 and Class 2 cross-sections, and  $W = W_{el}$  for Class 3 cross-sections

$k_{y,\theta}$  is the yield strength reduction factor at the steel temperature  $\theta_a$ .

The value of  $k_{y,\theta}$  can be determined based on the steel temperature  $\theta_a$  by interpolation between the tabulated values given in EN 1993-1-2, Table 3.1, or by using EN 1993-1-2, Equation (4.22) and replacing  $\mu_0$  with  $k_{y,\theta}$ . These two approaches lead to slightly different  $k_{y,\theta}$  values. The value of the degrees of utilization  $\mu_{0,G}$  listed in the tables are based on  $k_{y,\theta}$  determined by linear interpolation using EN 1993-1-2, Table 3.1.

The design moment resistance of laterally restrained galvanized steel beams exposed to fire on all four sides at 15 minutes or 30 minutes fire exposure can then be determined based on  $\mu_{0,G}$  given in Table A.1.1.1, as:

$$M_{fi,\theta,Rd} = \mu_{0,G} M_{c,Rd} \quad (5.8)$$

### 5.4.1.2 Resistance of laterally restrained beams exposed to fire on three sides

Laterally restrained galvanized steel beams exposed to fire on three sides are considered to be subject to a non-uniform temperature  $\theta_a$ . For these types of beams, the procedure for calculating the degree of utilization  $\mu_{0,G}$  given in Table A.1.1.2 is similar to that for restrained beams with uniform temperature  $\theta_a$ , with the only exception being that when the beam reaches the temperature  $\theta_a$ :

$$M_{fi,Ed} = M_{fi,\theta,Rd} = k_{y,\theta} \frac{M_{c,Rd}}{\kappa_1 \kappa_2} [\gamma_{M0} / \gamma_{M,fi}] = k_{y,\theta} \frac{M_{c,Rd}}{\kappa_1 \kappa_2}$$

where:

- $\kappa_1$  is an adaptation factor for non-uniform temperature across the cross-section.  
For a galvanized steel beam exposed to fire on all four sides  $\kappa_1 = 1.0$ , and for a galvanized steel beam exposed to fire on three sides, with a composite or concrete slab on the other side  $\kappa_1 = 0.7$ ,
- $\kappa_2$  is an adaptation factor for non-uniform temperature along the beam. At the supports of a statically indeterminate beam  $\kappa_2 = 0.85$ , in all other cases  $\kappa_2 = 1.0$ . In the tables,  $\kappa_2 = 1.0$  was used.

and therefore  $\mu_{0,G}$  is calculated as:

$$\mu_{0,G} = \frac{k_{y,\theta}}{0.7} \quad (5.9)$$

The design moment resistance of laterally restrained galvanized steel beams exposed to fire on three sides at 15 minutes or 30 minutes fire exposure can then be determined based on  $\mu_{0,G}$  given in the tables in A.1.1.2, as:

$$M_{fi,\theta,Rd} = \mu_{0,G} M_{c,Rd} \quad (5.10)$$

### 5.4.2 Composite beams

Table A.1.2 is provided to determine the fire resistance of galvanized steel composite beams at 15 minutes and 30 minutes fire exposure. The table assumes that the composite beam comprises a steel beam without concrete encasement, and that it is simply supported and exclusively subject to sagging bending moment.

Resistance of composite beams exposed to fire on three sides

According to EN 1994-1-2, clause 4.1, beams supporting a floor are supposed to be heated only from the three lower sides, while for beams connected to slabs with profiled steel decking, a three-side fire exposure may be assumed when at least 85 % of the upper side of the steel profile is directly covered by the steel decking.

In the UK, trapezoidal decking is widely used with composite beams, in which case only around 50 % of the top flange of the steel beam is in direct contact with the decking. When this is the case, filling the voids with Rockwool, or any other material which would

prevent the spread of the fire, can be used in order to increase the contact surface to 85 %.

The degree of utilization  $\mu_{0,G}$  given in Table A.1.2 was determined by using the following expression given in EN 1994-1-2, clause 4.3.4.2.3 for fire exposure periods not exceeding R30:

$$\mu_{0,G} = \eta_{fi,t} = \frac{f_{y,\theta}}{0.9f_y} = \frac{k_{y,\theta}f_y}{0.9f_y} = \frac{k_{y,\theta}}{0.9} \quad (5.11)$$

where the factor 0.9 accounts for the non-uniform heating in the steel section supporting a composite slab for short fire resistance times.

The design moment resistance of galvanized steel composite beams at 15 minutes or 30 minutes fire exposure can then be determined based on  $\mu_{0,G}$  given in Table A.1.2, as:

$$M_{fi,\theta,Rd} = \mu_{0,G} M_{Rd} \quad (5.12)$$

where

$M_{Rd}$  is the design value of the resistance moment of a composite section for room temperature design, according to EN 1994-1-1.

### 5.4.3 Plates in tension

Galvanized steel plates are considered to be subject to a uniform temperature  $\theta_a$ , and  $E_{fi,d}$  and  $R_{fi,d,0}$  can be determined as follows:

$$E_{fi,d} = N_{fi,Ed}$$

$$R_{fi,d,0} = N_{fi,20^\circ\text{C},Rd} = k_{y,20^\circ\text{C}} N_{t,Rd} [\gamma_{M0}/\gamma_{M,fi}] = N_{t,Rd}$$

Therefore, the degree of utilization  $\mu_{0,G}$  is given by:

$$\mu_0 = \frac{N_{fi,Ed}}{N_{t,Rd}} \quad (5.13)$$

where:

$N_{fi,Ed}$  is the design value of the tension force in the fire situation

$N_{t,Rd}$  is the design tension resistance of the cross-section for room temperature design, according to EN 1993-1-1, clause 6.2.3.

When the tension plate reaches the temperature  $\theta_a$ , the maximum design value of the tension force the plate can resist is given by:

$$N_{fi,Ed} = N_{fi,\theta,Rd} \quad (5.14)$$

where:

$N_{fi,\theta,Rd}$  is the design resistance of the tension member at the steel temperature  $\theta_a$ .

and the degree of utilization  $\mu_{0,G}$  is given as:

$$\mu_0 = \frac{N_{\text{fi},\theta,\text{Rd}}}{N_{\text{t,Rd}}} = \frac{A k_{y,\theta} f_y / \gamma_{M,\text{fi}}}{A f_y / \gamma_{M,0}} = k_{y,\theta} \quad (5.15)$$

where:

$k_{y,\theta}$  is the yield strength reduction factor at the steel temperature  $\theta_a$ .

The value of  $k_{y,\theta}$  can be determined based on the steel temperature  $\theta_a$  by interpolation between the tabulated values given in EN 1993-1-2, Table 3.1, or by using EN 1993-1-2, Equation (4.22) and replacing  $\mu_0$  with  $k_{y,\theta}$ , leading to slightly different  $k_{y,\theta}$  values depending on which approach is used. The value of the degrees of utilization  $\mu_{0,G}$  listed in the tables, are based on  $k_{y,\theta}$  determined by linear interpolation using EN 1993-1-2, Table 3.1.

The design tension resistance of galvanized steel plates at 15 minutes or 30 minutes fire exposure can then be determined based on  $\mu_{0,G}$  given in Tables A.1.3, as:

$$N_{\text{fi},\theta,\text{Rd}} = \mu_{0,G} N_{\text{t,Rd}} \quad (5.16)$$

#### 5.4.4 Columns

The tables in A.1.4 enable the determination of the fire resistance of galvanized steel columns at 15 minutes and 30 minutes fire exposure, based on their non-dimensional slenderness at room temperature. The values for  $\chi_{\text{fi}} k_{y,\theta}$  given in the tables were derived assuming a steel grade S355. However, they are also applicable to columns in steel grade S275.

##### 5.4.4.1 Resistance of columns at 15 and 30 minutes fire exposure

Steel columns are considered to be exposed to fire on all four sides, and therefore subject to a uniform temperature  $\theta_a$ .

The tables give  $\chi_{\text{fi}} k_{y,\theta}$  as a function of the steel temperature  $\theta_a$  and the non-dimensional slenderness at room temperature  $\bar{\lambda}$ . The reason for providing  $\chi_{\text{fi}} k_{y,\theta}$ , as opposed to the degree of utilization  $\mu_{0,G}$  is because for a column susceptible to global buckling:

$$E_{\text{fi,d}} = N_{\text{fi,Ed}}$$

$$R_{\text{fi,d},0} = N_{\text{b,fi},20^\circ\text{C},\text{Rd}} = \chi_{\text{fi},20^\circ\text{C}} A k_{y,20^\circ\text{C}} f_y / \gamma_{M,\text{fi}}$$

$$R_{\text{fi,d},0} = \chi_{\text{fi},20^\circ\text{C}} k_{y,20^\circ\text{C}} N_{\text{c,Rd}} [\gamma_{M0} / \gamma_{M,\text{fi}}] = \chi_{\text{fi},20^\circ\text{C}} N_{\text{c,Rd}}$$

and therefore, the degree of utilization  $\mu_{0,G}$  is given by:

$$\mu_{0,G} = \frac{N_{\text{fi,Ed}}}{\chi_{\text{fi},20^\circ\text{C}} N_{\text{c,Rd}}} \quad (5.17)$$

where:

$N_{\text{fi,Ed}}$  is the design value of the compression axial force in the fire situation,

$N_{c,Rd}$  is the design compression resistance of the cross-section for room temperature design, according to EN 1993-1-1, clause 6.2.4,

$N_{b,fi,20^\circ\text{C},Rd}$  is the design buckling resistance of the compression member in the fire situation, at time  $t = 0$ ,

$\chi_{fi,20^\circ\text{C}}$  is the reduction factor for flexural buckling in the fire design situation, according to EN 1993-1-2, clause 4.2.3.2, at time  $t = 0$  (or  $\theta_a = 20^\circ\text{C}$ )

Therefore, by providing  $\chi_{fi}k_{y,\theta}$  in the tables in A.1.4 the user avoids having to calculate  $\chi_{fi,20^\circ\text{C}}$ , and the design buckling resistance of the galvanized steel column at 15 minutes or 30 minutes fire exposure can be determined simply by knowing the design compression resistance of the cross-section at room temperature, as:

$$N_{fi,\theta,Rd} = \chi_{fi}k_{y,\theta}N_{c,Rd} \quad (5.18)$$

## 5.5 Fire exposure tables

Tables A.2.1 to A.2.5 give the maximum fire exposure period of galvanized steel members based on their degree of utilization  $\mu_{0,G}$ . For galvanized steel columns (Tables A.2.4 and A.2.5), the non-dimensional slenderness at room temperature is also required in order to determine the maximum fire exposure period. The tables also provide (between square brackets "[ ]") the increase in fire exposure achieved by using galvanized steel compared to non-galvanized steel, as a result of the slower increase in temperature exhibited by the galvanized steel.

The maximum fire exposure periods given in the tables are directly related to the critical temperature of the member,  $\theta_{cr}$ , which for Class 1, Class 2 or Class 3 cross-sections and for all tension members can be determined in accordance with clause 4.2.4(3) of EN 1993-1-2. When this approach is followed, first the yield strength reduction factor  $k_{y,\theta_{cr}}$  at the critical temperature  $\theta_{cr}$ , has to be calculated based on the degree of utilization  $\mu_{0,G}$ . EN 1994-1-2 includes a similar clause (clause 4.3.4.2.3(3)) for determining the critical temperature of a composite beam. The relationship between  $k_{y,\theta_{cr}}$  and  $\mu_{0,G}$  can be obtained by replacing  $\theta_a$  with  $\theta_{cr}$  in:

- Section 5.4.1.1 for beams exposed to fire on four sides,
- Section 5.4.1.2 for beams exposed to fire on three sides,
- Section 5.4.2 for composite beams,
- Section 5.4.3 for tension plates.

For non-composite beams and tension plates, the approach given by clause 4.2.4(3) of EN 1993-1-2 leads to the same critical temperatures given in the UK NA to EN 1993-1-2. Therefore, for these members, the fire exposure tables (Tables A.2.1 and A.2.3) are in accordance with both the UK and Irish NAs to EN 1993-1-2. The fire exposure table for composite beams (Table A.2.2) was developed following the approach given in clause 4.3.4.2.3(3) of EN 1994-1-2. Since neither the UK nor the

Irish NA to EN 1994-1-2 gives default values of the critical temperatures for composite beams, Table A.2.2 is also in accordance with both the UK and Irish National Annexes to Eurocode.

For columns, since the critical temperatures given in the UK NA to EN 1993-1-2 are slightly lower than those obtained by following the approach given by clause 4.2.4(3) of EN 1993-1-2, separate tables were developed to satisfy the UK and Irish National Annexes. The tables in A.2.4 were developed adopting the critical temperatures given in the UK NA to EN 1993-1-2, while the tables in A.2.5, were developed to satisfy the Irish National Annex, which does not give any default value for the critical temperatures, and therefore requires the critical temperatures to be determined in accordance with clause 4.2.4(3) of EN 1993-1-2.

According to clause 4.2.4(3) of EN 1993-1-2, the critical temperature can be determined after calculating the yield strength reduction factor  $k_{y,\theta_{cr}}$  at the critical temperature  $\theta_{cr}$ , based on the degree of utilization  $\mu_{0,G}$ . The relationship between  $k_{y,\theta_{cr}}$  and  $\mu_{0,G}$  can be determined from Equation (5.17) by replacing  $N_{fi,Ed}$  with  $N_{b,fi,\theta_{cr},Rd}$ , which is the design buckling resistance of the compression member at the critical temperature  $\theta_{cr}$ . Therefore, Equation (5.17) can be rewritten as:

$$\mu_0 = \frac{N_{b,fi,\theta_{cr},Rd}}{\chi_{fi,20^\circ C} N_{c,Rd}} = \frac{\chi_{fi,\theta_{cr}} A k_{y,\theta_{cr}} f_y / \gamma_{M,fi}}{\chi_{fi,20^\circ C} A f_y / \gamma_{M,0}} = \frac{\chi_{fi,\theta_{cr}} k_{y,\theta_{cr}}}{\chi_{fi,20^\circ C}} \quad (5.19)$$

where:

$\chi_{fi,20^\circ C}$  is the reduction factor for flexural buckling in the fire design situation, according to EN 1993-1-2, clause 4.2.3.2, at time  $t = 0$  (or  $\theta_a = 20^\circ C$ )

$\chi_{fi,\theta_{cr}}$  is the reduction factor for flexural buckling in the fire design situation, according to EN 1993-1-2, clause 4.2.3.2, at the critical temperature  $\theta_{cr}$ .

Calculating  $k_{y,\theta_{cr}}$  from Equation (5.19) requires an iterative procedure because both  $\chi_{fi,\theta_{cr}}$  and  $k_{y,\theta_{cr}}$  are temperature dependent. The critical temperature  $\theta_{cr}$  of the member can then be determined based on  $k_{y,\theta_{cr}}$  by interpolation between the tabulated values given in EN 1993-1-2, Table 3.1.

Once the critical temperature of the member is calculated, the time it takes the member to reach the critical temperature is determined following the iterative procedure described in Section 4, where Equation (4.1) is incrementally solved for time intervals of 5 seconds, using the material properties for galvanized steel given in Section 4.4, and the appropriate correction factor of the cross-section and type of fire exposure, as given in Section 4.2.





# WORKED EXAMPLES

## Design Example 1 - Composite beam in a car park

Consider a simply supported galvanized steel composite beam which is used as a secondary beam in an open sided multi-storey car park located in Sheffield, UK. The structure has a total height of 20 m. The composite beam consists of a UB 533x165x66 section, in steel grade S355 supporting a solid concrete slab with strength class C25/30, a depth  $h_c = 130$  mm and an effective width  $b_{\text{eff}} = 3600$  mm. The steel beam has enough shear studs to assume a full shear connection with the concrete slab. Determine the sagging moment resistance in the fire situation for the appropriate fire exposure period assuming that vertical shear is sufficiently low so that no reduction to the moment resistance of the beam is required. Compare the results obtained with a similar composite beam of the same dimensions and strength but made of non-galvanized steel.

### SOLUTION:

According to the UK Building Regulations<sup>[15]</sup>, an open sided multi-storey car park with a height of 20 m should be designed for a minimum period of fire resistance of 15 minutes.

Approved Document B, Table B4

The relevant cross-sectional properties of a UB 533x165x66 are:

- Depth,  $h = 524.7$  mm
- Width,  $b = 165.1$  mm
- Web thickness,  $t_w = 8.9$  mm
- Flange thickness,  $t_f = 11.4$  mm
- Root radius,  $r = 12.7$  mm
- Cross-sectional area,  $A_a = 8370 \text{ mm}^2$

### Verification of the fire resistance of the galvanized composite beam

For a hot rolled structural steel section S355 with thickness of less than 40 mm,  $f_y = 355$  MPa.

EN 1993-1-1, Table 3.1

A UB 533x165x66 steel beam of grade S355 is classified as Class 2 in the fire situation. Therefore, the resistance of the composite beam in the fire situation can be determined using the tables given in this publication.

EN 1993-1-2, clause 4.2.2

At room temperature, the UB 533x165x66 steel beam is classified as Class 1. Therefore, the design bending resistance of the composite cross-section is given by the plastic moment resistance,  $M_{\text{pl,Rd}}$ . That is:

EN 1993-1-1, clause 5.5

$$M_{\text{Rd}} = M_{\text{pl,Rd}}$$

The design strength of the concrete is given by:

$$f_{\text{cd}} = \frac{f_{\text{ck}}}{\gamma_c}$$

EN 1994-1-1, clause 2.4.1.2(2)

where:

$\gamma_c$  is the partial factor for concrete = 1.5 for persistent and transient design situations EN 1992-1-1, Table 2.1N

$f_{ck}$  is the characteristic value of the cylinder compressive strength of concrete at 28 day. For a strength class 25/30,  $f_{ck} = 25$  MPa EN 1992-1-1, Table 3.1

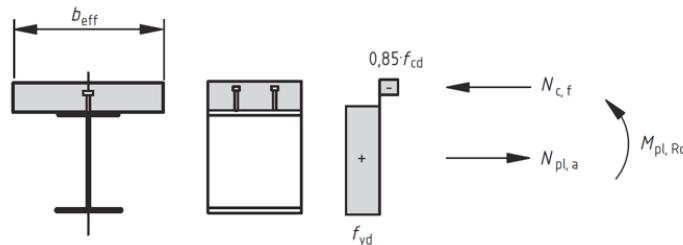
Therefore:

$$f_{cd} = \frac{25}{1.5} = 16.67 \text{ MPa}$$

Assuming that the plastic neutral axis of the composite beam lies within the concrete slab, the position of the neutral axis with respect to the top surface of the concrete slab is given by:

$$x_p = \frac{f_y A_a}{0.85 f_{cd} b_{eff}} = \frac{355 \times 8370}{0.85 \times 16.67 \times 3600} = 58.26 \text{ mm}$$

Since  $x_p < h_c = 130$  mm, the initial assumption regarding the position of the plastic neutral axis is correct, and therefore, the design moment resistance of the composite beam can be determined considering the following plastic stress distribution in the composite beam:



EN 1994-1-1,  
Figure 6.2

where  $N_{pl,a}$  is the design value of the plastic resistance of the structural steel section to normal force, given by:

$$N_{pl,a} = f_y A_a = 355 \times 8370 \times 10^{-3} = 2971 \text{ kN}$$

Taking moment with respect to the line of action of the design compressive normal force in the concrete flange,  $N_{c,f}$ , the design moment resistance of the composite section,  $M_{Rd}$ , at room temperature is given by:

$$M_{Rd} = M_{pl,Rd} = N_{pl,a} \left( \frac{h}{2} + h_c - \frac{x_{pl}}{2} \right)$$

$$M_{Rd} = 2971 \times \left( \frac{524.7}{2} + 130 - \frac{58.26}{2} \right) \times 10^{-3} = 1079 \text{ kNm}$$

The temperature a galvanized steel beam reaches after 15 minutes of fire exposure can be estimated by iteratively solving the following equation with a maximum time increment  $\Delta_t = 5$  seconds, and summing the increase of temperature for each  $\Delta_t$ , as described in Section 4.1.

$$\Delta\theta_{a,t} = k_{sh} \frac{A_m/V}{c_a \rho_a} \dot{h}_{net} \Delta t \quad \text{EN 1993-1-2, Eq. 4.25}$$

The section factor (including the shadow effect),  $k_{sh} \frac{A_m}{V}$ , for a UB 533x165x66 steel beam exposed to fire on three sides is given by:

$$k_{sh} \frac{A_m}{V} = 0.9 \left( \frac{A_m}{V} \right)_b = 0.9 \frac{2h + b}{A_s}$$

$$k_{sh} \frac{A_m}{V} = 0.9 \times \frac{2 \times 524.7 + 165.1}{8.37} = 131 \text{ m}^{-1}$$

The specific heat of the steel,  $c_a$ , and the density of the steel,  $\rho_a$ , are given in Section 4.4.1.

The procedure for calculating the net heat flux,  $\dot{h}_{net}$ , is explained in Section 4.3. Note that for galvanized steel the surface emissivity is taken as 0.35 for  $\theta_a \leq 500^\circ\text{C}$ , and 0.70 for  $\theta_a > 500^\circ\text{C}$ . Calculation of the net heat flux also requires knowing the gas temperature  $\theta_{g,t}$ , which is obtained from the standard temperature-time curve given by Equation (4.7) for each time increment.

The temperature of the galvanized steel beam  $\theta_{a,t}$  and the gas temperature  $\theta_{g,t}$  are given below:

Time increment	Time [s]	$\theta_{g,t}$ [ $^\circ\text{C}$ ]	$\theta_{a,t}$ [ $^\circ\text{C}$ ]
0	0	20	20
1	5	96.54	20.40
2	10	146.95	21.08
...	...	...	...
180	900	738.56	529.41

After 180 time increments, the steel temperature  $\theta_a$  at  $t = 900 \text{ s}$  (15 minutes) is found to be  $529^\circ\text{C}$ , which coincides with the steel temperature given in Table A.1.2 for a galvanized UB 533x165x66 composite beam exposed to fire for 15 minutes.

The design moment resistance of the composite beam at the steel temperature  $\theta_a = 529^\circ\text{C}$  is given as:

$$M_{fi,\theta,Rd} = k_{y,\theta} \frac{M_{Rd}}{0.9}$$

where  $k_{y,\theta}$  at  $\theta_a = 529^\circ\text{C}$  can be obtained by interpolation from Table 3.1 of EN 1993-1-2 (or Table 4.1 of this publication), giving  $k_{y,\theta} = 0.689$ , and therefore:

$$M_{fi,\theta,Rd} = 0.689 \frac{1079}{0.90} = 826.0 \text{ kNm}$$

Note that if the composite beam was to be designed to resist a design bending moment in the fire situation,  $M_{fi,Ed} = 826.0 \text{ kNm}$ , the minimum bending moment the composite beam would have to be able to resist at room temperature is given by:

$$M_{Ed} = \frac{M_{fi,Ed}}{0.70} = \frac{826.0}{0.70} = 1180 \text{ kNm}$$

EN 1993-1-2,  
Eq. 4.26a and  
Table 4.2

EN 1993-1-2,  
clause 3.4.1.2  
and 3.2.2

EN 1991-1-2,  
clause 3.1

EN 1991-1-2,  
Eq. 3.4

which is larger than  $M_{Rd} = 1079 \text{ kNm}$ , and therefore the composite beam would fail at room temperature. The maximum design bending moment the composite beam can resist in the fire situation in order to satisfy the ultimate limit state at both room temperature and in fire is given by:

$$M_{fi,Ed} = 0.70M_{Rd} = 0.70 \times 1079 = 755.3 \text{ kNm}$$

Table A.1.2 provides a simpler way of determining the maximum design bending moment the composite beam can resist in the fire situation. For a composite beam UB 533x165x66 exposed to fire for 15 minutes, Table A.1.2 gives a degree of utilization  $\mu_{0,G} > 0.70$ . Taking  $\mu_{0,G} = 0.70$ , the design moment resistance in the fire situation can be determined using Equation (5.12), as:

$$M_{fi,\theta,Rd} = 0.70 \times 1079 = 755.3 \text{ kNm}$$

which coincides with the maximum design bending moment the beam can resist in fire in order to also satisfy the ultimate limit state at room temperature.

#### Verification of the fire resistance of the non-galvanized beam

The same calculation process can be used to determine the design moment resistance  $M_{fi,\theta,Rd}$  at time  $t = 900 \text{ s}$  of an identical beam, but non-galvanized, with the only difference being that the emissivity factor to be used in the calculation of the steel temperature is  $\varepsilon_m = 0.70$ , leading to a steel temperature  $\theta_a = 621^\circ\text{C}$ , and a corresponding  $k_{y,\theta} = 0.420$ , which results in:

$$M_{fi,\theta,Rd} = 0.420 \frac{1079}{0.90} = 503.5 \text{ kNm}$$

This is in agreement with the value that can be obtained from the fourth column of Table A.1.2, where the degree of utilization  $\mu_0$  for non-galvanized steel can be determined from:

$$50 = 100 \times \frac{0.70 - \mu_0}{\mu_0}$$

$$\mu_0 = 0.467$$

and therefore,

$$M_{fi,\theta,cr,Rd} = 0.467 \times 1079 = 503.9 \text{ kNm}$$

#### OUTCOME:

This example shows that the galvanized steel beam is able to carry 50 % more load in the fire situation than the non-galvanized steel beam. If the non-galvanized steel beam was unable to carry the design load in fire, replacing it with the galvanized steel beam would avoid additional cost associated with providing fire protection or increasing the cross-section size.

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### Design Example 2 – Slender column in a car park

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Consider a 3.55 m long hot finished CHS 193.7x10 galvanized steel column in grade S355, located at ground level of a multi-storey car park, which consists of a braced frame. The car park is located in Birmingham, UK. An effective length factor of 0.70 at room temperature is considered appropriate for the column, which is subject to a compression load of  $N_{f,Ed} = 1000$  kN in the fire situation. Verify that the column meets the R15 fire resistance requirements, and compare the results obtained with a non-galvanized column of identical dimensions and strength.

#### SOLUTION:

The relevant cross-sectional properties of a CHS 193.7x10 column are:

- Outside diameter,  $D = 193.7$  mm
- Thickness,  $t = 10$  mm
- Cross-sectional area,  $A = 5771$  mm<sup>2</sup>
- Second moment of area,  $I = 2440 \times 104$  mm<sup>4</sup>
- Radius of gyration,  $i = 65.0$  mm

#### Verification of the fire exposure period of the galvanized column

A CHS 193.7x10 steel column of grade S355 is classified as Class 1 in the fire situation. Therefore, the resistance of the maximum fire exposure of the column can be determined using the tables given in this publication.

EN 1993-1-2,  
clause 4.2.2

The degree of utilization of a column is given by:

$$\mu_0 = N_{f,d}/N_{b,f,0,Rd}$$

where  $N_{b,f,0,Rd}$  is the design buckling resistance of the compression member at time  $t = 0$  given by:

EN 1993-1-2,  
clause 4.2.4

EN 1993-1-2,  
clause 4.2.3.2

$$N_{b,f,0,Rd} = \frac{\chi_{fi} k_{y,0} f_y A}{\gamma_{M,fi}}$$

$$\chi_{fi} = \frac{1}{\varphi_\theta + \sqrt{\varphi_\theta^2 - \bar{\lambda}_\theta^2}}$$

$$\varphi_\theta = \frac{1}{2} [1 + \alpha \bar{\lambda}_\theta + \bar{\lambda}_\theta^2]$$

$$\alpha = 0.65 \sqrt{235/f_y}$$

$$\bar{\lambda}_\theta = \bar{\lambda} [k_{y,0}/k_{E,0}]^{0.5}$$

$$\bar{\lambda} = \frac{L_{cr}}{i} \frac{1}{\pi} \sqrt{\frac{f_y}{E}}$$

where:

$f_y$  is the yield stress = 355 MPa,

$E$  is the elastic modulus of the steel = 210000 N/mm<sup>2</sup>,

$k_{y,0}$  is the strength reduction factor at time  $t = 0$ ,  $k_{y,0} = 1.00$ ,

$k_{E,0}$  is the stiffness reduction factor at time  $t = 0$ ,  $k_{E,0} = 1.00$ ,

$\gamma_{M,fi}$  is the partial safety factor for the fire situation = 1.00.

$L_{cr}$  is the effective length against flexural buckling

$$L_{cr} = 0.70 \times 3550 = 2485 \text{ mm}$$

Therefore:

$$\bar{\lambda} = \frac{2485.1}{65.0 \pi} \sqrt{\frac{355}{210000}} = 0.500$$

$$\bar{\lambda}_0 = \bar{\lambda}[1.0/1.0]^{0.5} = \bar{\lambda} = 0.500$$

$$\alpha = 0.65\sqrt{235/355} = 0.528$$

$$\varphi_0 = \frac{1}{2}[1 + 0.528 \cdot 0.500 + 0.50^2] = 0.757$$

$$\chi_{fi} = \frac{1}{0.757 + \sqrt{0.757^2 - 0.500^2}} = 0.755$$

$$N_{b,fi,0,Rd} = \frac{0.755 \times 355 \times 5771}{1.0} \times 10^{-3} = 1547 \text{ kN}$$

The degree of utilization of the column is therefore:

$$\mu_0 = 1000/1547 = 0.65$$

The critical temperature  $\theta_{cr}$  of a column with a non-dimensional slenderness  $\bar{\lambda} = 0.500$  and a degree of utilization  $\mu_0 = 0.65$  can be determined from the UK NA to EN 1993-1-2, Table NA.1 by interpolation, giving:

$$\theta_{cr} = 500 \text{ }^\circ\text{C}$$

The time it takes for a galvanized steel column to reach  $\theta_{cr}$  can be determined by iteratively solving Equation (4.1) with a maximum time increment  $\Delta t = 5$  seconds, and summing the increase of temperature for each  $\Delta t$ , as described in Section 4.1.

UK NA to EN  
1993-1-2,  
Table NA.1

EN 1993-1-2,  
Eq. 4.25

For a CHS 193.7x10 column exposed to fire from all sides, the correction factor section factor  $k_{sh}=1.0$ , and the section factor,  $A_m/V$ , is given by:

$$\frac{A_m}{V} = \frac{D}{Dt - t^2} = \frac{193.7}{193.7 \times 10 - 10^2} \times 10^3 = 105 \text{ m}^{-1}$$

Following the procedure described in Section 4.1, the time at which the galvanized steel column considered in this example reaches a temperature of 500 °C is  $t = 16$  minutes, which is larger than the 15 minutes required.

The tables in Appendix A provide a simpler way of verifying if the galvanized steel column can meet the R15 fire requirements, based on the degree of utilization and the non-dimensional slenderness of the column. In this example,  $\mu_0 = 0.65$  and  $\bar{\lambda} = 0.500$ . Therefore, interpolating between Table A.2.4.1.2 for galvanized steel columns with a non-dimensional slenderness  $\bar{\lambda} = 0.4$  and Table A.2.4.2.2 for galvanized steel columns with a non-dimensional slenderness  $\bar{\lambda} = 0.6$  shows that for a CHS 193.7x10 column the maximum fire exposure  $t$  is:

$$t = \frac{(16 + 17 + 15 + 17)}{4} = 16 \text{ minutes}$$

which is the same result obtained previously using the iterative procedure.

#### **Verification of the fire exposure period of the non-galvanized column**

Since the critical temperature of a steel member does not depend on whether it is galvanized or non-galvanized, if the galvanized column in this example were to be replaced with an identical, but non-galvanized, column, the critical temperature of the column would still be  $\theta_{cr}=500\text{ }^{\circ}\text{C}$ . The only difference between the two columns is that the temperature of the non-galvanized column increases at a faster rate due to its higher emissivity factor, which leads to a shorter maximum fire exposure.

Following the same iterative procedure used for the galvanized column but using the emissivity factor corresponding to non-galvanized steel ( $\varepsilon_m=0.70$ ), the time at which the non-galvanized column reaches a temperature of  $500\text{ }^{\circ}\text{C}$  is calculated to be  $t = 13$  minutes, which does not meet the R15 fire resistance requirement.

A similar result can be obtained using the tables included in Appendix A, knowing that  $\mu_0 = 0.65$ ,  $\bar{\lambda} = 0.500$  and the cross-section of the column is a CHS 193.7x10. For a non-galvanized column, the maximum time exposure can be determined from the maximum time exposure of the equivalent galvanized column by subtracting the increase in time exposure given between brackets. Therefore, by interpolating the values obtained from Table A.2.4.1.2 for galvanized steel columns with a non-dimensional slenderness  $\bar{\lambda} = 0.4$  and Table A.2.4.2.2 for galvanized steel columns with a non-dimensional slenderness  $\bar{\lambda} = 0.6$  the maximum fire exposure  $t$  of a non-galvanized steel CHS 193.7x10 column is found to be:

$$t = \frac{[(16 - 4) + (17 - 4) + (15 - 4) + (17 - 4)]}{4}$$
$$t = 12.3 \text{ minutes}$$

#### **OUTCOME:**

If the column were constructed of non-galvanized steel, either a heavier CHS section would be required or the column would need fire protection.



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# APPENDIX A

## EUROCODE DESIGN TABLES

For the purposes of the design tables, the term ‘galvanized steel’ refers to batch galvanizing to EN ISO 1461. The design guidance is only applicable to this coating type.

The section range covered by the tables is aligned with the current version of the ArcelorMittal Orange Book <https://orangebook.arcelormittal.com/> for the UB and UC sections and the Tata Steel Blue Book <https://www.steelforlifebluebook.co.uk/> for the tubular sections. However, since the tables are applicable to compression and flexural members with a cross-section classified as Class 1, Class 2 or Class 3 in the fire situation, all the sections that do not meet this requirement for steel grade S355 were excluded from the tables. For columns, all sections that are not able to achieve a fire exposure period of 15 minutes for a degree of utilisation of 0.4 were also excluded.

For completeness, data for a wide range of steel sections have been included in these design tables. Consistent with the normal principles of design of steel structures for galvanizing to EN ISO 1461, consideration should be given to the dimensions of the section or fabrication and the available galvanizing bath sizes and/or lifting capacity. See <https://www.galvanizing.org.uk/design-for-galvanizing/size-and-shape/> for further information.

For compression members (columns), since the critical temperatures given in the UK NA to EN 1993-1-2 are slightly lower than those obtained by following the approach given by clause 4.2.4(3) of EN 1993-1-2, separate fire exposure tables are presented to satisfy the UK and Irish National Annexes. Tables A.2.4 reflect critical temperatures given in the UK NA to EN 1993-1-2, while Tables A.2.5 satisfy the Irish National Annex, which does not give any default value for the critical temperatures, and therefore requires the critical temperatures to be determined in accordance with clause 4.2.4(3) of EN 1993-1-2.

### A.1 Fire resistance tables according to Eurocode 3

#### A.1.1 Beams

Table A.1.1.1	Galvanized steel beams exposed to fire on four sides
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Table A.1.1.2	Galvanized steel beams exposed to fire on three sides
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## A.1.2 Composite beams

Table A.1.2	Galvanized steel composite beams
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## A.1.3 Plates in tension

Table A.1.3	Galvanized steel tension plates
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## A.1.4 Compression members

Universal columns
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Table A.1.4.1.1	Galvanized steel column exposed to fire for 15 minutes
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Table A.1.4.1.2	Galvanized steel column exposed to fire for 30 minutes
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Circular hollow sections
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Table A.1.4.2.1	Galvanized steel column exposed to fire for 15 minutes
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Table A.1.4.2.2	Galvanized steel column exposed to fire for 30 minutes
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Square hollow sections
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Table A.1.4.3.1	Galvanized steel column exposed to fire for 15 minutes
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Table A.1.4.3.2	Galvanized steel column exposed to fire for 30 minutes
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Rectangular hollow sections
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Table A.1.4.4.1	Galvanized steel column exposed to fire for 15 minutes
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Table A.1.4.4.2	Galvanized steel column exposed to fire for 30 minutes
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## A.2 Fire exposure tables according to Eurocode 3

### A.2.1 Beams

Table A.2.1.1	Galvanized steel beams exposed to fire on four sides
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Table A.2.1.2	Galvanized steel beams exposed to fire on three sides
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### A.2.2 Composite beams

Table A.2.2	Galvanized steel composite beams
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### A.2.3 Plates in tension

Table A.2.3	Galvanized steel tension plates
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## A.2.4 Compression members (UK NA)

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 0.4$

Table A.2.4.1.1 Universal columns

Table A.2.4.1.2 Circular hollow sections

Table A.2.4.1.3 Square hollow sections

Table A.2.4.1.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 0.6$

Table A.2.4.2.1 Universal columns

Table A.2.4.2.2 Circular hollow sections

Table A.2.4.2.3 Square hollow sections

Table A.2.4.2.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 0.8$

Table A.2.4.3.1 Universal columns

Table A.2.4.3.2 Circular hollow sections

Table A.2.4.3.3 Square hollow sections

Table A.2.4.3.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.0$

Table A.2.4.4.1 Universal columns

Table A.2.4.4.2 Circular hollow sections

Table A.2.4.4.3 Square hollow sections

Table A.2.4.4.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.2$

Table A.2.4.5.1 Universal columns

Table A.2.4.5.2 Circular hollow sections

Table A.2.4.5.3 Square hollow sections

Table A.2.4.5.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.4$

Table A.2.4.6.1 Universal columns

Table A.2.4.6.2 Circular hollow sections

Table A.2.4.6.3 Square hollow sections

Table A.2.4.6.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.6$

Table A.2.4.7.1 Universal columns

Table A.2.4.7.2 Circular hollow sections

Table A.2.4.7.3 Square hollow sections

Table A.2.4.7.4 Rectangular hollow sections

## A.2.5 Compression members (Irish NA)

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 0.4$

Table A.2.5.1.1 Universal columns

Table A.2.5.1.2 Circular hollow sections

Table A.2.5.1.3 Square hollow sections

Table A.2.5.1.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 0.6$

Table A.2.5.2.1 Universal columns

Table A.2.5.2.2 Circular hollow sections

Table A.2.5.2.3 Square hollow sections

Table A.2.5.2.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 0.8$

Table A.2.5.3.1 Universal columns

Table A.2.5.3.2 Circular hollow sections

Table A.2.5.3.3 Square hollow sections

Table A.2.5.3.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.0$

Table A.2.5.4.1 Universal columns

Table A.2.5.4.2 Circular hollow sections

Table A.2.5.4.3 Square hollow sections

Table A.2.5.4.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.2$

Table A.2.5.5.1 Universal columns

Table A.2.5.5.2 Circular hollow sections

Table A.2.5.5.3 Square hollow sections

Table A.2.5.5.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.4$

Table A.2.5.6.1 Universal columns

Table A.2.5.6.2 Circular hollow sections

Table A.2.5.6.3 Square hollow sections

Table A.2.5.6.4 Rectangular hollow sections

Galvanized steel columns with non-dimensional slenderness  $\bar{\lambda} = 1.6$

Table A.2.5.7.1 Universal columns

Table A.2.5.7.2 Circular hollow sections

Table A.2.5.7.3 Square hollow sections

Table A.2.5.7.4 Rectangular hollow sections



**Table A.1.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
1100x400x607	223	>0.70	0	463	>0.70	54	
1100x400x548	239	>0.70	0	490	>0.70	78	
1100x400x499	255	>0.70	0	527	0.696	105	
1100x400x433	281	>0.70	0	588	0.508	92	
1100x400x390	301	>0.70	0	627	0.404	80	
1100x400x343	328	>0.70	0	672	0.297	47	
1016x305x584	210	>0.70	0	441	>0.70	34	
1016x305x494	235	>0.70	0	484	>0.70	71	
1016x305x438	255	>0.70	0	529	0.689	105	
1016x305x415	264	>0.70	0	551	0.622	101	
1016x305x393	274	>0.70	0	575	0.549	95	
1016x305x350	297	>0.70	0	621	0.420	84	
1016x305x314	319	>0.70	0	658	0.330	58	
1016x305x272	350	>0.70	0	700	0.231	20	
1016x305x249	370	>0.70	0	718	0.208	11	
1016x305x222	396	>0.70	0	732	0.192	7	
1000x400x976	155	>0.70	0	334	>0.70	0	
1000x400x883	165	>0.70	0	356	>0.70	0	
1000x400x748	185	>0.70	0	394	>0.70	4	
1000x400x642	205	>0.70	0	432	>0.70	27	
1000x400x591	217	>0.70	0	453	>0.70	45	
1000x400x554	227	>0.70	0	470	>0.70	59	
1000x400x539	231	>0.70	0	477	>0.70	65	
1000x400x483	249	>0.70	0	513	>0.70	96	
1000x400x443	265	>0.70	0	551	0.620	101	
1000x400x412	278	>0.70	0	583	0.523	93	
1000x400x371	298	>0.70	0	623	0.414	83	
1000x400x321	329	>0.70	0	674	0.293	45	
1000x400x296	346	>0.70	0	696	0.240	24	
920x420x1377	121	>0.70	0	262	>0.70	0	
920x420x1269	128	>0.70	0	277	>0.70	0	
920x420x1194	133	>0.70	0	287	>0.70	0	
920x420x1077	142	>0.70	0	307	>0.70	0	
920x420x970	152	>0.70	0	327	>0.70	0	
920x420x787	174	>0.70	0	373	>0.70	0	
920x420x725	184	>0.70	0	392	>0.70	3	
920x420x656	197	>0.70	0	417	>0.70	17	
920x420x588	212	>0.70	0	445	>0.70	38	

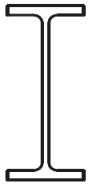
<b>Table A.1.1.1</b> <b>Galvanized steel beams exposed to fire on four sides</b> <b>(Eurocode)</b>						
Section Designation	15 minutes fire exposure			30 minutes fire exposure		
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$
		(°C)	(-)	(%)	(°C)	(-)
920x420x537	226	>0.70	0	469	>0.70	58
920x420x491	240	>0.70	0	493	>0.70	80
920x420x449	255	>0.70	0	528	0.693	105
920x420x420	267	>0.70	0	558	0.600	100
920x420x390	281	>0.70	0	590	0.502	91
920x420x368	293	>0.70	0	613	0.439	87
920x420x344	306	>0.70	0	637	0.382	74
914x305x576	206	>0.70	0	433	>0.70	28
914x305x521	220	>0.70	0	458	>0.70	50
914x305x474	234	>0.70	0	483	>0.70	70
914x305x425	252	>0.70	0	520	>0.70	101
914x305x381	271	>0.70	0	567	0.573	98
914x305x345	290	>0.70	0	607	0.454	87
914x305x313	309	>0.70	0	643	0.367	69
914x305x289	326	>0.70	0	669	0.305	50
914x305x271	339	>0.70	0	687	0.261	33
914x305x253	354	>0.70	0	704	0.225	18
914x305x238	368	>0.70	0	717	0.210	12
914x305x224	382	>0.70	0	726	0.199	8
914x305x201	408	>0.70	0	735	0.188	8
840x400x576	207	>0.70	0	435	>0.70	30
840x400x527	219	>0.70	0	457	>0.70	49
840x400x473	236	>0.70	0	486	>0.70	73
840x400x433	251	>0.70	0	517	>0.70	98
840x400x392	268	>0.70	0	560	0.593	99
840x400x359	285	>0.70	0	596	0.482	89
840x400x329	302	>0.70	0	629	0.400	79
840x400x299	321	>0.70	0	662	0.320	55
838x292x251	342	>0.70	0	691	0.252	29
838x292x226	365	>0.70	0	714	0.213	13
838x292x194	401	>0.70	0	733	0.190	7
838x292x176	424	>0.70	7	738	0.184	11
760x380x582	195	>0.70	0	413	>0.70	14
760x380x531	207	>0.70	0	436	>0.70	30
760x380x484	220	>0.70	0	459	>0.70	50
760x380x434	237	>0.70	0	488	>0.70	75
760x380x389	256	>0.70	0	530	0.688	105
760x380x350	274	>0.70	0	575	0.548	95



**Table A.1.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**

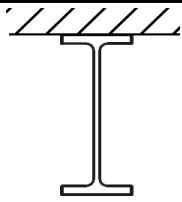
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
760x380x314	295	>0.70	0	0	617	0.429	86
760x380x284	315	>0.70	0	0	653	0.342	62
760x380x257	336	>0.70	0	0	683	0.271	37
762x267x220	349	>0.70	0	0	699	0.232	21
762x267x197	375	>0.70	0	0	721	0.204	10
762x267x173	404	>0.70	0	0	734	0.189	7
762x267x147	443	>0.70	17	17	746	0.174	13
762x267x134	466	>0.70	31	31	760	0.158	14
690x360x802	150	>0.70	0	0	324	>0.70	0
690x360x548	192	>0.70	0	0	408	>0.70	11
690x360x500	204	>0.70	0	0	430	>0.70	26
690x360x457	216	>0.70	0	0	452	>0.70	44
690x360x419	230	>0.70	0	0	475	>0.70	63
690x360x384	243	>0.70	0	0	498	>0.70	85
690x360x350	259	>0.70	0	0	537	0.666	104
690x360x323	273	>0.70	0	0	571	0.561	97
690x360x289	294	>0.70	0	0	616	0.431	86
690x360x265	311	>0.70	0	0	647	0.358	67
690x360x240	332	>0.70	0	0	678	0.284	42
690x360x217	353	>0.70	0	0	703	0.227	19
686x254x192	361	>0.70	0	0	711	0.217	15
686x254x170	388	>0.70	0	0	729	0.196	7
686x254x152	414	>0.70	2	2	736	0.187	9
686x254x140	434	>0.70	12	12	742	0.180	12
686x254x125	460	>0.70	27	27	756	0.163	14
610x325x551	180	>0.70	0	0	384	>0.70	0
610x325x498	192	>0.70	0	0	408	>0.70	11
610x325x455	204	>0.70	0	0	430	>0.70	26
610x325x415	216	>0.70	0	0	452	>0.70	44
610x325x372	232	>0.70	0	0	480	>0.70	68
610x325x341	247	>0.70	0	0	506	>0.70	91
610x325x307	264	>0.70	0	0	549	0.627	101
610x325x285	277	>0.70	0	0	580	0.531	94
610x325x262	293	>0.70	0	0	614	0.436	86
610x325x241	309	>0.70	0	0	643	0.367	70
610x325x217	330	>0.70	0	0	676	0.289	44
610x325x195	353	>0.70	0	0	704	0.226	18
610x325x174	379	>0.70	0	0	724	0.201	8

<b>Table A.1.1.1</b> <b>Galvanized steel beams exposed to fire on four sides</b> <b>(Eurocode)</b>						
Section Designation	15 minutes fire exposure			30 minutes fire exposure		
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$
		(°C)	(-)	(%)	(°C)	(-)
610x325x155	407	>0.70	0	0	735	0.189
610x305x238	309	>0.70	0	0	643	0.367
610x305x179	370	>0.70	0	0	718	0.208
610x305x149	413	>0.70	1	1	736	0.187
610x229x153	386	>0.70	0	0	728	0.197
610x229x140	407	>0.70	0	0	735	0.188
610x229x125	434	>0.70	12	12	742	0.180
610x229x113	458	>0.70	25	25	754	0.165
610x229x101	484	>0.70	43	43	772	0.144
610x178x92	496	>0.70	52	52	780	0.134
610x178x82	540	0.656	61	61	797	0.113
533x210x138	387	>0.70	0	0	728	0.196
533x210x122	416	>0.70	3	3	736	0.186
533x210x109	443	>0.70	17	17	746	0.175
533x210x101	461	>0.70	27	27	757	0.162
533x210x92	483	>0.70	43	43	771	0.144
533x210x82	518	>0.70	61	61	789	0.123
533x165x85	490	>0.70	48	48	776	0.139
533x165x74	532	0.680	63	63	795	0.117
533x165x66	576	0.544	49	49	809	0.105
457x191x106	419	>0.70	4	4	737	0.185
457x191x98	437	>0.70	13	13	743	0.178
457x191x89	459	>0.70	26	26	756	0.163
457x191x82	480	>0.70	40	40	769	0.147
457x191x74	506	>0.70	57	57	785	0.128
457x191x67	544	0.644	60	60	799	0.111
457x152x82	467	>0.70	32	32	761	0.157
457x152x74	491	>0.70	49	49	777	0.138
457x152x67	525	>0.70	64	64	792	0.120
457x152x60	565	0.578	52	52	806	0.107
457x152x52	604	0.460	38	38	817	0.101
406x178x85	449	>0.70	20	20	749	0.171
406x178x74	481	>0.70	41	41	770	0.146
406x178x67	507	>0.70	58	58	786	0.127
406x178x60	549	0.629	58	58	801	0.110
406x178x54	583	0.522	46	46	811	0.104
406x140x53	570	0.564	51	51	807	0.106
406x140x46	613	0.439	36	36	819	0.100



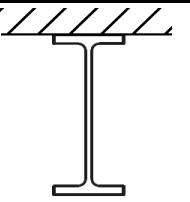
**Table A.1.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
406x140x39	650	0.349	25	827	0.097	0	
356x171x67	481	>0.70	41	770	0.146	13	
356x171x57	533	0.678	63	795	0.116	7	
356x171x51	570	0.562	51	808	0.106	2	
356x171x45	607	0.453	37	818	0.101	1	
356x127x39	622	0.417	33	821	0.099	1	
356x127x33	657	0.332	22	828	0.096	0	
305x165x54	511	>0.70	59	787	0.126	11	
305x165x46	567	0.573	52	807	0.107	2	
305x165x40	607	0.453	37	818	0.101	1	
305x127x48	522	>0.70	64	791	0.121	10	
305x127x42	569	0.565	51	807	0.106	2	
305x127x37	606	0.456	37	817	0.101	1	
305x102x33	629	0.401	32	823	0.099	1	
305x102x28	660	0.326	22	828	0.096	0	
305x102x25	678	0.282	15	831	0.094	0	
254x146x43	538	0.663	62	797	0.114	6	
254x146x37	587	0.511	44	812	0.104	2	
254x146x31	631	0.395	31	823	0.098	1	
254x102x28	632	0.393	31	824	0.098	1	
254x102x25	656	0.336	23	828	0.096	0	
254x102x22	677	0.286	15	831	0.095	0	
203x133x30	600	0.470	39	816	0.102	1	
203x133x25	643	0.367	27	826	0.097	0	
203x102x23	640	0.375	28	825	0.098	0	
178x102x19	660	0.325	21	829	0.096	0	
152x89x16	666	0.311	19	829	0.095	0	
127x76x13	671	0.299	17	830	0.095	0	



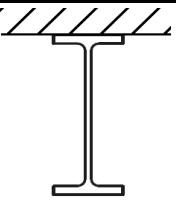
**Table A.1.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
1100x400x607	200	>0.70	0	423	>0.70	0	
1100x400x548	215	>0.70	0	449	>0.70	0	
1100x400x499	229	>0.70	0	474	>0.70	14	
1100x400x433	253	>0.70	0	521	>0.70	41	
1100x400x390	271	>0.70	0	567	>0.70	69	
1100x400x343	296	>0.70	0	619	0.607	85	
1016x305x584	191	>0.70	0	407	>0.70	0	
1016x305x494	214	>0.70	0	449	>0.70	0	
1016x305x438	233	>0.70	0	481	>0.70	18	
1016x305x415	241	>0.70	0	494	>0.70	27	
1016x305x393	251	>0.70	0	517	>0.70	39	
1016x305x350	272	>0.70	0	569	>0.70	70	
1016x305x314	292	>0.70	0	611	0.634	87	
1016x305x272	321	>0.70	0	663	0.457	55	
1016x305x249	340	>0.70	0	688	0.369	32	
1016x305x222	365	>0.70	0	714	0.304	13	
1000x400x976	138	>0.70	0	299	>0.70	0	
1000x400x883	147	>0.70	0	319	>0.70	0	
1000x400x748	165	>0.70	0	354	>0.70	0	
1000x400x642	183	>0.70	0	390	>0.70	0	
1000x400x591	193	>0.70	0	410	>0.70	0	
1000x400x554	202	>0.70	0	426	>0.70	0	
1000x400x539	206	>0.70	0	433	>0.70	0	
1000x400x483	222	>0.70	0	463	>0.70	7	
1000x400x443	236	>0.70	0	486	>0.70	21	
1000x400x412	248	>0.70	0	510	>0.70	36	
1000x400x371	267	>0.70	0	557	>0.70	62	
1000x400x321	295	>0.70	0	617	0.614	86	
1000x400x296	310	>0.70	0	645	0.517	68	
920x420x1377	107	>0.70	0	231	>0.70	0	
920x420x1269	113	>0.70	0	245	>0.70	0	
920x420x1194	117	>0.70	0	254	>0.70	0	
920x420x1077	125	>0.70	0	272	>0.70	0	
920x420x970	134	>0.70	0	290	>0.70	0	
920x420x787	154	>0.70	0	332	>0.70	0	
920x420x725	162	>0.70	0	349	>0.70	0	
920x420x656	174	>0.70	0	372	>0.70	0	
920x420x588	187	>0.70	0	399	>0.70	0	



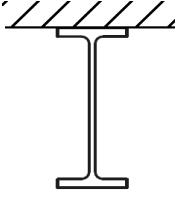
**Table A.1.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
920x420x537	199	>0.70	0	421	>0.70	0	
920x420x491	212	>0.70	0	445	>0.70	0	
920x420x449	225	>0.70	0	468	>0.70	10	
920x420x420	236	>0.70	0	486	>0.70	21	
920x420x390	249	>0.70	0	511	>0.70	36	
920x420x368	259	>0.70	0	538	>0.70	50	
920x420x344	270	>0.70	0	566	>0.70	68	
914x305x576	186	>0.70	0	397	>0.70	0	
914x305x521	199	>0.70	0	421	>0.70	0	
914x305x474	212	>0.70	0	445	>0.70	0	
914x305x425	228	>0.70	0	473	>0.70	13	
914x305x381	246	>0.70	0	504	>0.70	33	
914x305x345	263	>0.70	0	549	>0.70	57	
914x305x313	281	>0.70	0	589	>0.70	86	
914x305x289	296	>0.70	0	619	0.605	85	
914x305x271	309	>0.70	0	643	0.526	70	
914x305x253	323	>0.70	0	665	0.448	53	
914x305x238	336	>0.70	0	684	0.383	36	
914x305x224	350	>0.70	0	699	0.331	20	
914x305x201	374	>0.70	0	721	0.292	10	
840x400x576	182	>0.70	0	388	>0.70	0	
840x400x527	193	>0.70	0	409	>0.70	0	
840x400x473	208	>0.70	0	437	>0.70	0	
840x400x433	221	>0.70	0	460	>0.70	6	
840x400x392	236	>0.70	0	486	>0.70	22	
840x400x359	251	>0.70	0	517	>0.70	39	
840x400x329	266	>0.70	0	555	>0.70	61	
840x400x299	284	>0.70	0	595	0.692	89	
838x292x251	311	>0.70	0	647	0.512	67	
838x292x226	332	>0.70	0	679	0.402	41	
838x292x194	367	>0.70	0	716	0.302	12	
838x292x176	389	>0.70	0	729	0.279	7	
760x380x582	171	>0.70	0	366	>0.70	0	
760x380x531	181	>0.70	0	387	>0.70	0	
760x380x484	193	>0.70	0	409	>0.70	0	
760x380x434	208	>0.70	0	437	>0.70	0	
760x380x389	224	>0.70	0	466	>0.70	9	
760x380x350	241	>0.70	0	494	>0.70	27	



**Table A.1.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

Section Designation	15 minutes fire exposure				30 minutes fire exposure			
	UB	Steel Temp.	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp.	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	
		$\theta_a$	(°C)	(-)	$\theta_a$	(°C)	(-)	(%)
760x380x314	259	>0.70	0	0	538	>0.70	0	50
760x380x284	277	>0.70	0	0	581	>0.70	0	79
760x380x257	296	>0.70	0	0	619	0.607	0	85
762x267x220	318	>0.70	0	0	657	0.476	0	59
762x267x197	342	>0.70	0	0	690	0.363	0	30
762x267x173	370	>0.70	0	0	718	0.298	0	11
762x267x147	408	>0.70	0	0	735	0.269	0	8
762x267x134	430	>0.70	0	0	740	0.259	0	12
690x360x802	131	>0.70	0	0	285	>0.70	0	0
690x360x548	168	>0.70	0	0	360	>0.70	0	0
690x360x500	178	>0.70	0	0	381	>0.70	0	0
690x360x457	189	>0.70	0	0	402	>0.70	0	0
690x360x419	201	>0.70	0	0	424	>0.70	0	0
690x360x384	212	>0.70	0	0	445	>0.70	0	0
690x360x350	226	>0.70	0	0	469	>0.70	0	11
690x360x323	238	>0.70	0	0	490	>0.70	0	24
690x360x289	258	>0.70	0	0	535	>0.70	0	49
690x360x265	273	>0.70	0	0	571	>0.70	0	72
690x360x240	291	>0.70	0	0	610	0.637	0	87
690x360x217	310	>0.70	0	0	645	0.518	0	68
686x254x192	328	>0.70	0	0	672	0.425	0	47
686x254x170	352	>0.70	0	0	702	0.324	0	19
686x254x152	377	>0.70	0	0	723	0.289	0	9
686x254x140	397	>0.70	0	0	732	0.274	0	7
686x254x125	423	>0.70	0	0	738	0.263	0	10
610x325x551	157	>0.70	0	0	338	>0.70	0	0
610x325x498	167	>0.70	0	0	359	>0.70	0	0
610x325x455	178	>0.70	0	0	380	>0.70	0	0
610x325x415	188	>0.70	0	0	401	>0.70	0	0
610x325x372	202	>0.70	0	0	427	>0.70	0	0
610x325x341	215	>0.70	0	0	450	>0.70	0	0
610x325x307	230	>0.70	0	0	476	>0.70	0	15
610x325x285	242	>0.70	0	0	495	>0.70	0	28
610x325x262	256	>0.70	0	0	531	>0.70	0	47
610x325x241	270	>0.70	0	0	564	>0.70	0	67
610x325x217	289	>0.70	0	0	606	0.652	0	87
610x325x195	310	>0.70	0	0	645	0.518	0	68
610x325x174	334	>0.70	0	0	681	0.395	0	39



**Table A.1.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
		(°C)	(-)	(%)	(°C)	(-)	(%)
610x325x155	360	>0.70	0	0	710	0.312	15
610x305x238	272	>0.70	0	0	568	>0.70	70
610x305x179	327	>0.70	0	0	672	0.426	47
610x305x149	367	>0.70	0	0	716	0.301	12
610x229x153	351	>0.70	0	0	701	0.328	19
610x229x140	371	>0.70	0	0	719	0.296	11
610x229x125	397	>0.70	0	0	732	0.274	7
610x229x113	420	>0.70	0	0	737	0.265	10
610x229x101	446	>0.70	0	0	748	0.247	14
610x178x92	465	>0.70	0	0	759	0.227	14
610x178x82	494	>0.70	5	5	779	0.194	12
533x210x138	350	>0.70	0	0	700	0.329	20
533x210x122	378	>0.70	0	0	724	0.288	9
533x210x109	404	>0.70	0	0	734	0.270	7
533x210x101	422	>0.70	0	0	738	0.264	10
533x210x92	444	>0.70	0	0	747	0.248	13
533x210x82	472	>0.70	0	0	763	0.220	14
533x165x85	458	>0.70	0	0	755	0.235	14
533x165x74	487	>0.70	2	2	774	0.201	13
533x165x66	529	>0.70	17	17	794	0.168	8
457x191x106	379	>0.70	0	0	724	0.287	8
457x191x98	396	>0.70	0	0	732	0.274	7
457x191x89	419	>0.70	0	0	737	0.265	10
457x191x82	439	>0.70	0	0	744	0.253	13
457x191x74	463	>0.70	0	0	758	0.230	14
457x191x67	487	>0.70	2	2	774	0.202	13
457x152x82	433	>0.70	0	0	742	0.257	12
457x152x74	457	>0.70	0	0	754	0.236	14
457x152x67	480	>0.70	0	0	770	0.209	13
457x152x60	514	>0.70	12	12	788	0.178	11
457x152x52	562	>0.70	28	28	805	0.154	3
406x178x85	407	>0.70	0	0	734	0.269	8
406x178x74	439	>0.70	0	0	744	0.253	13
406x178x67	463	>0.70	0	0	757	0.230	14
406x178x60	489	>0.70	3	3	776	0.199	13
406x178x54	522	>0.70	15	15	791	0.172	10
406x140x53	518	>0.70	13	13	789	0.175	10
406x140x46	570	>0.70	31	31	807	0.152	2

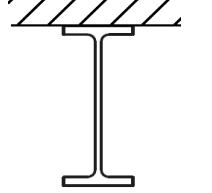
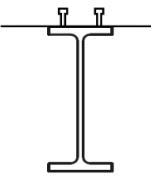


Table A.1.1.2 Galvanized steel beams exposed to fire on three sides (Eurocode)							
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
406x140x39	617	0.614	35	820	0.143	1	
356x171x67	436	>0.70	0	743	0.255	12	
356x171x57	475	>0.70	0	766	0.216	14	
356x171x51	503	>0.70	9	784	0.185	11	
356x171x45	548	>0.70	23	800	0.157	3	
356x127x39	581	>0.70	36	811	0.149	2	
356x127x33	626	0.583	32	822	0.141	1	
305x165x54	458	>0.70	0	755	0.235	14	
305x165x46	495	>0.70	6	779	0.192	12	
305x165x40	544	>0.70	21	799	0.159	4	
305x127x48	474	>0.70	0	765	0.217	14	
305x127x42	510	>0.70	11	786	0.180	11	
305x127x37	555	>0.70	25	803	0.155	3	
305x102x33	593	>0.70	41	814	0.147	2	
305x102x28	631	0.564	31	823	0.140	1	
305x102x25	657	0.476	22	828	0.137	0	
254x146x43	473	>0.70	0	764	0.218	14	
254x146x37	514	>0.70	12	788	0.178	11	
254x146x31	573	>0.70	32	808	0.151	2	
254x102x28	590	>0.70	40	813	0.148	2	
254x102x25	621	0.598	33	821	0.142	1	
254x102x22	650	0.500	25	827	0.138	0	
203x133x30	525	>0.70	15	792	0.171	9	
203x133x25	583	>0.70	37	811	0.149	2	
203x102x23	590	>0.70	40	814	0.147	2	
178x102x19	616	0.618	35	820	0.143	1	
152x89x16	623	0.594	33	821	0.142	1	
127x76x13	631	0.567	31	823	0.141	1	

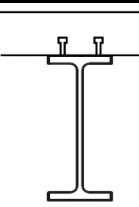
**Table A.1.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
1100x400x607	200	>0.70	0	0	423	>0.70	9
1100x400x548	215	>0.70	0	0	449	>0.70	27
1100x400x499	229	>0.70	0	0	474	>0.70	46
1100x400x433	253	>0.70	0	0	521	>0.70	82
1100x400x390	271	>0.70	0	0	567	0.637	98
1100x400x343	296	>0.70	0	0	619	0.472	85
1016x305x584	191	>0.70	0	0	407	>0.70	0
1016x305x494	214	>0.70	0	0	449	>0.70	27
1016x305x438	233	>0.70	0	0	481	>0.70	52
1016x305x415	241	>0.70	0	0	494	>0.70	64
1016x305x393	251	>0.70	0	0	517	>0.70	79
1016x305x350	272	>0.70	0	0	569	0.630	97
1016x305x314	292	>0.70	0	0	611	0.493	87
1016x305x272	321	>0.70	0	0	663	0.356	55
1016x305x249	340	>0.70	0	0	688	0.287	32
1016x305x222	365	>0.70	0	0	714	0.237	13
1000x400x976	138	>0.70	0	0	299	>0.70	0
1000x400x883	147	>0.70	0	0	319	>0.70	0
1000x400x748	165	>0.70	0	0	354	>0.70	0
1000x400x642	183	>0.70	0	0	390	>0.70	0
1000x400x591	193	>0.70	0	0	410	>0.70	2
1000x400x554	202	>0.70	0	0	426	>0.70	11
1000x400x539	206	>0.70	0	0	433	>0.70	16
1000x400x483	222	>0.70	0	0	463	>0.70	38
1000x400x443	236	>0.70	0	0	486	>0.70	56
1000x400x412	248	>0.70	0	0	510	>0.70	75
1000x400x371	267	>0.70	0	0	557	0.669	99
1000x400x321	295	>0.70	0	0	617	0.478	86
1000x400x296	310	>0.70	0	0	645	0.402	68
920x420x1377	107	>0.70	0	0	231	>0.70	0
920x420x1269	113	>0.70	0	0	245	>0.70	0
920x420x1194	117	>0.70	0	0	254	>0.70	0
920x420x1077	125	>0.70	0	0	272	>0.70	0
920x420x970	134	>0.70	0	0	290	>0.70	0
920x420x787	154	>0.70	0	0	332	>0.70	0
920x420x725	162	>0.70	0	0	349	>0.70	0
920x420x656	174	>0.70	0	0	372	>0.70	0
920x420x588	187	>0.70	0	0	399	>0.70	0
920x420x537	199	>0.70	0	0	421	>0.70	8

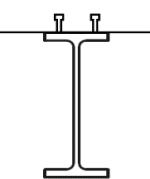
<b>Table A.1.2</b> <b>Galvanized steel composite beams</b> <b>(Eurocode)</b>						
Section Designation	15 minutes fire exposure			30 minutes fire exposure		
UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
	(°C)	(-)	(%)	(°C)	(-)	(%)
920x420x491	212	>0.70	0	445	>0.70	24
920x420x449	225	>0.70	0	468	>0.70	41
920x420x420	236	>0.70	0	486	>0.70	56
920x420x390	249	>0.70	0	511	>0.70	75
920x420x368	259	>0.70	0	538	>0.70	93
920x420x344	270	>0.70	0	566	0.640	97
914x305x576	186	>0.70	0	397	>0.70	0
914x305x521	199	>0.70	0	421	>0.70	8
914x305x474	212	>0.70	0	445	>0.70	24
914x305x425	228	>0.70	0	473	>0.70	46
914x305x381	246	>0.70	0	504	>0.70	71
914x305x345	263	>0.70	0	549	0.698	101
914x305x313	281	>0.70	0	589	0.559	91
914x305x289	296	>0.70	0	619	0.471	85
914x305x271	309	>0.70	0	643	0.409	70
914x305x253	323	>0.70	0	665	0.349	53
914x305x238	336	>0.70	0	684	0.298	36
914x305x224	350	>0.70	0	699	0.257	20
914x305x201	374	>0.70	0	721	0.227	10
840x400x576	182	>0.70	0	388	>0.70	0
840x400x527	193	>0.70	0	409	>0.70	1
840x400x473	208	>0.70	0	437	>0.70	18
840x400x433	221	>0.70	0	460	>0.70	36
840x400x392	236	>0.70	0	486	>0.70	56
840x400x359	251	>0.70	0	517	>0.70	79
840x400x329	266	>0.70	0	555	0.676	100
840x400x299	284	>0.70	0	595	0.538	89
838x292x251	311	>0.70	0	647	0.398	67
838x292x226	332	>0.70	0	679	0.313	41
838x292x194	367	>0.70	0	716	0.235	12
838x292x176	389	>0.70	0	729	0.217	7
760x380x582	171	>0.70	0	366	>0.70	0
760x380x531	181	>0.70	0	387	>0.70	0
760x380x484	193	>0.70	0	409	>0.70	1
760x380x434	208	>0.70	0	437	>0.70	18
760x380x389	224	>0.70	0	466	>0.70	40
760x380x350	241	>0.70	0	494	>0.70	63
760x380x314	259	>0.70	0	538	>0.70	93
760x380x284	277	>0.70	0	581	0.588	94

**Table A.1.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



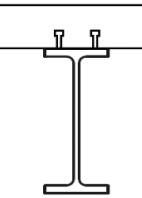
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
760x380x257	296	>0.70	0	0	619	0.472	85
762x267x220	318	>0.70	0	0	657	0.370	59
762x267x197	342	>0.70	0	0	690	0.282	30
762x267x173	370	>0.70	0	0	718	0.231	11
762x267x147	408	>0.70	0	0	735	0.209	8
762x267x134	430	>0.70	0	0	740	0.202	12
690x360x802	131	>0.70	0	0	285	>0.70	0
690x360x548	168	>0.70	0	0	360	>0.70	0
690x360x500	178	>0.70	0	0	381	>0.70	0
690x360x457	189	>0.70	0	0	402	>0.70	0
690x360x419	201	>0.70	0	0	424	>0.70	9
690x360x384	212	>0.70	0	0	445	>0.70	24
690x360x350	226	>0.70	0	0	469	>0.70	42
690x360x323	238	>0.70	0	0	490	>0.70	59
690x360x289	258	>0.70	0	0	535	>0.70	91
690x360x265	273	>0.70	0	0	571	0.623	96
690x360x240	291	>0.70	0	0	610	0.495	87
690x360x217	310	>0.70	0	0	645	0.403	68
686x254x192	328	>0.70	0	0	672	0.331	47
686x254x170	352	>0.70	0	0	702	0.252	19
686x254x152	377	>0.70	0	0	723	0.225	9
686x254x140	397	>0.70	0	0	732	0.213	7
686x254x125	423	>0.70	0	0	738	0.205	10
610x325x551	157	>0.70	0	0	338	>0.70	0
610x325x498	167	>0.70	0	0	359	>0.70	0
610x325x455	178	>0.70	0	0	380	>0.70	0
610x325x415	188	>0.70	0	0	401	>0.70	0
610x325x372	202	>0.70	0	0	427	>0.70	12
610x325x341	215	>0.70	0	0	450	>0.70	28
610x325x307	230	>0.70	0	0	476	>0.70	48
610x325x285	242	>0.70	0	0	495	>0.70	64
610x325x262	256	>0.70	0	0	531	>0.70	89
610x325x241	270	>0.70	0	0	564	0.645	98
610x325x217	289	>0.70	0	0	606	0.507	87
610x325x195	310	>0.70	0	0	645	0.403	68
610x325x174	334	>0.70	0	0	681	0.307	39
610x325x155	360	>0.70	0	0	710	0.243	15
610x305x238	272	>0.70	0	0	568	0.632	97
610x305x179	327	>0.70	0	0	672	0.331	47

**Table A.1.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
610x305x149	367	>0.70	0	716	0.234	12	
610x229x153	351	>0.70	0	701	0.255	19	
610x229x140	371	>0.70	0	719	0.230	11	
610x229x125	397	>0.70	0	732	0.213	7	
610x229x113	420	>0.70	0	737	0.206	10	
610x229x101	446	>0.70	7	748	0.192	14	
610x178x92	465	>0.70	17	759	0.177	14	
610x178x82	494	>0.70	36	779	0.151	12	
533x210x138	350	>0.70	0	700	0.256	20	
533x210x122	378	>0.70	0	724	0.224	9	
533x210x109	404	>0.70	0	734	0.210	7	
533x210x101	422	>0.70	0	738	0.205	10	
533x210x92	444	>0.70	6	747	0.193	13	
533x210x82	472	>0.70	21	763	0.171	14	
533x165x85	458	>0.70	13	755	0.183	14	
533x165x74	487	>0.70	31	774	0.157	13	
533x165x66	529	>0.70	50	794	0.131	8	
457x191x106	379	>0.70	0	724	0.223	8	
457x191x98	396	>0.70	0	732	0.213	7	
457x191x89	419	>0.70	0	737	0.206	10	
457x191x82	439	>0.70	3	744	0.197	13	
457x191x74	463	>0.70	16	758	0.179	14	
457x191x67	487	>0.70	31	774	0.157	13	
457x152x82	433	>0.70	0	742	0.200	12	
457x152x74	457	>0.70	12	754	0.183	14	
457x152x67	480	>0.70	27	770	0.163	13	
457x152x60	514	>0.70	44	788	0.139	11	
457x152x52	562	0.654	54	805	0.120	3	
406x178x85	407	>0.70	0	734	0.210	8	
406x178x74	439	>0.70	3	744	0.197	13	
406x178x67	463	>0.70	16	757	0.179	14	
406x178x60	489	>0.70	33	776	0.155	13	
406x178x54	522	>0.70	47	791	0.134	10	
406x140x53	518	>0.70	45	789	0.136	10	
406x140x46	570	0.627	51	807	0.118	2	
406x140x39	617	0.478	35	820	0.111	1	
356x171x67	436	>0.70	2	743	0.198	12	
356x171x57	475	>0.70	23	766	0.168	14	
356x171x51	503	>0.70	40	784	0.144	11	

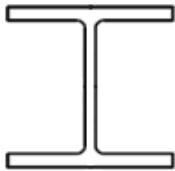
**Table A.1.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
356x171x45	548	>0.70	58	800	0.122	3	
356x127x39	581	0.589	47	811	0.116	2	
356x127x33	626	0.454	32	822	0.110	1	
305x165x54	458	>0.70	13	755	0.183	14	
305x165x46	495	>0.70	36	779	0.150	12	
305x165x40	544	>0.70	56	799	0.124	4	
305x127x48	474	>0.70	22	765	0.169	14	
305x127x42	510	>0.70	43	786	0.140	11	
305x127x37	555	0.677	56	803	0.121	3	
305x102x33	593	0.546	42	814	0.114	2	
305x102x28	631	0.438	31	823	0.109	1	
305x102x25	657	0.370	22	828	0.107	0	
254x146x43	473	>0.70	22	764	0.170	14	
254x146x37	514	>0.70	44	788	0.139	11	
254x146x31	573	0.616	50	808	0.118	2	
254x102x28	590	0.556	43	813	0.115	2	
254x102x25	621	0.465	33	821	0.110	1	
254x102x22	650	0.389	25	827	0.107	0	
203x133x30	525	>0.70	48	792	0.133	9	
203x133x25	583	0.580	46	811	0.116	2	
203x102x23	590	0.555	43	814	0.115	2	
178x102x19	616	0.481	35	820	0.111	1	
152x89x16	623	0.462	33	821	0.110	1	
127x76x13	631	0.441	31	823	0.109	1	

Table A.1.3 Galvanized steel tension plates (Eurocode)						
Thickness (mm)	15 minutes fire exposure			30 minutes fire exposure		
	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Steel Temp. $\theta_a$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
5	715	0.212	0	837	0.092	0
8	688	0.259	11	833	0.094	0
10	655	0.339	23	828	0.096	0
12	612	0.442	36	819	0.101	1
14	563	0.585	54	805	0.107	3
16	511	>0.70	59	787	0.126	11
18	477	>0.70	38	767	0.149	14
20	450	>0.70	21	750	0.170	14
22	426	>0.70	7	739	0.183	11
24	404	>0.70	0	734	0.189	7
26	384	>0.70	0	726	0.198	8
28	365	>0.70	0	715	0.213	13
30	349	>0.70	0	699	0.233	21
32	334	>0.70	0	681	0.277	39
34	320	>0.70	0	661	0.325	56
36	307	>0.70	0	640	0.375	72
38	296	>0.70	0	619	0.425	85
40	285	>0.70	0	597	0.478	88
42	275	>0.70	0	576	0.543	95
44	266	>0.70	0	555	0.609	100
46	257	>0.70	0	534	0.675	104
48	249	>0.70	0	513	>0.70	96
50	242	>0.70	0	495	>0.70	83

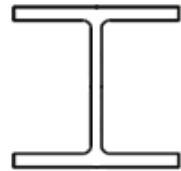
**Table A.1.4.1.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**



Section Designation	Steel Temp. $\theta_a$	$\chi_{fi}k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi}k_{y,\theta}$ relative to ungalvanized steel (%)]						
UC	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
356x406x1299	95	0.805 [0]	0.702 [1]	0.594 [1]	0.491 [1]	0.400 [2]	0.327 [2]	0.269 [2]
356x406x1202	99	0.805 [0]	0.702 [1]	0.594 [1]	0.491 [2]	0.400 [2]	0.327 [2]	0.269 [3]
356x406x1086	105	0.804 [0]	0.701 [1]	0.593 [1]	0.489 [2]	0.399 [2]	0.326 [3]	0.268 [3]
356x406x990	110	0.804 [1]	0.700 [1]	0.592 [1]	0.488 [2]	0.398 [3]	0.324 [3]	0.267 [3]
356x406x900	116	0.803 [1]	0.699 [1]	0.591 [2]	0.487 [2]	0.396 [3]	0.323 [3]	0.266 [3]
356x406x818	123	0.802 [1]	0.698 [1]	0.589 [2]	0.485 [2]	0.395 [3]	0.322 [3]	0.264 [4]
356x406x744	130	0.802 [1]	0.697 [1]	0.588 [2]	0.483 [3]	0.393 [3]	0.320 [4]	0.263 [4]
356x406x677	137	0.801 [1]	0.696 [1]	0.586 [2]	0.481 [3]	0.391 [3]	0.318 [4]	0.261 [4]
356x406x634	143	0.800 [1]	0.695 [1]	0.585 [2]	0.480 [3]	0.390 [4]	0.317 [4]	0.260 [4]
356x406x592	149	0.800 [1]	0.694 [1]	0.583 [2]	0.478 [3]	0.388 [4]	0.316 [4]	0.259 [5]
356x406x551	155	0.799 [1]	0.693 [2]	0.582 [2]	0.477 [3]	0.386 [4]	0.314 [5]	0.258 [5]
356x406x509	163	0.798 [1]	0.691 [2]	0.580 [3]	0.475 [4]	0.384 [4]	0.312 [5]	0.256 [5]
356x406x467	172	0.797 [1]	0.690 [2]	0.578 [3]	0.472 [4]	0.382 [5]	0.310 [5]	0.254 [6]
356x406x393	193	0.795 [1]	0.686 [2]	0.573 [3]	0.467 [4]	0.377 [5]	0.305 [6]	0.250 [7]
356x406x340	212	0.793 [1]	0.682 [2]	0.568 [4]	0.461 [5]	0.371 [6]	0.300 [7]	0.246 [7]
356x406x287	237	0.789 [1]	0.678 [3]	0.562 [4]	0.454 [6]	0.365 [7]	0.294 [8]	0.240 [9]
356x406x235	270	0.785 [2]	0.671 [3]	0.553 [5]	0.445 [7]	0.355 [9]	0.286 [10]	0.233 [10]
356x368x202	294	0.782 [2]	0.665 [4]	0.546 [6]	0.437 [8]	0.348 [10]	0.280 [11]	0.228 [11]
356x368x177	320	0.778 [8]	0.659 [9]	0.538 [10]	0.429 [12]	0.341 [13]	0.273 [13]	0.222 [14]
356x368x153	351	0.774 [16]	0.652 [16]	0.529 [17]	0.419 [17]	0.331 [17]	0.265 [17]	0.215 [17]
356x368x129	389	0.767 [29]	0.642 [28]	0.516 [26]	0.406 [25]	0.319 [24]	0.254 [23]	0.206 [23]
305x305x342	190	0.795 [1]	0.686 [2]	0.574 [3]	0.467 [4]	0.377 [5]	0.306 [6]	0.250 [6]
305x305x313	201	0.794 [1]	0.684 [2]	0.571 [4]	0.464 [5]	0.374 [6]	0.303 [6]	0.248 [7]
305x305x283	215	0.792 [1]	0.682 [2]	0.567 [4]	0.460 [5]	0.371 [6]	0.300 [7]	0.245 [8]
305x305x240	239	0.789 [2]	0.677 [3]	0.561 [5]	0.454 [6]	0.364 [7]	0.294 [8]	0.240 [9]
305x305x198	270	0.785 [2]	0.671 [3]	0.553 [5]	0.445 [7]	0.355 [9]	0.286 [10]	0.233 [10]
305x305x158	312	0.779 [6]	0.661 [7]	0.541 [9]	0.432 [11]	0.343 [12]	0.275 [13]	0.223 [13]
305x305x137	341	0.775 [13]	0.654 [14]	0.532 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
305x305x118	373	0.770 [23]	0.646 [22]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
305x305x97	418	0.736 [42]	0.616 [41]	0.495 [40]	0.389 [39]	0.306 [38]	0.244 [38]	0.197 [37]
254x254x167	272	0.785 [2]	0.670 [3]	0.552 [6]	0.444 [7]	0.355 [9]	0.285 [10]	0.232 [10]
254x254x132	315	0.779 [6]	0.661 [8]	0.540 [10]	0.431 [11]	0.342 [12]	0.274 [13]	0.223 [13]
254x254x107	358	0.772 [18]	0.650 [18]	0.526 [18]	0.417 [18]	0.329 [18]	0.263 [18]	0.213 [18]
254x254x89	400	0.766 [35]	0.639 [33]	0.513 [32]	0.402 [30]	0.316 [29]	0.251 [28]	0.203 [28]
254x254x73	446	0.693 [52]	0.581 [52]	0.469 [53]	0.370 [53]	0.292 [53]	0.233 [53]	0.188 [54]
203x203x100	333	0.776 [11]	0.656 [12]	0.534 [13]	0.425 [14]	0.337 [15]	0.269 [15]	0.219 [15]
203x203x86	363	0.772 [20]	0.649 [20]	0.525 [19]	0.415 [19]	0.327 [19]	0.261 [19]	0.212 [19]
203x203x71	406	0.756 [37]	0.632 [36]	0.507 [34]	0.398 [33]	0.313 [32]	0.249 [31]	0.201 [31]
203x203x60	445	0.694 [52]	0.583 [52]	0.470 [52]	0.371 [53]	0.292 [53]	0.233 [53]	0.189 [53]
203x203x52	478	0.641 [67]	0.540 [70]	0.438 [72]	0.348 [75]	0.275 [77]	0.220 [78]	0.178 [79]
203x203x46	511	0.579 [73]	0.489 [77]	0.398 [82]	0.316 [86]	0.250 [89]	0.200 [91]	0.162 [92]

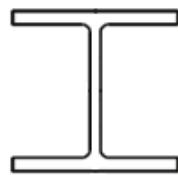
**Table A.1.4.1.1**

**Galvanized steel columns exposed to fire for 15 minutes  
(Eurocode)**



Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
UC	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
152x152x51	424	0.727 [44]	0.609 [43]	0.490 [42]	0.385 [42]	0.303 [41]	0.241 [41]	0.195 [41]
152x152x44	458	0.673 [58]	0.566 [59]	0.457 [60]	0.362 [61]	0.285 [62]	0.228 [62]	0.184 [62]
152x152x37	498	0.609 [76]	0.515 [80]	0.419 [85]	0.333 [89]	0.264 [92]	0.211 [94]	0.172 [95]
152x152x30	570	0.432 [54]	0.361 [56]	0.290 [59]	0.228 [61]	0.179 [63]	0.142 [64]	0.115 [64]
152x152x23	640	0.281 [29]	0.231 [30]	0.183 [32]	0.141 [33]	0.110 [33]	0.087 [34]	0.070 [34]

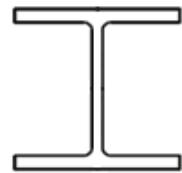
**Table A.1.4.1.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**



Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
UC	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
356x406x1299	205	0.793 [1]	0.684 [3]	0.570 [4]	0.463 [6]	0.373 [7]	0.302 [8]	0.247 [8]
356x406x1202	214	0.792 [1]	0.682 [3]	0.568 [5]	0.461 [6]	0.371 [7]	0.300 [8]	0.245 [9]
356x406x1086	226	0.791 [2]	0.680 [3]	0.565 [5]	0.457 [7]	0.368 [8]	0.297 [9]	0.242 [9]
356x406x990	238	0.789 [2]	0.677 [3]	0.561 [5]	0.454 [7]	0.364 [9]	0.294 [10]	0.240 [10]
356x406x900	251	0.788 [2]	0.675 [4]	0.558 [6]	0.450 [8]	0.361 [9]	0.291 [10]	0.237 [11]
356x406x818	266	0.786 [2]	0.672 [4]	0.554 [6]	0.446 [8]	0.356 [10]	0.287 [11]	0.234 [12]
356x406x744	281	0.784 [2]	0.668 [4]	0.550 [7]	0.441 [9]	0.352 [11]	0.283 [12]	0.230 [13]
356x406x677	297	0.782 [6]	0.665 [7]	0.545 [10]	0.436 [12]	0.347 [13]	0.279 [14]	0.227 [15]
356x406x634	309	0.780 [9]	0.662 [10]	0.542 [12]	0.433 [14]	0.344 [15]	0.276 [16]	0.224 [16]
356x406x592	321	0.778 [13]	0.659 [14]	0.538 [15]	0.429 [16]	0.340 [17]	0.272 [17]	0.221 [18]
356x406x551	336	0.776 [17]	0.656 [18]	0.533 [18]	0.424 [19]	0.336 [19]	0.269 [19]	0.218 [20]
356x406x509	352	0.773 [23]	0.652 [22]	0.528 [22]	0.419 [22]	0.331 [22]	0.264 [22]	0.214 [22]
356x406x467	370	0.770 [30]	0.647 [30]	0.523 [29]	0.413 [28]	0.325 [27]	0.259 [27]	0.210 [27]
356x406x393	409	0.751 [56]	0.628 [55]	0.504 [55]	0.396 [54]	0.311 [53]	0.248 [53]	0.200 [53]
356x406x340	444	0.695 [79]	0.584 [80]	0.471 [82]	0.372 [84]	0.293 [85]	0.233 [86]	0.189 [86]
356x406x287	487	0.627 [107]	0.529 [111]	0.430 [117]	0.341 [122]	0.270 [126]	0.216 [128]	0.175 [130]
356x406x235	564	0.446 [103]	0.373 [109]	0.300 [115]	0.236 [119]	0.186 [123]	0.148 [125]	0.120 [127]
356x368x202	615	0.329 [91]	0.272 [95]	0.215 [100]	0.167 [104]	0.131 [106]	0.103 [108]	0.083 [109]
356x368x177	660	0.244 [58]	0.200 [59]	0.157 [60]	0.121 [62]	0.094 [62]	0.074 [63]	0.060 [63]
356x368x153	701	0.169 [18]	0.137 [16]	0.105 [15]	0.080 [13]	0.062 [13]	0.049 [12]	0.039 [12]
356x368x129	729	0.146 [6]	0.119 [6]	0.093 [5]	0.072 [5]	0.056 [4]	0.044 [4]	0.035 [4]
305x305x342	404	0.758 [54]	0.633 [53]	0.508 [52]	0.399 [51]	0.314 [50]	0.249 [50]	0.202 [49]
305x305x313	425	0.725 [66]	0.607 [66]	0.488 [66]	0.385 [66]	0.303 [67]	0.241 [67]	0.195 [67]
305x305x283	450	0.686 [83]	0.576 [85]	0.465 [88]	0.368 [90]	0.290 [91]	0.231 [92]	0.187 [93]
305x305x240	490	0.622 [109]	0.525 [114]	0.427 [120]	0.339 [125]	0.268 [129]	0.215 [132]	0.174 [133]
305x305x198	564	0.446 [103]	0.373 [109]	0.300 [115]	0.236 [119]	0.186 [123]	0.148 [125]	0.120 [127]
305x305x158	647	0.269 [69]	0.221 [71]	0.174 [74]	0.135 [76]	0.105 [77]	0.083 [78]	0.067 [78]
305x305x137	689	0.189 [30]	0.154 [29]	0.119 [28]	0.091 [27]	0.071 [27]	0.056 [27]	0.045 [26]
305x305x118	720	0.153 [9]	0.124 [8]	0.097 [8]	0.074 [7]	0.057 [7]	0.045 [6]	0.036 [6]
305x305x97	737	0.139 [9]	0.114 [8]	0.090 [7]	0.069 [7]	0.054 [6]	0.042 [6]	0.034 [6]
254x254x167	569	0.435 [102]	0.364 [107]	0.292 [113]	0.230 [118]	0.180 [121]	0.144 [123]	0.116 [125]
254x254x132	653	0.258 [64]	0.212 [66]	0.167 [68]	0.129 [70]	0.100 [71]	0.079 [71]	0.064 [72]
254x254x107	708	0.163 [15]	0.132 [13]	0.102 [12]	0.078 [11]	0.060 [10]	0.047 [10]	0.038 [10]
254x254x89	733	0.143 [6]	0.117 [6]	0.092 [5]	0.071 [5]	0.055 [4]	0.043 [4]	0.035 [4]
254x254x73	748	0.131 [12]	0.108 [11]	0.085 [10]	0.066 [9]	0.051 [8]	0.041 [8]	0.033 [8]
203x203x100	680	0.208 [40]	0.170 [40]	0.132 [40]	0.102 [39]	0.079 [39]	0.062 [39]	0.050 [39]
203x203x86	713	0.159 [12]	0.129 [11]	0.100 [10]	0.077 [9]	0.059 [9]	0.047 [9]	0.037 [8]
203x203x71	734	0.142 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [4]
203x203x60	747	0.131 [12]	0.108 [11]	0.085 [10]	0.066 [9]	0.051 [8]	0.041 [8]	0.033 [8]
203x203x52	768	0.113 [12]	0.095 [11]	0.076 [10]	0.059 [9]	0.047 [8]	0.037 [8]	0.030 [7]
203x203x46	787	0.098 [10]	0.082 [9]	0.067 [8]	0.053 [7]	0.042 [6]	0.034 [6]	0.027 [6]

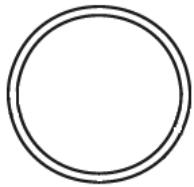
**Table A.1.4.1.2**

**Galvanized steel columns exposed to fire for 30 minutes  
(Eurocode)**

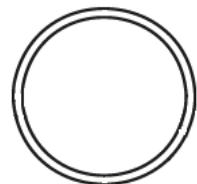


Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
UC	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
152x152x51	739	0.138 [10]	0.113 [9]	0.089 [8]	0.069 [7]	0.053 [7]	0.042 [7]	0.034 [6]
152x152x44	755	0.125 [13]	0.103 [12]	0.082 [11]	0.064 [10]	0.050 [9]	0.039 [8]	0.032 [8]
152x152x37	781	0.102 [11]	0.086 [10]	0.069 [9]	0.055 [8]	0.043 [7]	0.035 [7]	0.028 [6]
152x152x30	808	0.083 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [1]	0.025 [1]
152x152x23	825	0.077 [0]	0.066 [0]	0.055 [0]	0.044 [0]	0.036 [0]	0.029 [0]	0.023 [0]

**Table A.1.4.2.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**



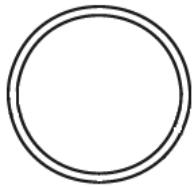
Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
CHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
60.3x8	566	0.441 [55]	0.369 [58]	0.297 [60]	0.233 [63]	0.184 [65]	0.146 [66]	0.118 [66]
76.1x6.3	622	0.316 [35]	0.261 [36]	0.206 [37]	0.160 [38]	0.125 [39]	0.099 [39]	0.080 [39]
76.1x8	555	0.469 [59]	0.393 [62]	0.317 [65]	0.250 [68]	0.197 [70]	0.157 [71]	0.127 [72]
88.9x6.3	618	0.322 [35]	0.266 [37]	0.211 [38]	0.164 [39]	0.128 [40]	0.101 [40]	0.081 [40]
88.9x8	549	0.485 [62]	0.407 [65]	0.329 [68]	0.260 [71]	0.205 [73]	0.163 [75]	0.132 [76]
88.9x10	481	0.637 [68]	0.537 [71]	0.436 [74]	0.346 [77]	0.273 [79]	0.218 [80]	0.177 [81]
101.6x6.3	616	0.327 [36]	0.270 [37]	0.214 [39]	0.166 [40]	0.130 [40]	0.103 [41]	0.083 [41]
101.6x8	544	0.496 [63]	0.417 [66]	0.337 [70]	0.266 [73]	0.210 [75]	0.167 [76]	0.136 [77]
101.6x10	477	0.643 [66]	0.542 [69]	0.440 [71]	0.349 [74]	0.276 [76]	0.220 [77]	0.178 [77]
114.3x6.3	613	0.331 [37]	0.274 [38]	0.217 [40]	0.169 [41]	0.132 [41]	0.104 [42]	0.084 [42]
114.3x8	541	0.505 [64]	0.424 [67]	0.343 [71]	0.271 [74]	0.214 [77]	0.171 [78]	0.138 [79]
114.3x10	474	0.648 [65]	0.546 [67]	0.443 [69]	0.351 [72]	0.277 [73]	0.221 [74]	0.179 [75]
139.7x6.3	610	0.337 [38]	0.279 [39]	0.221 [40]	0.172 [41]	0.134 [42]	0.106 [43]	0.085 [43]
139.7x8	536	0.516 [65]	0.434 [69]	0.352 [73]	0.278 [76]	0.220 [78]	0.175 [80]	0.142 [81]
139.7x10	469	0.655 [63]	0.552 [64]	0.447 [66]	0.354 [68]	0.280 [70]	0.223 [70]	0.181 [71]
139.7x12.5	417	0.738 [41]	0.618 [40]	0.496 [39]	0.390 [38]	0.307 [37]	0.244 [37]	0.198 [37]
168.3x6.3	609	0.340 [38]	0.281 [39]	0.223 [40]	0.173 [41]	0.135 [42]	0.107 [43]	0.086 [43]
168.3x8	532	0.526 [67]	0.443 [70]	0.359 [74]	0.284 [78]	0.225 [80]	0.179 [82]	0.145 [83]
168.3x10	466	0.661 [61]	0.556 [63]	0.450 [64]	0.356 [66]	0.281 [67]	0.225 [68]	0.182 [68]
168.3x12.5	413	0.745 [39]	0.623 [38]	0.500 [37]	0.393 [36]	0.309 [35]	0.246 [35]	0.199 [34]
193.7x6.3	607	0.344 [39]	0.284 [40]	0.225 [41]	0.175 [42]	0.137 [43]	0.108 [43]	0.087 [44]
193.7x8	529	0.533 [68]	0.449 [71]	0.364 [75]	0.289 [79]	0.228 [81]	0.182 [83]	0.148 [84]
193.7x10	464	0.664 [60]	0.559 [61]	0.452 [63]	0.358 [64]	0.282 [65]	0.225 [66]	0.183 [67]
193.7x12.5	410	0.749 [39]	0.626 [37]	0.503 [36]	0.395 [35]	0.311 [34]	0.247 [33]	0.200 [33]
193.7x16	354	0.773 [17]	0.651 [17]	0.528 [17]	0.418 [17]	0.330 [18]	0.264 [18]	0.214 [18]
219.1x6.3	606	0.345 [39]	0.285 [40]	0.226 [41]	0.176 [42]	0.137 [43]	0.109 [43]	0.088 [44]
219.1x8	526	0.540 [69]	0.455 [73]	0.369 [77]	0.293 [80]	0.231 [83]	0.185 [85]	0.150 [86]
219.1x10	462	0.666 [59]	0.561 [61]	0.454 [62]	0.359 [63]	0.283 [64]	0.226 [65]	0.183 [65]
219.1x12.5	408	0.753 [38]	0.629 [37]	0.505 [35]	0.397 [34]	0.312 [33]	0.248 [32]	0.200 [32]
219.1x14.2	378	0.769 [25]	0.645 [24]	0.520 [23]	0.410 [22]	0.323 [21]	0.257 [20]	0.208 [20]
219.1x16	352	0.773 [16]	0.652 [17]	0.528 [17]	0.419 [17]	0.331 [17]	0.264 [17]	0.214 [17]
244.5x6.3	605	0.346 [39]	0.286 [40]	0.227 [41]	0.177 [42]	0.138 [43]	0.109 [43]	0.088 [44]
244.5x8	526	0.542 [69]	0.457 [73]	0.371 [77]	0.294 [80]	0.232 [83]	0.186 [85]	0.151 [86]
244.5x10	461	0.669 [59]	0.562 [60]	0.455 [61]	0.360 [63]	0.284 [63]	0.227 [64]	0.184 [64]
244.5x12.5	407	0.755 [37]	0.631 [36]	0.506 [35]	0.398 [33]	0.312 [32]	0.249 [32]	0.201 [31]
244.5x14.2	377	0.769 [24]	0.645 [23]	0.520 [22]	0.410 [21]	0.323 [21]	0.258 [20]	0.209 [20]
244.5x16	350	0.774 [16]	0.652 [16]	0.529 [16]	0.419 [17]	0.332 [17]	0.265 [17]	0.215 [17]
273x8	525	0.544 [69]	0.459 [73]	0.372 [77]	0.295 [80]	0.234 [83]	0.187 [85]	0.151 [86]
273x10	460	0.670 [58]	0.564 [59]	0.456 [61]	0.361 [62]	0.285 [63]	0.227 [63]	0.184 [64]
273x12.5	405	0.757 [37]	0.633 [35]	0.508 [34]	0.399 [33]	0.313 [32]	0.249 [31]	0.201 [31]
273x14.2	375	0.770 [24]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]



**Table A.1.4.2.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
CHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
273x16	348	0.774 [15]	0.653 [16]	0.530 [16]	0.420 [16]	0.332 [17]	0.265 [17]	0.215 [17]
323.9x8	522	0.551 [70]	0.465 [74]	0.377 [78]	0.299 [82]	0.237 [84]	0.189 [86]	0.153 [87]
323.9x10	458	0.673 [58]	0.566 [59]	0.457 [60]	0.362 [61]	0.285 [62]	0.228 [62]	0.184 [62]
323.9x12.5	403	0.760 [36]	0.635 [35]	0.509 [33]	0.400 [32]	0.314 [31]	0.250 [30]	0.202 [30]
323.9x14.2	373	0.770 [23]	0.646 [22]	0.522 [21]	0.412 [21]	0.324 [20]	0.259 [20]	0.209 [20]
323.9x16	346	0.774 [15]	0.653 [15]	0.530 [16]	0.421 [16]	0.333 [16]	0.266 [17]	0.216 [17]
355.6x10	457	0.674 [57]	0.567 [58]	0.458 [59]	0.362 [60]	0.286 [61]	0.228 [62]	0.185 [62]
355.6x12.5	402	0.762 [36]	0.636 [34]	0.510 [33]	0.401 [31]	0.315 [30]	0.250 [30]	0.202 [29]
355.6x14.2	372	0.770 [23]	0.647 [22]	0.522 [21]	0.412 [20]	0.325 [20]	0.259 [20]	0.210 [19]
355.6x16	344	0.775 [14]	0.654 [15]	0.531 [15]	0.421 [16]	0.333 [16]	0.266 [16]	0.216 [17]
406.4x10	456	0.675 [57]	0.568 [58]	0.459 [59]	0.363 [60]	0.286 [60]	0.228 [61]	0.185 [61]
406.4x12.5	401	0.764 [36]	0.638 [34]	0.511 [32]	0.401 [31]	0.315 [30]	0.251 [29]	0.203 [29]
406.4x14.2	371	0.770 [22]	0.647 [22]	0.522 [21]	0.412 [20]	0.325 [20]	0.259 [20]	0.210 [19]
406.4x16	343	0.775 [14]	0.654 [15]	0.531 [15]	0.422 [16]	0.334 [16]	0.267 [16]	0.216 [16]
457x12.5	400	0.765 [35]	0.639 [34]	0.512 [32]	0.402 [31]	0.316 [30]	0.251 [29]	0.203 [28]
457x14.2	370	0.771 [22]	0.647 [21]	0.523 [21]	0.413 [20]	0.325 [20]	0.260 [19]	0.210 [19]
457x16	342	0.775 [14]	0.654 [14]	0.531 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
508x12.5	400	0.766 [35]	0.639 [33]	0.513 [32]	0.402 [30]	0.316 [29]	0.251 [28]	0.203 [28]
508x14.2	369	0.771 [22]	0.647 [21]	0.523 [21]	0.413 [20]	0.326 [20]	0.260 [19]	0.210 [19]
508x16	341	0.775 [13]	0.654 [14]	0.532 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
508x20	293	0.782 [2]	0.666 [4]	0.546 [6]	0.437 [8]	0.348 [10]	0.280 [11]	0.228 [11]

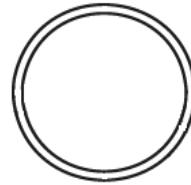
**Table A.1.4.2.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**



Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
CHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
60.3x8	806	0.084 [2]	0.072 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.031 [2]	0.025 [2]
76.1x6.3	821	0.078 [1]	0.067 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [0]
76.1x8	803	0.085 [3]	0.073 [2]	0.060 [2]	0.048 [2]	0.038 [2]	0.031 [2]	0.025 [2]
88.9x6.3	820	0.079 [1]	0.067 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
88.9x8	801	0.086 [3]	0.073 [3]	0.060 [2]	0.048 [2]	0.039 [2]	0.031 [2]	0.025 [2]
88.9x10	770	0.112 [12]	0.093 [11]	0.075 [10]	0.059 [9]	0.046 [8]	0.037 [8]	0.030 [7]
101.6x6.3	820	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
101.6x8	799	0.087 [4]	0.074 [3]	0.061 [3]	0.049 [3]	0.039 [3]	0.031 [2]	0.025 [2]
101.6x10	767	0.114 [13]	0.095 [11]	0.076 [10]	0.060 [9]	0.047 [8]	0.037 [8]	0.030 [8]
114.3x6.3	819	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
114.3x8	798	0.088 [5]	0.075 [4]	0.062 [4]	0.049 [3]	0.039 [3]	0.032 [3]	0.026 [3]
114.3x10	765	0.116 [13]	0.097 [12]	0.077 [10]	0.060 [9]	0.047 [8]	0.038 [8]	0.030 [8]
139.7x6.3	819	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
139.7x8	796	0.090 [6]	0.076 [5]	0.062 [5]	0.050 [4]	0.040 [4]	0.032 [4]	0.026 [3]
139.7x10	762	0.118 [13]	0.098 [12]	0.078 [10]	0.061 [9]	0.048 [9]	0.038 [8]	0.031 [8]
139.7x12.5	737	0.140 [9]	0.114 [8]	0.090 [7]	0.069 [6]	0.054 [6]	0.042 [6]	0.034 [6]
168.3x6.3	818	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
168.3x8	794	0.091 [7]	0.077 [6]	0.063 [6]	0.050 [5]	0.040 [4]	0.032 [4]	0.026 [4]
168.3x10	760	0.120 [13]	0.100 [12]	0.080 [11]	0.062 [9]	0.048 [9]	0.038 [8]	0.031 [8]
168.3x12.5	736	0.140 [8]	0.115 [7]	0.090 [7]	0.070 [6]	0.054 [6]	0.043 [5]	0.034 [5]
193.7x6.3	818	0.080 [1]	0.068 [1]	0.056 [1]	0.046 [1]	0.036 [1]	0.029 [1]	0.024 [1]
193.7x8	794	0.092 [7]	0.078 [7]	0.064 [6]	0.051 [5]	0.040 [5]	0.032 [5]	0.026 [4]
193.7x10	758	0.122 [13]	0.101 [12]	0.080 [11]	0.062 [9]	0.049 [9]	0.039 [8]	0.031 [8]
193.7x12.5	735	0.141 [7]	0.115 [7]	0.090 [6]	0.070 [6]	0.054 [5]	0.043 [5]	0.034 [5]
193.7x16	704	0.166 [16]	0.134 [15]	0.104 [14]	0.079 [12]	0.061 [12]	0.048 [11]	0.039 [11]
219.1x6.3	818	0.080 [1]	0.068 [1]	0.056 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
219.1x8	793	0.092 [8]	0.078 [7]	0.064 [6]	0.051 [6]	0.041 [5]	0.032 [5]	0.026 [5]
219.1x10	757	0.122 [13]	0.101 [12]	0.081 [11]	0.063 [10]	0.049 [9]	0.039 [8]	0.031 [8]
219.1x12.5	735	0.141 [7]	0.116 [7]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
219.1x14.2	724	0.150 [8]	0.122 [7]	0.096 [7]	0.073 [6]	0.057 [6]	0.045 [5]	0.036 [5]
219.1x16	702	0.168 [17]	0.136 [16]	0.105 [14]	0.080 [13]	0.062 [12]	0.048 [12]	0.039 [12]
244.5x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
244.5x8	792	0.093 [8]	0.079 [8]	0.064 [7]	0.051 [6]	0.041 [5]	0.033 [5]	0.026 [5]
244.5x10	756	0.123 [13]	0.102 [12]	0.081 [10]	0.063 [9]	0.049 [9]	0.039 [8]	0.031 [8]
244.5x12.5	734	0.141 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
244.5x14.2	723	0.151 [8]	0.123 [8]	0.096 [7]	0.074 [6]	0.057 [6]	0.045 [6]	0.036 [6]
244.5x16	699	0.171 [19]	0.138 [17]	0.107 [16]	0.081 [14]	0.063 [14]	0.049 [13]	0.039 [13]
273x8	792	0.093 [9]	0.079 [8]	0.064 [7]	0.051 [6]	0.041 [6]	0.033 [5]	0.027 [5]
273x10	756	0.124 [13]	0.102 [12]	0.081 [11]	0.063 [9]	0.049 [9]	0.039 [8]	0.032 [8]
273x12.5	734	0.142 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.035 [4]
273x14.2	722	0.152 [9]	0.124 [8]	0.096 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]

**Table A.1.4.2.2**

**Galvanized steel columns exposed to fire for 30 minutes  
(Eurocode)**



Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
CHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
273x16	698	0.174 [21]	0.141 [19]	0.109 [18]	0.083 [17]	0.064 [16]	0.050 [16]	0.040 [15]
323.9x8	791	0.094 [9]	0.080 [8]	0.065 [7]	0.052 [7]	0.041 [6]	0.033 [5]	0.027 [5]
323.9x10	755	0.125 [13]	0.103 [12]	0.082 [11]	0.064 [10]	0.050 [9]	0.039 [8]	0.032 [8]
323.9x12.5	734	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.054 [5]	0.043 [4]	0.035 [4]
323.9x14.2	720	0.153 [9]	0.125 [8]	0.097 [8]	0.074 [7]	0.058 [7]	0.045 [6]	0.036 [6]
323.9x16	695	0.179 [24]	0.145 [23]	0.112 [21]	0.086 [20]	0.066 [20]	0.052 [19]	0.042 [19]
355.6x10	754	0.125 [13]	0.103 [12]	0.082 [11]	0.064 [9]	0.050 [9]	0.039 [8]	0.032 [8]
355.6x12.5	733	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.055 [5]	0.043 [4]	0.035 [4]
355.6x14.2	719	0.154 [10]	0.125 [9]	0.097 [8]	0.075 [7]	0.058 [7]	0.045 [7]	0.036 [6]
355.6x16	694	0.181 [25]	0.147 [24]	0.114 [22]	0.087 [22]	0.067 [21]	0.053 [21]	0.042 [20]
406.4x10	754	0.125 [13]	0.104 [12]	0.082 [10]	0.064 [9]	0.050 [9]	0.039 [8]	0.032 [8]
406.4x12.5	733	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
406.4x14.2	718	0.155 [10]	0.126 [9]	0.098 [8]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]
406.4x16	692	0.184 [26]	0.149 [25]	0.116 [24]	0.089 [24]	0.068 [23]	0.054 [23]	0.043 [23]
457x12.5	733	0.143 [6]	0.117 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
457x14.2	718	0.155 [10]	0.126 [9]	0.098 [8]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]
457x16	691	0.187 [28]	0.151 [27]	0.118 [26]	0.090 [25]	0.069 [25]	0.055 [25]	0.044 [24]
508x12.5	733	0.143 [6]	0.117 [6]	0.092 [5]	0.071 [5]	0.055 [4]	0.043 [4]	0.035 [4]
508x14.2	717	0.156 [11]	0.126 [10]	0.098 [9]	0.075 [8]	0.058 [8]	0.046 [7]	0.037 [7]
508x16	690	0.189 [29]	0.153 [28]	0.119 [28]	0.091 [27]	0.070 [26]	0.055 [26]	0.044 [26]
508x20	614	0.330 [91]	0.273 [95]	0.216 [100]	0.168 [103]	0.131 [106]	0.104 [108]	0.084 [109]

**Table A.1.4.3.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
SHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
50x50x6.3	622	0.315 [35]	0.260 [36]	0.206 [37]	0.160 [38]	0.124 [39]	0.098 [39]	0.079 [39]
50x50x7.1	594	0.372 [43]	0.309 [45]	0.246 [46]	0.192 [48]	0.150 [49]	0.119 [49]	0.096 [50]
50x50x8	555	0.468 [59]	0.393 [62]	0.316 [65]	0.249 [68]	0.197 [70]	0.157 [71]	0.127 [72]
60x60x6.3	619	0.322 [35]	0.266 [37]	0.210 [38]	0.163 [39]	0.127 [40]	0.101 [40]	0.081 [40]
60x60x7.1	586	0.391 [46]	0.325 [48]	0.259 [50]	0.203 [52]	0.159 [53]	0.126 [54]	0.102 [54]
60x60x8	548	0.487 [62]	0.409 [65]	0.330 [68]	0.261 [71]	0.206 [73]	0.164 [75]	0.133 [76]
70x70x6.3	616	0.327 [36]	0.270 [37]	0.214 [39]	0.166 [40]	0.130 [40]	0.103 [41]	0.083 [41]
70x70x7.1	583	0.399 [48]	0.332 [50]	0.266 [52]	0.208 [54]	0.163 [55]	0.130 [56]	0.105 [56]
70x70x8	542	0.502 [64]	0.422 [67]	0.342 [71]	0.270 [74]	0.213 [77]	0.170 [78]	0.138 [79]
70x70x8.8	510	0.582 [73]	0.491 [77]	0.400 [82]	0.318 [86]	0.252 [89]	0.201 [91]	0.163 [92]
80x80x6.3	613	0.331 [37]	0.274 [38]	0.217 [40]	0.169 [41]	0.132 [41]	0.104 [42]	0.084 [42]
80x80x7.1	579	0.409 [50]	0.341 [52]	0.273 [54]	0.214 [56]	0.168 [57]	0.133 [58]	0.108 [59]
80x80x8	538	0.512 [65]	0.431 [69]	0.349 [73]	0.276 [76]	0.218 [78]	0.174 [80]	0.141 [81]
80x80x8.8	504	0.596 [76]	0.504 [80]	0.410 [84]	0.326 [88]	0.259 [91]	0.207 [93]	0.168 [95]
80x80x10	473	0.649 [64]	0.547 [67]	0.443 [69]	0.351 [71]	0.278 [72]	0.222 [73]	0.180 [74]
80x80x12.5	422	0.730 [43]	0.611 [42]	0.491 [41]	0.387 [41]	0.304 [40]	0.242 [40]	0.196 [39]
90x90x6.3	610	0.337 [38]	0.279 [39]	0.221 [40]	0.172 [41]	0.134 [42]	0.106 [43]	0.086 [43]
90x90x7.1	577	0.415 [51]	0.346 [53]	0.277 [55]	0.218 [57]	0.171 [59]	0.136 [60]	0.110 [60]
90x90x8	536	0.517 [65]	0.435 [69]	0.352 [73]	0.279 [76]	0.220 [78]	0.176 [80]	0.142 [81]
90x90x8.8	499	0.607 [76]	0.514 [80]	0.418 [85]	0.333 [89]	0.264 [92]	0.211 [94]	0.171 [96]
90x90x10	470	0.654 [63]	0.551 [65]	0.446 [67]	0.353 [69]	0.279 [70]	0.223 [71]	0.181 [72]
90x90x12.5	419	0.736 [42]	0.616 [41]	0.495 [40]	0.389 [39]	0.306 [38]	0.244 [38]	0.197 [37]
100x100x6.3	610	0.339 [38]	0.280 [39]	0.222 [40]	0.173 [41]	0.135 [42]	0.107 [43]	0.086 [43]
100x100x7.1	576	0.417 [51]	0.348 [53]	0.279 [56]	0.219 [58]	0.172 [59]	0.137 [60]	0.110 [61]
100x100x8	533	0.524 [67]	0.441 [70]	0.358 [74]	0.283 [77]	0.224 [80]	0.179 [81]	0.145 [83]
100x100x8.8	497	0.610 [76]	0.516 [80]	0.420 [85]	0.334 [89]	0.265 [92]	0.212 [93]	0.172 [95]
100x100x10	468	0.657 [62]	0.553 [64]	0.448 [66]	0.355 [67]	0.280 [69]	0.224 [69]	0.181 [70]
100x100x12.5	416	0.741 [41]	0.619 [40]	0.498 [38]	0.391 [37]	0.308 [37]	0.245 [36]	0.198 [36]
120x120x6.3	607	0.342 [39]	0.283 [40]	0.225 [41]	0.175 [42]	0.136 [43]	0.108 [43]	0.087 [44]
120x120x7.1	572	0.425 [52]	0.355 [55]	0.285 [57]	0.224 [59]	0.176 [61]	0.140 [62]	0.113 [63]
120x120x8	529	0.533 [68]	0.449 [71]	0.364 [75]	0.289 [79]	0.228 [81]	0.182 [83]	0.148 [84]
120x120x8.8	495	0.614 [75]	0.519 [79]	0.422 [84]	0.335 [88]	0.266 [90]	0.213 [92]	0.172 [93]
120x120x10	465	0.662 [61]	0.557 [62]	0.451 [64]	0.357 [65]	0.282 [66]	0.225 [67]	0.182 [67]
120x120x12.5	411	0.747 [39]	0.625 [38]	0.502 [37]	0.394 [35]	0.310 [35]	0.247 [34]	0.199 [34]
140x140x6.3	606	0.345 [39]	0.285 [40]	0.226 [41]	0.176 [42]	0.137 [43]	0.109 [43]	0.088 [44]
140x140x7.1	570	0.432 [54]	0.361 [56]	0.290 [59]	0.228 [61]	0.179 [63]	0.142 [64]	0.115 [64]
140x140x8	526	0.541 [69]	0.456 [73]	0.370 [77]	0.293 [80]	0.232 [83]	0.185 [85]	0.150 [86]
140x140x8.8	493	0.617 [75]	0.521 [78]	0.424 [83]	0.337 [86]	0.267 [89]	0.213 [91]	0.173 [92]
140x140x10	462	0.666 [59]	0.560 [61]	0.453 [62]	0.359 [64]	0.283 [65]	0.226 [65]	0.183 [66]
140x140x12.5	409	0.752 [38]	0.628 [37]	0.504 [35]	0.396 [34]	0.311 [33]	0.248 [33]	0.200 [32]
150x150x6.3	606	0.346 [39]	0.286 [40]	0.227 [41]	0.176 [42]	0.138 [43]	0.109 [43]	0.088 [44]

**Table A.1.4.3.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi}k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi}k_{y,\theta}$ relative to ungalvanized steel (%)]						
SHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
150x150x7.1	569	0.433 [54]	0.362 [56]	0.291 [59]	0.228 [61]	0.179 [63]	0.143 [64]	0.115 [65]
150x150x8	526	0.542 [69]	0.457 [73]	0.371 [77]	0.294 [80]	0.232 [83]	0.186 [85]	0.151 [86]
150x150x8.8	492	0.618 [74]	0.522 [78]	0.425 [82]	0.337 [86]	0.267 [89]	0.214 [91]	0.173 [92]
150x150x10	462	0.667 [59]	0.561 [60]	0.454 [62]	0.359 [63]	0.284 [64]	0.226 [65]	0.183 [65]
150x150x12.5	408	0.753 [38]	0.630 [36]	0.505 [35]	0.397 [34]	0.312 [33]	0.248 [32]	0.201 [32]
150x150x14.2	378	0.769 [24]	0.645 [23]	0.520 [22]	0.410 [21]	0.323 [21]	0.257 [20]	0.208 [20]
150x150x16	351	0.773 [16]	0.652 [17]	0.529 [17]	0.419 [17]	0.331 [17]	0.264 [17]	0.214 [17]
160x160x6.3	605	0.346 [39]	0.286 [40]	0.227 [41]	0.177 [42]	0.138 [43]	0.109 [43]	0.088 [44]
160x160x7.1	569	0.435 [54]	0.364 [56]	0.292 [59]	0.230 [61]	0.180 [63]	0.144 [64]	0.116 [65]
160x160x8	525	0.544 [69]	0.458 [73]	0.372 [77]	0.295 [80]	0.233 [83]	0.186 [85]	0.151 [86]
160x160x8.8	492	0.619 [74]	0.523 [78]	0.425 [82]	0.338 [86]	0.268 [89]	0.214 [90]	0.174 [92]
160x160x10	461	0.669 [59]	0.562 [60]	0.455 [61]	0.360 [63]	0.284 [63]	0.227 [64]	0.184 [64]
160x160x12.5	407	0.755 [37]	0.631 [36]	0.506 [35]	0.398 [33]	0.312 [32]	0.249 [32]	0.201 [31]
160x160x14.2	376	0.769 [24]	0.645 [23]	0.520 [22]	0.410 [21]	0.323 [21]	0.258 [20]	0.209 [20]
160x160x16	350	0.774 [16]	0.652 [16]	0.529 [17]	0.419 [17]	0.332 [17]	0.265 [17]	0.215 [17]
180x180x6.3	604	0.349 [39]	0.288 [41]	0.229 [42]	0.178 [43]	0.139 [44]	0.110 [44]	0.089 [45]
180x180x7.1	567	0.440 [55]	0.368 [57]	0.296 [60]	0.233 [63]	0.183 [64]	0.146 [66]	0.118 [66]
180x180x8	523	0.549 [70]	0.463 [74]	0.376 [78]	0.298 [82]	0.236 [84]	0.188 [86]	0.153 [87]
180x180x8.8	491	0.620 [74]	0.524 [78]	0.426 [82]	0.338 [85]	0.268 [88]	0.214 [90]	0.174 [91]
180x180x10	460	0.671 [58]	0.564 [59]	0.456 [61]	0.361 [62]	0.285 [62]	0.227 [63]	0.184 [63]
180x180x12.5	405	0.758 [37]	0.633 [35]	0.508 [34]	0.399 [33]	0.313 [32]	0.249 [31]	0.201 [31]
180x180x14.2	375	0.770 [24]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
180x180x16	348	0.774 [16]	0.653 [16]	0.529 [16]	0.420 [17]	0.332 [17]	0.265 [17]	0.215 [17]
200x200x6.3	603	0.350 [39]	0.290 [41]	0.230 [42]	0.179 [43]	0.140 [44]	0.111 [44]	0.089 [45]
200x200x7.1	566	0.441 [55]	0.369 [57]	0.296 [60]	0.233 [63]	0.183 [65]	0.146 [66]	0.118 [66]
200x200x8	522	0.551 [70]	0.465 [74]	0.377 [78]	0.299 [82]	0.237 [84]	0.189 [86]	0.153 [87]
200x200x8.8	490	0.622 [73]	0.525 [77]	0.427 [81]	0.339 [85]	0.269 [87]	0.215 [89]	0.174 [90]
200x200x10	459	0.672 [58]	0.565 [59]	0.457 [60]	0.361 [61]	0.285 [62]	0.227 [62]	0.184 [63]
200x200x12.5	404	0.760 [36]	0.634 [35]	0.509 [33]	0.400 [32]	0.314 [31]	0.250 [30]	0.202 [30]
200x200x14.2	374	0.770 [23]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
200x200x16	346	0.774 [15]	0.653 [15]	0.530 [16]	0.420 [16]	0.333 [16]	0.266 [17]	0.216 [17]
250x250x8	521	0.554 [70]	0.468 [74]	0.380 [78]	0.301 [82]	0.238 [84]	0.190 [86]	0.154 [87]
250x250x8.8	488	0.624 [73]	0.527 [76]	0.428 [80]	0.340 [83]	0.269 [86]	0.215 [87]	0.175 [89]
250x250x10	457	0.675 [57]	0.567 [58]	0.459 [59]	0.363 [60]	0.286 [61]	0.228 [61]	0.185 [61]
250x250x12.5	402	0.763 [36]	0.637 [34]	0.511 [33]	0.401 [31]	0.315 [30]	0.250 [29]	0.202 [29]
250x250x14.2	371	0.770 [22]	0.647 [22]	0.522 [21]	0.412 [20]	0.325 [20]	0.259 [20]	0.210 [19]
250x250x16	344	0.775 [14]	0.654 [15]	0.531 [15]	0.421 [16]	0.333 [16]	0.266 [16]	0.216 [16]
260x260x8.8	489	0.623 [73]	0.526 [76]	0.428 [80]	0.340 [84]	0.269 [86]	0.215 [88]	0.174 [89]
260x260x10	455	0.677 [56]	0.569 [57]	0.460 [58]	0.363 [59]	0.287 [60]	0.229 [60]	0.185 [60]
260x260x12.5	402	0.762 [36]	0.637 [34]	0.511 [33]	0.401 [31]	0.315 [30]	0.250 [30]	0.202 [29]
260x260x14.2	371	0.770 [22]	0.647 [22]	0.522 [21]	0.412 [20]	0.325 [20]	0.259 [20]	0.210 [19]

**Table A.1.4.3.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
SHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
260x260x16	344	0.775 [14]	0.654 [15]	0.531 [15]	0.421 [16]	0.333 [16]	0.266 [16]	0.216 [17]
300x300x8.8	487	0.626 [72]	0.529 [75]	0.429 [79]	0.341 [82]	0.270 [85]	0.216 [86]	0.175 [87]
300x300x10	455	0.679 [56]	0.570 [57]	0.461 [58]	0.364 [58]	0.287 [59]	0.229 [59]	0.186 [60]
300x300x12.5	401	0.764 [35]	0.638 [34]	0.512 [32]	0.402 [31]	0.316 [30]	0.251 [29]	0.203 [29]
300x300x14.2	369	0.771 [22]	0.647 [21]	0.523 [21]	0.413 [20]	0.326 [20]	0.260 [19]	0.210 [19]
300x300x16	342	0.775 [14]	0.654 [14]	0.531 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
350x350x12.5	400	0.765 [35]	0.639 [33]	0.513 [32]	0.402 [30]	0.316 [29]	0.251 [28]	0.203 [28]
350x350x14.2	367	0.771 [21]	0.648 [21]	0.523 [20]	0.414 [20]	0.326 [19]	0.260 [19]	0.211 [19]
350x350x16	341	0.775 [13]	0.654 [14]	0.532 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
400x400x12.5	399	0.766 [34]	0.639 [33]	0.513 [31]	0.403 [30]	0.316 [29]	0.251 [28]	0.203 [28]
400x400x14.2	367	0.771 [21]	0.648 [21]	0.524 [20]	0.414 [20]	0.326 [19]	0.260 [19]	0.211 [19]
400x400x16	340	0.775 [13]	0.655 [14]	0.532 [14]	0.423 [15]	0.335 [16]	0.268 [16]	0.217 [16]
400x400x20	292	0.782 [2]	0.666 [4]	0.547 [6]	0.438 [8]	0.349 [10]	0.280 [11]	0.228 [11]

**Table A.1.4.3.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
SHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
50x50x6.3	821	0.078 [1]	0.067 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [0]
50x50x7.1	814	0.081 [1]	0.069 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.030 [1]	0.024 [1]
50x50x8	803	0.085 [3]	0.073 [2]	0.060 [2]	0.048 [2]	0.038 [2]	0.031 [2]	0.025 [2]
60x60x6.3	821	0.079 [1]	0.067 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
60x60x7.1	812	0.082 [2]	0.070 [2]	0.058 [1]	0.046 [1]	0.037 [1]	0.030 [1]	0.024 [1]
60x60x8	800	0.086 [3]	0.073 [3]	0.060 [3]	0.048 [2]	0.039 [2]	0.031 [2]	0.025 [2]
70x70x6.3	820	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
70x70x7.1	811	0.082 [2]	0.070 [2]	0.058 [1]	0.047 [1]	0.037 [1]	0.030 [1]	0.024 [1]
70x70x8	798	0.088 [4]	0.075 [4]	0.061 [4]	0.049 [3]	0.039 [3]	0.031 [3]	0.026 [3]
70x70x8.8	786	0.098 [10]	0.083 [9]	0.067 [8]	0.053 [7]	0.042 [7]	0.034 [6]	0.027 [6]
80x80x6.3	819	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
80x80x7.1	810	0.082 [2]	0.071 [2]	0.058 [2]	0.047 [1]	0.037 [1]	0.030 [1]	0.025 [1]
80x80x8	797	0.089 [5]	0.076 [5]	0.062 [4]	0.050 [4]	0.040 [4]	0.032 [3]	0.026 [3]
80x80x8.8	784	0.100 [10]	0.084 [10]	0.068 [8]	0.054 [8]	0.043 [7]	0.034 [6]	0.028 [6]
80x80x10	764	0.117 [13]	0.097 [12]	0.077 [10]	0.061 [9]	0.047 [9]	0.038 [8]	0.030 [8]
80x80x12.5	738	0.138 [10]	0.114 [9]	0.089 [8]	0.069 [7]	0.054 [7]	0.042 [6]	0.034 [6]
90x90x6.3	819	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
90x90x7.1	810	0.083 [2]	0.071 [2]	0.058 [2]	0.047 [2]	0.038 [1]	0.030 [1]	0.025 [1]
90x90x8	796	0.090 [6]	0.076 [5]	0.063 [5]	0.050 [4]	0.040 [4]	0.032 [4]	0.026 [4]
90x90x8.8	782	0.101 [11]	0.085 [10]	0.069 [9]	0.055 [8]	0.043 [7]	0.034 [7]	0.028 [6]
90x90x10	762	0.118 [13]	0.098 [12]	0.078 [10]	0.061 [9]	0.048 [9]	0.038 [8]	0.031 [8]
90x90x12.5	737	0.139 [9]	0.114 [8]	0.090 [7]	0.069 [7]	0.054 [6]	0.042 [6]	0.034 [6]
100x100x6.3	818	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
100x100x7.1	809	0.083 [2]	0.071 [2]	0.058 [2]	0.047 [2]	0.038 [1]	0.030 [1]	0.025 [1]
100x100x8	795	0.091 [6]	0.077 [6]	0.063 [5]	0.050 [5]	0.040 [4]	0.032 [4]	0.026 [4]
100x100x8.8	781	0.102 [11]	0.086 [10]	0.070 [9]	0.055 [8]	0.043 [7]	0.035 [7]	0.028 [6]
100x100x10	761	0.119 [13]	0.099 [12]	0.079 [10]	0.062 [9]	0.048 [9]	0.038 [8]	0.031 [8]
100x100x12.5	736	0.140 [8]	0.115 [8]	0.090 [7]	0.069 [6]	0.054 [6]	0.043 [6]	0.034 [5]
120x120x6.3	818	0.080 [1]	0.068 [1]	0.056 [1]	0.046 [1]	0.036 [1]	0.029 [1]	0.024 [1]
120x120x7.1	808	0.083 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [1]	0.025 [1]
120x120x8	794	0.092 [7]	0.078 [7]	0.064 [6]	0.051 [5]	0.040 [5]	0.032 [5]	0.026 [4]
120x120x8.8	779	0.104 [11]	0.087 [10]	0.070 [9]	0.056 [8]	0.044 [7]	0.035 [7]	0.028 [7]
120x120x10	759	0.121 [13]	0.100 [12]	0.080 [11]	0.062 [10]	0.049 [9]	0.039 [8]	0.031 [8]
120x120x12.5	735	0.141 [8]	0.115 [7]	0.090 [6]	0.070 [6]	0.054 [5]	0.043 [5]	0.034 [5]
140x140x6.3	818	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
140x140x7.1	807	0.083 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
140x140x8	793	0.093 [8]	0.078 [7]	0.064 [7]	0.051 [6]	0.041 [5]	0.032 [5]	0.026 [5]
140x140x8.8	778	0.105 [11]	0.088 [10]	0.071 [9]	0.056 [8]	0.044 [7]	0.035 [7]	0.028 [7]
140x140x10	757	0.122 [13]	0.101 [12]	0.081 [11]	0.063 [10]	0.049 [9]	0.039 [8]	0.031 [8]
140x140x12.5	735	0.141 [7]	0.115 [7]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
150x150x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]

**Table A.1.4.3.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
SHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
150x150x7.1	807	0.084 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
150x150x8	792	0.093 [8]	0.079 [8]	0.064 [7]	0.051 [6]	0.041 [5]	0.033 [5]	0.026 [5]
150x150x8.8	778	0.105 [11]	0.088 [10]	0.071 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
150x150x10	757	0.123 [13]	0.102 [12]	0.081 [11]	0.063 [9]	0.049 [9]	0.039 [8]	0.031 [8]
150x150x12.5	735	0.141 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
150x150x14.2	723	0.151 [8]	0.123 [7]	0.096 [7]	0.074 [6]	0.057 [6]	0.045 [5]	0.036 [5]
150x150x16	701	0.169 [18]	0.136 [16]	0.105 [15]	0.080 [13]	0.062 [13]	0.049 [12]	0.039 [12]
160x160x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
160x160x7.1	807	0.084 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
160x160x8	792	0.093 [8]	0.079 [8]	0.064 [7]	0.051 [6]	0.041 [6]	0.033 [5]	0.026 [5]
160x160x8.8	777	0.106 [11]	0.089 [10]	0.071 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
160x160x10	756	0.123 [13]	0.102 [12]	0.081 [10]	0.063 [9]	0.049 [9]	0.039 [8]	0.031 [8]
160x160x12.5	734	0.141 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
160x160x14.2	722	0.151 [8]	0.123 [8]	0.096 [7]	0.074 [6]	0.057 [6]	0.045 [6]	0.036 [6]
160x160x16	700	0.170 [18]	0.137 [17]	0.106 [15]	0.081 [14]	0.062 [13]	0.049 [13]	0.039 [12]
180x180x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
180x180x7.1	806	0.084 [2]	0.072 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [2]
180x180x8	791	0.094 [9]	0.079 [8]	0.065 [7]	0.052 [6]	0.041 [6]	0.033 [5]	0.027 [5]
180x180x8.8	777	0.106 [12]	0.089 [11]	0.072 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
180x180x10	756	0.124 [13]	0.102 [12]	0.081 [11]	0.063 [9]	0.049 [9]	0.039 [8]	0.032 [8]
180x180x12.5	734	0.142 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.035 [4]
180x180x14.2	721	0.152 [9]	0.124 [8]	0.097 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
180x180x16	698	0.173 [20]	0.140 [19]	0.108 [17]	0.083 [16]	0.064 [15]	0.050 [15]	0.040 [15]
200x200x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.030 [1]	0.024 [1]
200x200x7.1	806	0.084 [2]	0.072 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.031 [2]	0.025 [2]
200x200x8	791	0.094 [9]	0.080 [8]	0.065 [7]	0.052 [7]	0.041 [6]	0.033 [6]	0.027 [5]
200x200x8.8	776	0.107 [12]	0.089 [11]	0.072 [9]	0.057 [8]	0.045 [8]	0.036 [7]	0.029 [7]
200x200x10	755	0.124 [13]	0.103 [12]	0.082 [10]	0.063 [9]	0.050 [9]	0.039 [8]	0.032 [8]
200x200x12.5	734	0.142 [7]	0.116 [6]	0.091 [5]	0.070 [5]	0.054 [5]	0.043 [4]	0.035 [4]
200x200x14.2	721	0.152 [9]	0.124 [8]	0.097 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
200x200x16	696	0.177 [22]	0.143 [21]	0.111 [20]	0.085 [19]	0.065 [18]	0.051 [18]	0.041 [18]
250x250x8	790	0.095 [9]	0.080 [8]	0.065 [7]	0.052 [7]	0.041 [6]	0.033 [6]	0.027 [5]
250x250x8.8	775	0.108 [12]	0.090 [11]	0.072 [10]	0.057 [9]	0.045 [8]	0.036 [7]	0.029 [7]
250x250x10	754	0.125 [13]	0.103 [12]	0.082 [10]	0.064 [9]	0.050 [9]	0.039 [8]	0.032 [8]
250x250x12.5	733	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.055 [5]	0.043 [4]	0.035 [4]
250x250x14.2	718	0.155 [10]	0.126 [9]	0.098 [8]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]
250x250x16	693	0.183 [26]	0.148 [25]	0.115 [24]	0.088 [23]	0.068 [22]	0.053 [22]	0.043 [22]
260x260x8.8	775	0.107 [12]	0.090 [11]	0.072 [9]	0.057 [8]	0.045 [8]	0.036 [7]	0.029 [7]
260x260x10	753	0.126 [13]	0.104 [12]	0.082 [10]	0.064 [9]	0.050 [9]	0.040 [8]	0.032 [8]
260x260x12.5	733	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.055 [5]	0.043 [4]	0.035 [4]
260x260x14.2	718	0.155 [10]	0.126 [9]	0.098 [8]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]

**Table A.1.4.3.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
SHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
260x260x16	693	0.183 [26]	0.148 [25]	0.115 [24]	0.088 [23]	0.068 [22]	0.053 [22]	0.043 [22]
300x300x8.8	774	0.108 [12]	0.090 [11]	0.073 [10]	0.057 [9]	0.045 [8]	0.036 [7]	0.029 [7]
300x300x10	753	0.126 [13]	0.104 [12]	0.083 [10]	0.064 [9]	0.050 [9]	0.040 [8]	0.032 [8]
300x300x12.5	733	0.143 [6]	0.117 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
300x300x14.2	717	0.156 [11]	0.126 [10]	0.098 [9]	0.075 [8]	0.058 [8]	0.046 [7]	0.037 [7]
300x300x16	691	0.186 [28]	0.151 [27]	0.117 [26]	0.090 [25]	0.069 [25]	0.054 [24]	0.044 [24]
350x350x12.5	733	0.143 [6]	0.117 [6]	0.092 [5]	0.071 [5]	0.055 [4]	0.043 [4]	0.035 [4]
350x350x14.2	716	0.157 [11]	0.127 [10]	0.099 [9]	0.076 [8]	0.059 [8]	0.046 [8]	0.037 [7]
350x350x16	690	0.189 [30]	0.154 [29]	0.119 [28]	0.091 [27]	0.071 [27]	0.056 [27]	0.045 [26]
400x400x12.5	733	0.143 [6]	0.117 [6]	0.092 [5]	0.071 [5]	0.055 [4]	0.043 [4]	0.035 [4]
400x400x14.2	716	0.157 [11]	0.127 [10]	0.099 [9]	0.076 [9]	0.059 [8]	0.046 [8]	0.037 [8]
400x400x16	688	0.192 [31]	0.156 [30]	0.121 [29]	0.093 [29]	0.072 [28]	0.056 [28]	0.045 [28]
400x400x20	611	0.336 [91]	0.278 [96]	0.220 [100]	0.171 [104]	0.134 [107]	0.106 [108]	0.085 [109]

**Table A.1.4.4.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
60x40x6.3	622	0.315 [35]	0.260 [36]	0.206 [37]	0.160 [38]	0.124 [39]	0.098 [39]	0.079 [39]
80x40x6.3	619	0.322 [35]	0.266 [37]	0.210 [38]	0.163 [39]	0.127 [40]	0.101 [40]	0.081 [40]
80x40x7.1	586	0.391 [46]	0.325 [48]	0.259 [50]	0.203 [52]	0.159 [53]	0.126 [54]	0.102 [54]
80x40x8	548	0.487 [62]	0.409 [65]	0.330 [68]	0.261 [71]	0.206 [73]	0.164 [75]	0.133 [76]
90x50x6.3	616	0.327 [36]	0.270 [37]	0.214 [39]	0.166 [40]	0.130 [40]	0.103 [41]	0.083 [41]
90x50x7.1	583	0.399 [48]	0.332 [50]	0.266 [52]	0.208 [54]	0.163 [55]	0.130 [56]	0.105 [56]
90x50x8	542	0.502 [64]	0.422 [67]	0.342 [71]	0.270 [74]	0.213 [77]	0.170 [78]	0.138 [79]
100x50x6.3	613	0.331 [37]	0.274 [38]	0.217 [40]	0.169 [41]	0.132 [41]	0.104 [42]	0.084 [42]
100x50x7.1	581	0.404 [49]	0.337 [51]	0.270 [53]	0.211 [55]	0.166 [57]	0.132 [58]	0.106 [58]
100x50x8	540	0.506 [64]	0.425 [67]	0.344 [71]	0.272 [74]	0.215 [77]	0.171 [78]	0.139 [79]
100x50x8.8	506	0.591 [75]	0.499 [78]	0.406 [83]	0.323 [87]	0.256 [90]	0.205 [92]	0.166 [93]
100x50x10	475	0.646 [65]	0.545 [67]	0.442 [70]	0.350 [72]	0.277 [74]	0.221 [75]	0.179 [76]
100x60x6.3	613	0.331 [37]	0.274 [38]	0.217 [40]	0.169 [41]	0.132 [41]	0.104 [42]	0.084 [42]
100x60x7.1	579	0.409 [50]	0.341 [52]	0.273 [54]	0.214 [56]	0.168 [57]	0.133 [58]	0.108 [59]
100x60x8	538	0.512 [65]	0.431 [69]	0.349 [73]	0.276 [76]	0.218 [78]	0.174 [80]	0.141 [81]
100x60x8.8	504	0.596 [76]	0.504 [80]	0.410 [84]	0.326 [88]	0.259 [91]	0.207 [93]	0.168 [95]
100x60x10	473	0.649 [64]	0.547 [67]	0.443 [69]	0.351 [71]	0.278 [72]	0.222 [73]	0.180 [74]
120x60x6.3	610	0.337 [38]	0.279 [39]	0.221 [40]	0.172 [41]	0.134 [42]	0.106 [43]	0.086 [43]
120x60x7.1	577	0.415 [51]	0.346 [53]	0.277 [55]	0.218 [57]	0.171 [59]	0.136 [60]	0.110 [60]
120x60x8	536	0.517 [65]	0.435 [69]	0.352 [73]	0.279 [76]	0.220 [78]	0.176 [80]	0.142 [81]
120x60x8.8	499	0.607 [76]	0.514 [80]	0.418 [85]	0.333 [89]	0.264 [92]	0.211 [94]	0.171 [96]
120x60x10	470	0.654 [63]	0.551 [65]	0.446 [67]	0.353 [69]	0.279 [70]	0.223 [71]	0.181 [72]
120x60x12.5	419	0.736 [42]	0.616 [41]	0.495 [40]	0.389 [39]	0.306 [38]	0.244 [38]	0.197 [37]
120x80x6.3	610	0.339 [38]	0.280 [39]	0.222 [40]	0.173 [41]	0.135 [42]	0.107 [43]	0.086 [43]
120x80x7.1	576	0.417 [51]	0.348 [53]	0.279 [56]	0.219 [58]	0.172 [59]	0.137 [60]	0.110 [61]
120x80x8	533	0.524 [67]	0.441 [70]	0.358 [74]	0.283 [77]	0.224 [80]	0.179 [81]	0.145 [83]
120x80x8.8	497	0.610 [76]	0.516 [80]	0.420 [85]	0.334 [89]	0.265 [92]	0.212 [93]	0.172 [95]
120x80x10	468	0.657 [62]	0.553 [64]	0.448 [66]	0.355 [67]	0.280 [69]	0.224 [69]	0.181 [70]
120x80x12.5	416	0.741 [41]	0.619 [40]	0.498 [38]	0.391 [37]	0.308 [37]	0.245 [36]	0.198 [36]
150x100x6.3	607	0.344 [39]	0.284 [40]	0.225 [41]	0.175 [42]	0.137 [43]	0.108 [43]	0.087 [44]
150x100x7.1	572	0.426 [52]	0.356 [55]	0.286 [57]	0.224 [60]	0.176 [61]	0.140 [62]	0.113 [63]
150x100x8	529	0.534 [68]	0.450 [71]	0.365 [75]	0.289 [79]	0.229 [81]	0.183 [83]	0.148 [84]
150x100x8.8	494	0.615 [75]	0.520 [79]	0.423 [83]	0.336 [87]	0.266 [90]	0.213 [92]	0.173 [93]
150x100x10	464	0.663 [60]	0.558 [62]	0.452 [63]	0.357 [65]	0.282 [66]	0.225 [66]	0.183 [67]
150x100x12.5	411	0.748 [39]	0.626 [38]	0.502 [36]	0.395 [35]	0.310 [34]	0.247 [34]	0.200 [33]
160x80x6.3	607	0.342 [39]	0.283 [40]	0.225 [41]	0.175 [42]	0.136 [43]	0.108 [43]	0.087 [44]
160x80x7.1	572	0.425 [52]	0.355 [55]	0.285 [57]	0.224 [59]	0.176 [61]	0.140 [62]	0.113 [63]
160x80x8	529	0.533 [68]	0.449 [71]	0.364 [75]	0.289 [79]	0.228 [81]	0.182 [83]	0.148 [84]
160x80x8.8	495	0.614 [75]	0.519 [79]	0.422 [84]	0.335 [88]	0.266 [90]	0.213 [92]	0.172 [93]
160x80x10	465	0.662 [61]	0.557 [62]	0.451 [64]	0.357 [65]	0.282 [66]	0.225 [67]	0.182 [67]
160x80x12.5	411	0.747 [39]	0.625 [38]	0.502 [37]	0.394 [35]	0.310 [35]	0.247 [34]	0.199 [34]

**Table A.1.4.4.1**

**Galvanized steel columns exposed to fire for 15 minutes  
(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
180x60x6.3	607	0.342 [39]	0.283 [40]	0.225 [41]	0.175 [42]	0.136 [43]	0.108 [43]	0.087 [44]
180x60x7.1	572	0.425 [52]	0.355 [55]	0.285 [57]	0.224 [59]	0.176 [61]	0.140 [62]	0.113 [63]
180x60x8	529	0.533 [68]	0.449 [71]	0.364 [75]	0.289 [79]	0.228 [81]	0.182 [83]	0.148 [84]
180x60x8.8	495	0.614 [75]	0.519 [79]	0.422 [84]	0.335 [88]	0.266 [90]	0.213 [92]	0.172 [93]
180x60x10	465	0.662 [61]	0.557 [62]	0.451 [64]	0.357 [65]	0.282 [66]	0.225 [67]	0.182 [67]
180x60x12.5	411	0.747 [39]	0.625 [38]	0.502 [37]	0.394 [35]	0.310 [35]	0.247 [34]	0.199 [34]
180x100x6.3	606	0.345 [39]	0.285 [40]	0.226 [41]	0.176 [42]	0.137 [43]	0.109 [43]	0.088 [44]
180x100x7.1	570	0.432 [54]	0.361 [56]	0.290 [59]	0.228 [61]	0.179 [63]	0.142 [64]	0.115 [64]
180x100x8	526	0.541 [69]	0.456 [73]	0.370 [77]	0.293 [80]	0.232 [83]	0.185 [85]	0.150 [86]
180x100x8.8	493	0.617 [75]	0.521 [78]	0.424 [83]	0.337 [86]	0.267 [89]	0.213 [91]	0.173 [92]
180x100x10	462	0.666 [59]	0.560 [61]	0.453 [62]	0.359 [64]	0.283 [65]	0.226 [65]	0.183 [66]
180x100x12.5	409	0.752 [38]	0.628 [37]	0.504 [35]	0.396 [34]	0.311 [33]	0.248 [33]	0.200 [32]
200x100x6.3	606	0.346 [39]	0.286 [40]	0.227 [41]	0.176 [42]	0.138 [43]	0.109 [43]	0.088 [44]
200x100x7.1	569	0.433 [54]	0.362 [56]	0.291 [59]	0.228 [61]	0.179 [63]	0.143 [64]	0.115 [65]
200x100x8	526	0.542 [69]	0.457 [73]	0.371 [77]	0.294 [80]	0.232 [83]	0.186 [85]	0.151 [86]
200x100x8.8	492	0.618 [74]	0.522 [78]	0.425 [82]	0.337 [86]	0.267 [89]	0.214 [91]	0.173 [92]
200x100x10	462	0.667 [59]	0.561 [60]	0.454 [62]	0.359 [63]	0.284 [64]	0.226 [65]	0.183 [65]
200x100x12.5	408	0.753 [38]	0.630 [36]	0.505 [35]	0.397 [34]	0.312 [33]	0.248 [32]	0.201 [32]
200x100x14.2	378	0.769 [24]	0.645 [23]	0.520 [22]	0.410 [21]	0.323 [21]	0.257 [20]	0.208 [20]
200x100x16	351	0.773 [16]	0.652 [17]	0.529 [17]	0.419 [17]	0.331 [17]	0.264 [17]	0.214 [17]
200x120x6.3	605	0.346 [39]	0.286 [40]	0.227 [41]	0.177 [42]	0.138 [43]	0.109 [43]	0.088 [44]
200x120x7.1	569	0.435 [54]	0.364 [56]	0.292 [59]	0.230 [61]	0.180 [63]	0.144 [64]	0.116 [65]
200x120x8	525	0.544 [69]	0.458 [73]	0.372 [77]	0.295 [80]	0.233 [83]	0.186 [85]	0.151 [86]
200x120x8.8	492	0.619 [74]	0.523 [78]	0.425 [82]	0.338 [86]	0.268 [89]	0.214 [90]	0.174 [92]
200x120x10	461	0.669 [59]	0.562 [60]	0.455 [61]	0.360 [63]	0.284 [63]	0.227 [64]	0.184 [64]
200x120x12.5	407	0.755 [37]	0.631 [36]	0.506 [35]	0.398 [33]	0.312 [32]	0.249 [32]	0.201 [31]
200x120x14.2	376	0.769 [24]	0.645 [23]	0.520 [22]	0.410 [21]	0.323 [21]	0.258 [20]	0.209 [20]
200x120x16	350	0.774 [16]	0.652 [16]	0.529 [17]	0.419 [17]	0.332 [17]	0.265 [17]	0.215 [17]
200x150x6.3	604	0.349 [39]	0.289 [41]	0.229 [42]	0.178 [43]	0.139 [44]	0.110 [44]	0.089 [45]
200x150x7.1	568	0.436 [54]	0.364 [56]	0.293 [59]	0.230 [61]	0.181 [63]	0.144 [64]	0.116 [65]
200x150x8	523	0.549 [70]	0.463 [74]	0.376 [78]	0.298 [82]	0.236 [84]	0.188 [86]	0.153 [87]
200x150x8.8	491	0.620 [74]	0.524 [77]	0.426 [82]	0.338 [85]	0.268 [88]	0.214 [90]	0.174 [91]
200x150x10	460	0.670 [58]	0.564 [59]	0.456 [61]	0.360 [62]	0.284 [63]	0.227 [63]	0.184 [64]
200x150x12.5	405	0.757 [37]	0.632 [36]	0.507 [34]	0.399 [33]	0.313 [32]	0.249 [31]	0.201 [31]
200x150x14.2	375	0.770 [24]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
200x150x16	348	0.774 [16]	0.653 [16]	0.529 [16]	0.420 [17]	0.332 [17]	0.265 [17]	0.215 [17]
220x120x7.1	568	0.435 [54]	0.364 [56]	0.292 [59]	0.230 [61]	0.181 [63]	0.144 [64]	0.116 [65]
220x120x8	525	0.545 [69]	0.459 [73]	0.373 [77]	0.295 [80]	0.234 [83]	0.187 [85]	0.151 [86]
220x120x8.8	491	0.620 [74]	0.523 [78]	0.426 [82]	0.338 [86]	0.268 [88]	0.214 [90]	0.174 [91]
220x120x10	460	0.670 [58]	0.563 [60]	0.456 [61]	0.360 [62]	0.284 [63]	0.227 [63]	0.184 [64]
220x120x12.5	406	0.756 [37]	0.632 [36]	0.507 [34]	0.398 [33]	0.313 [32]	0.249 [31]	0.201 [31]

**Table A.1.4.4.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
220x120x14.2	376	0.770 [24]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [21]	0.258 [20]	0.209 [20]
220x120x16	349	0.774 [16]	0.652 [16]	0.529 [16]	0.420 [17]	0.332 [17]	0.265 [17]	0.215 [17]
250x100x8	523	0.549 [70]	0.463 [74]	0.376 [78]	0.298 [82]	0.236 [84]	0.188 [86]	0.153 [87]
250x100x8.8	491	0.620 [74]	0.524 [77]	0.426 [82]	0.338 [85]	0.268 [88]	0.214 [90]	0.174 [91]
250x100x10	460	0.670 [58]	0.564 [59]	0.456 [61]	0.360 [62]	0.284 [63]	0.227 [63]	0.184 [64]
250x100x12.5	405	0.757 [37]	0.632 [36]	0.507 [34]	0.399 [33]	0.313 [32]	0.249 [31]	0.201 [31]
250x100x14.2	375	0.770 [24]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
250x100x16	348	0.774 [16]	0.653 [16]	0.529 [16]	0.420 [17]	0.332 [17]	0.265 [17]	0.215 [17]
250x150x8	522	0.551 [70]	0.465 [74]	0.377 [78]	0.299 [82]	0.237 [84]	0.189 [86]	0.153 [87]
250x150x8.8	490	0.622 [73]	0.525 [77]	0.427 [81]	0.339 [85]	0.269 [87]	0.215 [89]	0.174 [90]
250x150x10	459	0.672 [58]	0.565 [59]	0.457 [60]	0.361 [61]	0.285 [62]	0.227 [62]	0.184 [63]
250x150x12.5	404	0.760 [36]	0.634 [35]	0.509 [33]	0.400 [32]	0.314 [31]	0.250 [30]	0.202 [30]
250x150x14.2	374	0.770 [23]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
250x150x16	346	0.774 [15]	0.653 [15]	0.530 [16]	0.420 [16]	0.333 [16]	0.266 [17]	0.216 [17]
260x140x8.8	490	0.622 [73]	0.525 [77]	0.427 [81]	0.339 [85]	0.269 [87]	0.215 [89]	0.174 [90]
260x140x10	459	0.672 [58]	0.565 [59]	0.457 [60]	0.361 [61]	0.285 [62]	0.227 [62]	0.184 [63]
260x140x12.5	404	0.760 [36]	0.634 [35]	0.509 [33]	0.400 [32]	0.314 [31]	0.250 [30]	0.202 [30]
260x140x14.2	374	0.770 [23]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
260x140x16	346	0.774 [15]	0.653 [15]	0.530 [16]	0.420 [16]	0.333 [16]	0.266 [17]	0.216 [17]
300x100x10	459	0.672 [58]	0.565 [59]	0.457 [60]	0.361 [61]	0.285 [62]	0.227 [62]	0.184 [63]
300x100x12.5	404	0.760 [36]	0.634 [35]	0.509 [33]	0.400 [32]	0.314 [31]	0.250 [30]	0.202 [30]
300x100x14.2	374	0.770 [23]	0.646 [23]	0.521 [22]	0.411 [21]	0.324 [20]	0.258 [20]	0.209 [20]
300x100x16	346	0.774 [15]	0.653 [15]	0.530 [16]	0.420 [16]	0.333 [16]	0.266 [17]	0.216 [17]
300x150x10	458	0.674 [57]	0.566 [58]	0.458 [59]	0.362 [60]	0.286 [61]	0.228 [62]	0.185 [62]
300x150x12.5	402	0.763 [36]	0.637 [34]	0.511 [33]	0.401 [31]	0.315 [30]	0.251 [29]	0.203 [29]
300x150x14.2	371	0.770 [22]	0.647 [22]	0.522 [21]	0.412 [20]	0.325 [20]	0.259 [20]	0.210 [19]
300x150x16	345	0.774 [15]	0.653 [15]	0.531 [15]	0.421 [16]	0.333 [16]	0.266 [16]	0.216 [17]
300x200x10	457	0.675 [57]	0.567 [58]	0.459 [59]	0.363 [60]	0.286 [61]	0.228 [61]	0.185 [61]
300x200x12.5	402	0.763 [36]	0.637 [34]	0.511 [33]	0.401 [31]	0.315 [30]	0.250 [29]	0.202 [29]
300x200x14.2	371	0.770 [22]	0.647 [22]	0.522 [21]	0.412 [20]	0.325 [20]	0.259 [20]	0.210 [19]
300x200x16	344	0.775 [14]	0.654 [15]	0.531 [15]	0.421 [16]	0.333 [16]	0.266 [16]	0.216 [16]
300x250x10	455	0.678 [56]	0.570 [57]	0.460 [58]	0.364 [59]	0.287 [59]	0.229 [60]	0.185 [60]
300x250x12.5	400	0.765 [35]	0.638 [34]	0.512 [32]	0.402 [31]	0.316 [30]	0.251 [29]	0.203 [28]
300x250x14.2	369	0.771 [22]	0.647 [21]	0.523 [21]	0.413 [20]	0.326 [20]	0.260 [19]	0.210 [19]
300x250x16	343	0.775 [14]	0.654 [14]	0.531 [15]	0.422 [16]	0.334 [16]	0.267 [16]	0.216 [16]
350x150x12.5	402	0.763 [36]	0.637 [34]	0.511 [33]	0.401 [31]	0.315 [30]	0.250 [29]	0.202 [29]
350x150x14.2	371	0.770 [22]	0.647 [22]	0.522 [21]	0.412 [20]	0.325 [20]	0.259 [20]	0.210 [19]
350x150x16	344	0.775 [14]	0.654 [15]	0.531 [15]	0.421 [16]	0.333 [16]	0.266 [16]	0.216 [16]
350x250x12.5	401	0.764 [35]	0.638 [34]	0.512 [32]	0.402 [31]	0.316 [30]	0.251 [29]	0.203 [29]
350x250x14.2	369	0.771 [22]	0.647 [21]	0.523 [21]	0.413 [20]	0.326 [20]	0.260 [19]	0.210 [19]
350x250x16	342	0.775 [14]	0.654 [14]	0.531 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]

**Table A.1.4.4.1**  
**Galvanized steel columns exposed to fire for 15 minutes**  
**(Eurocode)**

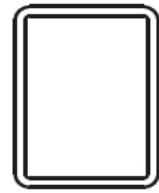
Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
400x150x12.5	400	0.765 [35]	0.638 [34]	0.512 [32]	0.402 [31]	0.316 [30]	0.251 [29]	0.203 [28]
400x150x14.2	369	0.771 [22]	0.647 [21]	0.523 [21]	0.413 [20]	0.326 [20]	0.260 [19]	0.210 [19]
400x150x16	343	0.775 [14]	0.654 [14]	0.531 [15]	0.422 [16]	0.334 [16]	0.267 [16]	0.216 [16]
400x200x12.5	401	0.764 [35]	0.638 [34]	0.512 [32]	0.402 [31]	0.316 [30]	0.251 [29]	0.203 [29]
400x200x14.2	369	0.771 [22]	0.647 [21]	0.523 [21]	0.413 [20]	0.326 [20]	0.260 [19]	0.210 [19]
400x200x16	342	0.775 [14]	0.654 [14]	0.531 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
400x300x12.5	400	0.765 [35]	0.639 [33]	0.513 [32]	0.402 [30]	0.316 [29]	0.251 [28]	0.203 [28]
400x300x14.2	367	0.771 [21]	0.648 [21]	0.523 [20]	0.414 [20]	0.326 [19]	0.260 [19]	0.211 [19]
400x300x16	341	0.775 [13]	0.654 [14]	0.532 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
450x250x14.2	367	0.771 [21]	0.648 [21]	0.523 [20]	0.414 [20]	0.326 [19]	0.260 [19]	0.211 [19]
450x250x16	341	0.775 [13]	0.654 [14]	0.532 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
500x200x16	341	0.775 [13]	0.654 [14]	0.532 [15]	0.422 [15]	0.334 [16]	0.267 [16]	0.217 [16]
500x300x16	340	0.775 [13]	0.655 [14]	0.532 [14]	0.423 [15]	0.335 [16]	0.268 [16]	0.217 [16]
500x300x20	292	0.782 [2]	0.666 [4]	0.547 [6]	0.438 [8]	0.349 [10]	0.280 [11]	0.228 [11]

**Table A.1.4.4.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
60x40x6.3	821	0.078 [1]	0.067 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [0]
80x40x6.3	821	0.079 [1]	0.067 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
80x40x7.1	812	0.082 [2]	0.070 [2]	0.058 [1]	0.046 [1]	0.037 [1]	0.030 [1]	0.024 [1]
80x40x8	800	0.086 [3]	0.073 [3]	0.060 [3]	0.048 [2]	0.039 [2]	0.031 [2]	0.025 [2]
90x50x6.3	820	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
90x50x7.1	811	0.082 [2]	0.070 [2]	0.058 [1]	0.047 [1]	0.037 [1]	0.030 [1]	0.024 [1]
90x50x8	798	0.088 [4]	0.075 [4]	0.061 [4]	0.049 [3]	0.039 [3]	0.031 [3]	0.026 [3]
100x50x6.3	819	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
100x50x7.1	811	0.082 [2]	0.070 [2]	0.058 [2]	0.047 [1]	0.037 [1]	0.030 [1]	0.025 [1]
100x50x8	797	0.088 [5]	0.075 [4]	0.062 [4]	0.049 [4]	0.039 [3]	0.032 [3]	0.026 [3]
100x50x8.8	785	0.099 [10]	0.084 [9]	0.068 [8]	0.054 [7]	0.042 [7]	0.034 [6]	0.028 [6]
100x50x10	766	0.115 [13]	0.096 [12]	0.077 [10]	0.060 [9]	0.047 [8]	0.037 [8]	0.030 [8]
100x60x6.3	819	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
100x60x7.1	810	0.082 [2]	0.071 [2]	0.058 [2]	0.047 [1]	0.037 [1]	0.030 [1]	0.025 [1]
100x60x8	797	0.089 [5]	0.076 [5]	0.062 [4]	0.050 [4]	0.040 [4]	0.032 [3]	0.026 [3]
100x60x8.8	784	0.100 [10]	0.084 [10]	0.068 [8]	0.054 [8]	0.043 [7]	0.034 [6]	0.028 [6]
100x60x10	764	0.117 [13]	0.097 [12]	0.077 [10]	0.061 [9]	0.047 [9]	0.038 [8]	0.030 [8]
120x60x6.3	819	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
120x60x7.1	810	0.083 [2]	0.071 [2]	0.058 [2]	0.047 [2]	0.038 [1]	0.030 [1]	0.025 [1]
120x60x8	796	0.090 [6]	0.076 [5]	0.063 [5]	0.050 [4]	0.040 [4]	0.032 [4]	0.026 [4]
120x60x8.8	782	0.101 [11]	0.085 [10]	0.069 [9]	0.055 [8]	0.043 [7]	0.034 [7]	0.028 [6]
120x60x10	762	0.118 [13]	0.098 [12]	0.078 [10]	0.061 [9]	0.048 [9]	0.038 [8]	0.031 [8]
120x60x12.5	737	0.139 [9]	0.114 [8]	0.090 [7]	0.069 [7]	0.054 [6]	0.042 [6]	0.034 [6]
120x80x6.3	818	0.079 [1]	0.068 [1]	0.056 [1]	0.045 [1]	0.036 [1]	0.029 [1]	0.024 [1]
120x80x7.1	809	0.083 [2]	0.071 [2]	0.058 [2]	0.047 [2]	0.038 [1]	0.030 [1]	0.025 [1]
120x80x8	795	0.091 [6]	0.077 [6]	0.063 [5]	0.050 [5]	0.040 [4]	0.032 [4]	0.026 [4]
120x80x8.8	781	0.102 [11]	0.086 [10]	0.070 [9]	0.055 [8]	0.043 [7]	0.035 [7]	0.028 [6]
120x80x10	761	0.119 [13]	0.099 [12]	0.079 [10]	0.062 [9]	0.048 [9]	0.038 [8]	0.031 [8]
120x80x12.5	736	0.140 [8]	0.115 [8]	0.090 [7]	0.069 [6]	0.054 [6]	0.043 [6]	0.034 [5]
150x100x6.3	818	0.080 [1]	0.068 [1]	0.056 [1]	0.046 [1]	0.036 [1]	0.029 [1]	0.024 [1]
150x100x7.1	808	0.083 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [1]	0.025 [1]
150x100x8	793	0.092 [8]	0.078 [7]	0.064 [6]	0.051 [5]	0.040 [5]	0.032 [5]	0.026 [4]
150x100x8.8	779	0.104 [11]	0.087 [10]	0.071 [9]	0.056 [8]	0.044 [7]	0.035 [7]	0.028 [7]
150x100x10	758	0.121 [13]	0.101 [12]	0.080 [11]	0.062 [9]	0.049 [9]	0.039 [8]	0.031 [8]
150x100x12.5	735	0.141 [8]	0.115 [7]	0.090 [6]	0.070 [6]	0.054 [5]	0.043 [5]	0.034 [5]
160x80x6.3	818	0.080 [1]	0.068 [1]	0.056 [1]	0.046 [1]	0.036 [1]	0.029 [1]	0.024 [1]
160x80x7.1	808	0.083 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [1]	0.025 [1]
160x80x8	794	0.092 [7]	0.078 [7]	0.064 [6]	0.051 [5]	0.040 [5]	0.032 [5]	0.026 [4]
160x80x8.8	779	0.104 [11]	0.087 [10]	0.070 [9]	0.056 [8]	0.044 [7]	0.035 [7]	0.028 [7]
160x80x10	759	0.121 [13]	0.100 [12]	0.080 [11]	0.062 [10]	0.049 [9]	0.039 [8]	0.031 [8]
160x80x12.5	735	0.141 [8]	0.115 [7]	0.090 [6]	0.070 [6]	0.054 [5]	0.043 [5]	0.034 [5]

**Table A.1.4.4.2**

**Galvanized steel columns exposed to fire for 30 minutes  
(Eurocode)**



Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
180x60x6.3	818	0.080 [1]	0.068 [1]	0.056 [1]	0.046 [1]	0.036 [1]	0.029 [1]	0.024 [1]
180x60x7.1	808	0.083 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [1]	0.025 [1]
180x60x8	794	0.092 [7]	0.078 [7]	0.064 [6]	0.051 [5]	0.040 [5]	0.032 [5]	0.026 [4]
180x60x8.8	779	0.104 [11]	0.087 [10]	0.070 [9]	0.056 [8]	0.044 [7]	0.035 [7]	0.028 [7]
180x60x10	759	0.121 [13]	0.100 [12]	0.080 [11]	0.062 [10]	0.049 [9]	0.039 [8]	0.031 [8]
180x60x12.5	735	0.141 [8]	0.115 [7]	0.090 [6]	0.070 [6]	0.054 [5]	0.043 [5]	0.034 [5]
180x100x6.3	818	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
180x100x7.1	807	0.083 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
180x100x8	793	0.093 [8]	0.078 [7]	0.064 [7]	0.051 [6]	0.041 [5]	0.032 [5]	0.026 [5]
180x100x8.8	778	0.105 [11]	0.088 [10]	0.071 [9]	0.056 [8]	0.044 [7]	0.035 [7]	0.028 [7]
180x100x10	757	0.122 [13]	0.101 [12]	0.081 [11]	0.063 [10]	0.049 [9]	0.039 [8]	0.031 [8]
180x100x12.5	735	0.141 [7]	0.115 [7]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
200x100x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
200x100x7.1	807	0.084 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
200x100x8	792	0.093 [8]	0.079 [8]	0.064 [7]	0.051 [6]	0.041 [5]	0.033 [5]	0.026 [5]
200x100x8.8	778	0.105 [11]	0.088 [10]	0.071 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
200x100x10	757	0.123 [13]	0.102 [12]	0.081 [11]	0.063 [9]	0.049 [9]	0.039 [8]	0.031 [8]
200x100x12.5	735	0.141 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
200x100x14.2	723	0.151 [8]	0.123 [7]	0.096 [7]	0.074 [6]	0.057 [6]	0.045 [5]	0.036 [5]
200x100x16	701	0.169 [18]	0.136 [16]	0.105 [15]	0.080 [13]	0.062 [13]	0.049 [12]	0.039 [12]
200x120x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
200x120x7.1	807	0.084 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
200x120x8	792	0.093 [8]	0.079 [8]	0.064 [7]	0.051 [6]	0.041 [6]	0.033 [5]	0.026 [5]
200x120x8.8	777	0.106 [11]	0.089 [10]	0.071 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
200x120x10	756	0.123 [13]	0.102 [12]	0.081 [10]	0.063 [9]	0.049 [9]	0.039 [8]	0.031 [8]
200x120x12.5	734	0.141 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [5]
200x120x14.2	722	0.151 [8]	0.123 [8]	0.096 [7]	0.074 [6]	0.057 [6]	0.045 [6]	0.036 [6]
200x120x16	700	0.170 [18]	0.137 [17]	0.106 [15]	0.081 [14]	0.062 [13]	0.049 [13]	0.039 [12]
200x150x6.3	817	0.080 [1]	0.068 [1]	0.057 [1]	0.046 [1]	0.037 [1]	0.029 [1]	0.024 [1]
200x150x7.1	807	0.084 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
200x150x8	791	0.094 [9]	0.079 [8]	0.065 [7]	0.051 [6]	0.041 [6]	0.033 [5]	0.027 [5]
200x150x8.8	777	0.106 [12]	0.089 [11]	0.072 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
200x150x10	756	0.124 [13]	0.102 [12]	0.081 [11]	0.063 [10]	0.049 [9]	0.039 [8]	0.032 [8]
200x150x12.5	734	0.142 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [4]
200x150x14.2	722	0.152 [9]	0.124 [8]	0.096 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
200x150x16	698	0.173 [20]	0.140 [19]	0.108 [17]	0.083 [16]	0.064 [15]	0.050 [15]	0.040 [15]
220x120x7.1	807	0.084 [2]	0.071 [2]	0.059 [2]	0.047 [2]	0.038 [2]	0.030 [2]	0.025 [1]
220x120x8	792	0.093 [9]	0.079 [8]	0.065 [7]	0.051 [6]	0.041 [6]	0.033 [5]	0.027 [5]
220x120x8.8	777	0.106 [11]	0.089 [10]	0.071 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
220x120x10	756	0.124 [13]	0.102 [12]	0.081 [11]	0.063 [10]	0.049 [9]	0.039 [8]	0.032 [8]
220x120x12.5	734	0.142 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [4]

**Table A.1.4.4.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
220x120x14.2	722	0.152 [9]	0.124 [8]	0.096 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
220x120x16	699	0.172 [19]	0.139 [18]	0.107 [16]	0.082 [15]	0.063 [14]	0.049 [14]	0.040 [14]
250x100x8	791	0.094 [9]	0.079 [8]	0.065 [7]	0.051 [6]	0.041 [6]	0.033 [5]	0.027 [5]
250x100x8.8	777	0.106 [12]	0.089 [11]	0.072 [9]	0.056 [8]	0.044 [8]	0.035 [7]	0.029 [7]
250x100x10	756	0.124 [13]	0.102 [12]	0.081 [11]	0.063 [10]	0.049 [9]	0.039 [8]	0.032 [8]
250x100x12.5	734	0.142 [7]	0.116 [6]	0.091 [6]	0.070 [5]	0.054 [5]	0.043 [5]	0.034 [4]
250x100x14.2	722	0.152 [9]	0.124 [8]	0.096 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
250x100x16	698	0.173 [20]	0.140 [19]	0.108 [17]	0.083 [16]	0.064 [15]	0.050 [15]	0.040 [15]
250x150x8	791	0.094 [9]	0.080 [8]	0.065 [7]	0.052 [7]	0.041 [6]	0.033 [6]	0.027 [5]
250x150x8.8	776	0.107 [12]	0.089 [11]	0.072 [9]	0.057 [8]	0.045 [8]	0.036 [7]	0.029 [7]
250x150x10	755	0.124 [13]	0.103 [12]	0.082 [10]	0.063 [9]	0.050 [9]	0.039 [8]	0.032 [8]
250x150x12.5	734	0.142 [7]	0.116 [6]	0.091 [5]	0.070 [5]	0.054 [5]	0.043 [4]	0.035 [4]
250x150x14.2	721	0.152 [9]	0.124 [8]	0.097 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
250x150x16	696	0.177 [22]	0.143 [21]	0.111 [20]	0.085 [19]	0.065 [18]	0.051 [18]	0.041 [18]
260x140x8.8	776	0.107 [12]	0.089 [11]	0.072 [9]	0.057 [8]	0.045 [8]	0.036 [7]	0.029 [7]
260x140x10	755	0.124 [13]	0.103 [12]	0.082 [10]	0.063 [9]	0.050 [9]	0.039 [8]	0.032 [8]
260x140x12.5	734	0.142 [7]	0.116 [6]	0.091 [5]	0.070 [5]	0.054 [5]	0.043 [4]	0.035 [4]
260x140x14.2	721	0.152 [9]	0.124 [8]	0.097 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
260x140x16	696	0.177 [22]	0.143 [21]	0.111 [20]	0.085 [19]	0.065 [18]	0.051 [18]	0.041 [18]
300x100x10	755	0.124 [13]	0.103 [12]	0.082 [10]	0.063 [9]	0.050 [9]	0.039 [8]	0.032 [8]
300x100x12.5	734	0.142 [7]	0.116 [6]	0.091 [5]	0.070 [5]	0.054 [5]	0.043 [4]	0.035 [4]
300x100x14.2	721	0.152 [9]	0.124 [8]	0.097 [7]	0.074 [7]	0.057 [6]	0.045 [6]	0.036 [6]
300x100x16	696	0.177 [22]	0.143 [21]	0.111 [20]	0.085 [19]	0.065 [18]	0.051 [18]	0.041 [18]
300x150x10	754	0.125 [13]	0.103 [12]	0.082 [11]	0.064 [9]	0.050 [9]	0.039 [8]	0.032 [8]
300x150x12.5	733	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
300x150x14.2	719	0.154 [10]	0.125 [9]	0.098 [8]	0.075 [7]	0.058 [7]	0.046 [7]	0.037 [7]
300x150x16	694	0.180 [24]	0.146 [23]	0.113 [22]	0.086 [21]	0.067 [20]	0.052 [20]	0.042 [20]
300x200x10	754	0.125 [13]	0.103 [12]	0.082 [10]	0.064 [9]	0.050 [9]	0.039 [8]	0.032 [8]
300x200x12.5	733	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.055 [5]	0.043 [4]	0.035 [4]
300x200x14.2	718	0.155 [10]	0.126 [9]	0.098 [8]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]
300x200x16	693	0.183 [26]	0.148 [25]	0.115 [24]	0.088 [23]	0.068 [22]	0.053 [22]	0.043 [22]
300x250x10	753	0.126 [13]	0.104 [12]	0.083 [10]	0.064 [9]	0.050 [9]	0.040 [8]	0.032 [8]
300x250x12.5	733	0.143 [6]	0.117 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
300x250x14.2	717	0.155 [10]	0.126 [10]	0.098 [9]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]
300x250x16	692	0.185 [27]	0.150 [26]	0.116 [25]	0.089 [24]	0.069 [24]	0.054 [24]	0.043 [23]
350x150x12.5	733	0.142 [6]	0.116 [6]	0.091 [5]	0.070 [5]	0.055 [5]	0.043 [4]	0.035 [4]
350x150x14.2	718	0.155 [10]	0.126 [9]	0.098 [8]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]
350x150x16	693	0.183 [26]	0.148 [25]	0.115 [24]	0.088 [23]	0.068 [22]	0.053 [22]	0.043 [22]
350x250x12.5	733	0.143 [6]	0.117 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
350x250x14.2	717	0.156 [11]	0.126 [10]	0.098 [9]	0.075 [8]	0.058 [8]	0.046 [7]	0.037 [7]
350x250x16	691	0.186 [28]	0.151 [27]	0.117 [26]	0.090 [25]	0.069 [25]	0.054 [24]	0.044 [24]

**Table A.1.4.4.2**  
**Galvanized steel columns exposed to fire for 30 minutes**  
**(Eurocode)**

Section Designation	Steel Temp. $\theta_a$	$\chi_{fi} k_{y,\theta}$ (-)						
		[Increase of $\chi_{fi} k_{y,\theta}$ relative to ungalvanized steel (%)]						
RHS	(°C)	$\bar{\lambda} = 0.4$	$\bar{\lambda} = 0.6$	$\bar{\lambda} = 0.8$	$\bar{\lambda} = 1.0$	$\bar{\lambda} = 1.2$	$\bar{\lambda} = 1.4$	$\bar{\lambda} = 1.6$
400x150x12.5	733	0.143 [6]	0.117 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
400x150x14.2	717	0.155 [10]	0.126 [10]	0.098 [9]	0.075 [8]	0.058 [7]	0.046 [7]	0.037 [7]
400x150x16	692	0.185 [27]	0.150 [26]	0.116 [25]	0.089 [24]	0.069 [24]	0.054 [24]	0.043 [23]
400x200x12.5	733	0.143 [6]	0.117 [6]	0.091 [5]	0.070 [5]	0.055 [4]	0.043 [4]	0.035 [4]
400x200x14.2	717	0.156 [11]	0.126 [10]	0.098 [9]	0.075 [8]	0.058 [8]	0.046 [7]	0.037 [7]
400x200x16	691	0.186 [28]	0.151 [27]	0.117 [26]	0.090 [25]	0.069 [25]	0.054 [24]	0.044 [24]
400x300x12.5	733	0.143 [6]	0.117 [6]	0.092 [5]	0.071 [5]	0.055 [4]	0.043 [4]	0.035 [4]
400x300x14.2	716	0.157 [11]	0.127 [10]	0.099 [9]	0.076 [8]	0.059 [8]	0.046 [8]	0.037 [7]
400x300x16	690	0.189 [30]	0.154 [29]	0.119 [28]	0.091 [27]	0.071 [27]	0.056 [27]	0.045 [26]
450x250x14.2	716	0.157 [11]	0.127 [10]	0.099 [9]	0.076 [8]	0.059 [8]	0.046 [8]	0.037 [7]
450x250x16	690	0.189 [30]	0.154 [29]	0.119 [28]	0.091 [27]	0.071 [27]	0.056 [27]	0.045 [26]
500x200x16	690	0.189 [30]	0.154 [29]	0.119 [28]	0.091 [27]	0.071 [27]	0.056 [27]	0.045 [26]
500x300x16	688	0.192 [31]	0.156 [30]	0.121 [29]	0.093 [29]	0.072 [28]	0.056 [28]	0.045 [28]
500x300x20	611	0.336 [91]	0.278 [96]	0.220 [100]	0.171 [104]	0.134 [107]	0.106 [108]	0.085 [109]

**Table A.2.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
1100x400x607	34 [8]	35 [8]	37 [8]	39 [7]	42 [7]	46 [6]
1100x400x548	32 [8]	33 [7]	35 [7]	37 [7]	39 [6]	44 [6]
1100x400x499	30 [7]	31 [7]	33 [7]	35 [6]	37 [6]	42 [5]
1100x400x433	28 [7]	29 [6]	30 [6]	32 [6]	34 [5]	39 [5]
1100x400x390	26 [6]	27 [6]	29 [6]	30 [5]	32 [5]	37 [4]
1100x400x343	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]	34 [4]
1016x305x584	36 [9]	37 [9]	39 [8]	41 [8]	44 [7]	49 [6]
1016x305x494	32 [8]	34 [8]	35 [7]	37 [7]	40 [6]	44 [6]
1016x305x438	30 [7]	31 [7]	33 [7]	35 [6]	37 [6]	42 [5]
1016x305x415	29 [7]	30 [7]	32 [6]	34 [6]	36 [6]	40 [5]
1016x305x393	28 [7]	29 [6]	31 [6]	33 [6]	35 [5]	39 [5]
1016x305x350	26 [6]	28 [6]	29 [6]	31 [5]	33 [5]	37 [4]
1016x305x314	25 [6]	26 [6]	27 [5]	29 [5]	31 [5]	35 [4]
1016x305x272	23 [5]	24 [5]	25 [5]	26 [4]	28 [4]	32 [3]
1016x305x249	22 [5]	23 [5]	24 [4]	25 [4]	27 [4]	31 [3]
1016x305x222	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]	29 [3]
1000x400x976	46 [12]	48 [12]	50 [11]	53 [11]	56 [10]	62 [9]
1000x400x883	44 [11]	46 [11]	48 [11]	50 [10]	53 [9]	59 [9]
1000x400x748	40 [10]	41 [10]	43 [9]	46 [9]	49 [8]	54 [8]
1000x400x642	36 [9]	38 [9]	40 [8]	42 [8]	44 [7]	50 [7]
1000x400x591	35 [9]	36 [8]	38 [8]	40 [8]	42 [7]	47 [6]
1000x400x554	33 [8]	35 [8]	36 [8]	38 [7]	41 [7]	46 [6]
1000x400x539	33 [8]	34 [8]	36 [7]	38 [7]	40 [7]	45 [6]
1000x400x483	31 [8]	32 [7]	34 [7]	35 [6]	38 [6]	42 [5]
1000x400x443	29 [7]	30 [7]	32 [7]	34 [6]	36 [6]	40 [5]
1000x400x412	28 [7]	29 [6]	30 [6]	32 [6]	35 [5]	39 [5]
1000x400x371	26 [6]	27 [6]	29 [6]	30 [5]	33 [5]	37 [4]
1000x400x321	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]	34 [4]
1000x400x296	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]	33 [3]
920x420x1377	58 [15]	60 [15]	62 [14]	66 [14]	70 [13]	77 [12]
920x420x1269	55 [15]	57 [14]	59 [14]	63 [13]	66 [12]	73 [11]
920x420x1194	53 [14]	55 [14]	57 [13]	61 [13]	64 [12]	71 [11]
920x420x1077	50 [13]	52 [13]	54 [12]	57 [12]	61 [11]	67 [10]
920x420x970	47 [12]	49 [12]	51 [11]	54 [11]	57 [10]	63 [9]
920x420x787	42 [11]	44 [10]	45 [10]	48 [9]	51 [9]	56 [8]
920x420x725	40 [10]	42 [10]	43 [9]	46 [9]	49 [8]	54 [8]
920x420x656	38 [9]	39 [9]	41 [9]	43 [8]	46 [8]	51 [7]
920x420x588	35 [9]	37 [8]	38 [8]	41 [8]	43 [7]	48 [6]
920x420x537	33 [8]	35 [8]	36 [8]	39 [7]	41 [7]	46 [6]
920x420x491	32 [8]	33 [7]	35 [7]	37 [7]	39 [6]	44 [5]
920x420x449	30 [7]	31 [7]	33 [7]	35 [6]	37 [6]	42 [5]

**Table A.2.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
920x420x420	29 [7]	30 [7]	32 [6]	33 [6]	36 [6]	40 [5]
920x420x390	28 [7]	29 [6]	30 [6]	32 [6]	34 [5]	39 [5]
920x420x368	27 [6]	28 [6]	29 [6]	31 [5]	33 [5]	37 [4]
920x420x344	26 [6]	27 [6]	28 [6]	30 [5]	32 [5]	36 [4]
914x305x576	36 [9]	38 [9]	39 [8]	42 [8]	44 [7]	49 [7]
914x305x521	34 [8]	36 [8]	37 [8]	39 [7]	42 [7]	47 [6]
914x305x474	32 [8]	34 [8]	35 [7]	37 [7]	40 [6]	45 [6]
914x305x425	30 [7]	32 [7]	33 [7]	35 [6]	38 [6]	42 [5]
914x305x381	29 [7]	30 [7]	31 [6]	33 [6]	35 [5]	40 [5]
914x305x345	27 [6]	28 [6]	29 [6]	31 [6]	33 [5]	38 [4]
914x305x313	25 [6]	27 [6]	28 [5]	30 [5]	32 [5]	36 [4]
914x305x289	24 [6]	25 [5]	27 [5]	28 [5]	30 [4]	34 [4]
914x305x271	23 [5]	24 [5]	26 [5]	27 [5]	29 [4]	33 [3]
914x305x253	22 [5]	23 [5]	25 [5]	26 [4]	28 [4]	32 [3]
914x305x238	22 [5]	23 [5]	24 [4]	25 [4]	27 [4]	31 [3]
914x305x224	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	30 [3]
914x305x201	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
840x400x576	36 [9]	38 [9]	39 [8]	42 [8]	44 [7]	49 [7]
840x400x527	34 [9]	36 [8]	37 [8]	40 [7]	42 [7]	47 [6]
840x400x473	32 [8]	34 [8]	35 [7]	37 [7]	40 [6]	44 [6]
840x400x433	31 [7]	32 [7]	33 [7]	35 [6]	38 [6]	42 [5]
840x400x392	29 [7]	30 [7]	31 [6]	33 [6]	36 [6]	40 [5]
840x400x359	27 [7]	29 [6]	30 [6]	32 [6]	34 [5]	38 [4]
840x400x329	26 [6]	27 [6]	28 [6]	30 [5]	32 [5]	36 [4]
840x400x299	25 [6]	26 [5]	27 [5]	29 [5]	31 [4]	35 [4]
838x292x251	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	33 [3]
838x292x226	22 [5]	23 [5]	24 [5]	26 [4]	27 [4]	31 [3]
838x292x194	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	29 [3]
838x292x176	19 [4]	20 [4]	21 [4]	22 [3]	24 [3]	28 [2]
760x380x582	38 [10]	40 [9]	41 [9]	44 [8]	46 [8]	52 [7]
760x380x531	36 [9]	38 [9]	39 [8]	41 [8]	44 [7]	49 [7]
760x380x484	34 [8]	36 [8]	37 [8]	39 [7]	42 [7]	47 [6]
760x380x434	32 [8]	33 [8]	35 [7]	37 [7]	39 [6]	44 [6]
760x380x389	30 [7]	31 [7]	33 [7]	35 [6]	37 [6]	42 [5]
760x380x350	28 [7]	29 [6]	31 [6]	33 [6]	35 [5]	39 [5]
760x380x314	26 [6]	28 [6]	29 [6]	31 [5]	33 [5]	37 [4]
760x380x284	25 [6]	26 [6]	27 [5]	29 [5]	31 [5]	35 [4]
760x380x257	24 [5]	25 [5]	26 [5]	27 [5]	29 [4]	33 [4]
762x267x220	23 [5]	24 [5]	25 [5]	27 [4]	28 [4]	32 [3]
762x267x197	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	31 [3]
762x267x173	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]	29 [3]

**Table A.2.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
762x267x147	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	27 [2]
762x267x134	17 [4]	18 [3]	19 [3]	20 [3]	22 [3]	25 [2]
690x360x802	48 [12]	50 [12]	52 [12]	54 [11]	58 [10]	64 [9]
690x360x548	38 [10]	40 [9]	42 [9]	44 [9]	47 [8]	52 [7]
690x360x500	36 [9]	38 [9]	40 [8]	42 [8]	45 [8]	50 [7]
690x360x457	35 [9]	36 [8]	38 [8]	40 [8]	43 [7]	47 [6]
690x360x419	33 [8]	34 [8]	36 [8]	38 [7]	41 [7]	45 [6]
690x360x384	31 [8]	33 [7]	34 [7]	36 [7]	39 [6]	43 [5]
690x360x350	30 [7]	31 [7]	32 [7]	34 [6]	37 [6]	41 [5]
690x360x323	28 [7]	30 [7]	31 [6]	33 [6]	35 [5]	39 [5]
690x360x289	27 [6]	28 [6]	29 [6]	31 [5]	33 [5]	37 [4]
690x360x265	25 [6]	26 [6]	28 [5]	29 [5]	31 [5]	36 [4]
690x360x240	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]	34 [4]
690x360x217	23 [5]	24 [5]	25 [5]	26 [4]	28 [4]	32 [3]
686x254x192	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	32 [3]
686x254x170	21 [5]	22 [4]	23 [4]	24 [4]	26 [3]	30 [3]
686x254x152	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	28 [2]
686x254x140	18 [4]	19 [4]	20 [4]	22 [3]	23 [3]	27 [2]
686x254x125	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	26 [2]
610x325x551	41 [10]	42 [10]	44 [10]	47 [9]	50 [9]	55 [8]
610x325x498	38 [10]	40 [9]	42 [9]	44 [9]	47 [8]	52 [7]
610x325x455	37 [9]	38 [9]	40 [9]	42 [8]	45 [8]	50 [7]
610x325x415	35 [9]	36 [8]	38 [8]	40 [8]	43 [7]	48 [6]
610x325x372	33 [8]	34 [8]	36 [7]	38 [7]	40 [7]	45 [6]
610x325x341	31 [8]	32 [7]	34 [7]	36 [7]	38 [6]	43 [5]
610x325x307	29 [7]	31 [7]	32 [7]	34 [6]	36 [6]	41 [5]
610x325x285	28 [7]	29 [6]	31 [6]	32 [6]	35 [5]	39 [5]
610x325x262	27 [6]	28 [6]	29 [6]	31 [5]	33 [5]	37 [4]
610x325x241	25 [6]	27 [6]	28 [5]	30 [5]	32 [5]	36 [4]
610x325x217	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]	34 [4]
610x325x195	22 [5]	24 [5]	25 [5]	26 [4]	28 [4]	32 [3]
610x325x174	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
610x325x155	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]	29 [3]
610x305x238	25 [6]	27 [6]	28 [5]	30 [5]	32 [5]	36 [4]
610x305x179	22 [5]	23 [5]	24 [4]	25 [4]	27 [4]	31 [3]
610x305x149	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]	28 [3]
610x229x153	21 [5]	22 [4]	23 [4]	24 [4]	26 [4]	30 [3]
610x229x140	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]	29 [3]
610x229x125	18 [4]	19 [4]	20 [4]	22 [3]	23 [3]	27 [2]
610x229x113	17 [4]	18 [4]	19 [3]	21 [3]	22 [3]	26 [2]
610x229x101	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]	25 [2]

**Table A.2.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**



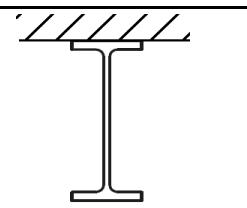
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
UB						
610x178x92	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]	24 [2]
610x178x82	15 [3]	16 [3]	16 [3]	18 [2]	19 [2]	23 [1]
533x210x138	21 [5]	22 [4]	23 [4]	24 [4]	26 [3]	30 [3]
533x210x122	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	28 [3]
533x210x109	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	27 [2]
533x210x101	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	26 [2]
533x210x92	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]	25 [2]
533x210x82	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
533x165x85	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]	24 [2]
533x165x74	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]	23 [1]
533x165x66	14 [3]	15 [3]	16 [2]	17 [2]	18 [2]	22 [1]
457x191x106	19 [4]	20 [4]	21 [4]	22 [3]	24 [3]	28 [2]
457x191x98	18 [4]	19 [4]	20 [4]	22 [3]	23 [3]	27 [2]
457x191x89	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	26 [2]
457x191x82	17 [4]	17 [3]	18 [3]	20 [3]	21 [2]	25 [2]
457x191x74	16 [3]	16 [3]	17 [3]	19 [3]	20 [2]	24 [2]
457x191x67	15 [3]	16 [3]	16 [3]	18 [2]	19 [2]	23 [1]
457x152x82	17 [4]	18 [3]	19 [3]	20 [3]	22 [3]	25 [2]
457x152x74	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]	24 [2]
457x152x67	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [1]
457x152x60	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [1]
457x152x52	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	21 [1]
406x178x85	18 [4]	19 [4]	20 [3]	21 [3]	23 [3]	26 [2]
406x178x74	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	25 [2]
406x178x67	16 [3]	16 [3]	17 [3]	19 [3]	20 [2]	24 [2]
406x178x60	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [1]
406x178x54	14 [3]	15 [3]	15 [2]	17 [2]	18 [2]	22 [1]
406x140x53	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	22 [1]
406x140x46	13 [3]	14 [2]	15 [2]	16 [2]	17 [2]	21 [1]
406x140x39	12 [2]	13 [2]	13 [2]	14 [2]	16 [1]	19 [1]
356x171x67	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]	25 [2]
356x171x57	15 [3]	16 [3]	17 [3]	18 [2]	19 [2]	23 [1]
356x171x51	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	22 [1]
356x171x45	13 [3]	14 [2]	15 [2]	16 [2]	17 [2]	21 [1]
356x127x39	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	20 [1]
356x127x33	12 [2]	12 [2]	13 [2]	14 [2]	16 [1]	19 [1]
305x165x54	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	24 [2]
305x165x46	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [1]
305x165x40	13 [3]	14 [2]	15 [2]	16 [2]	17 [2]	21 [1]
305x127x48	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
305x127x42	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [1]



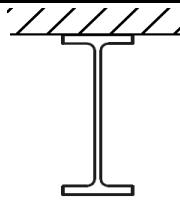
**Table A.2.1.1**  
**Galvanized steel beams exposed to fire on four sides**  
**(Eurocode)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
UB 305x127x37	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	21 [1]
305x102x33	13 [3]	13 [2]	14 [2]	15 [2]	17 [1]	20 [1]
305x102x28	12 [2]	12 [2]	13 [2]	14 [2]	16 [1]	19 [1]
305x102x25	11 [2]	11 [2]	12 [2]	13 [1]	15 [1]	18 [0]
254x146x43	15 [3]	16 [3]	17 [3]	18 [2]	19 [2]	23 [1]
254x146x37	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	21 [1]
254x146x31	13 [3]	13 [2]	14 [2]	15 [2]	17 [1]	20 [1]
254x102x28	12 [2]	13 [2]	14 [2]	15 [2]	17 [1]	20 [1]
254x102x25	12 [2]	12 [2]	13 [2]	14 [2]	16 [1]	19 [1]
254x102x22	11 [2]	12 [2]	12 [2]	13 [1]	15 [1]	18 [0]
203x133x30	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]	21 [1]
203x133x25	12 [2]	13 [2]	14 [2]	15 [2]	16 [1]	20 [1]
203x102x23	12 [2]	13 [2]	14 [2]	15 [2]	16 [1]	20 [1]
178x102x19	12 [2]	12 [2]	13 [2]	14 [2]	16 [1]	19 [1]
152x89x16	11 [2]	12 [2]	13 [2]	14 [1]	15 [1]	19 [1]
127x76x13	11 [2]	12 [2]	13 [2]	14 [2]	15 [1]	19 [1]

**Table A.2.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

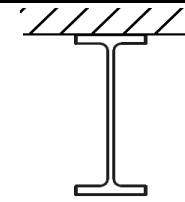


Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
1100x400x607	41 [9]	42 [8]	44 [8]	46 [8]	49 [7]	59 [6]
1100x400x548	38 [8]	40 [8]	41 [7]	43 [7]	47 [6]	56 [5]
1100x400x499	36 [7]	38 [7]	39 [7]	41 [7]	44 [6]	53 [5]
1100x400x433	33 [7]	35 [6]	36 [6]	38 [6]	41 [5]	49 [4]
1100x400x390	31 [6]	33 [6]	34 [6]	36 [5]	39 [5]	47 [4]
1100x400x343	29 [6]	30 [5]	32 [5]	33 [5]	36 [4]	44 [3]
1016x305x584	42 [9]	44 [9]	46 [8]	48 [8]	51 [7]	61 [6]
1016x305x494	38 [8]	40 [8]	42 [7]	44 [7]	47 [7]	56 [5]
1016x305x438	36 [7]	37 [7]	39 [7]	41 [6]	44 [6]	52 [5]
1016x305x415	35 [7]	36 [7]	38 [7]	39 [6]	42 [6]	51 [4]
1016x305x393	33 [7]	35 [7]	36 [6]	38 [6]	41 [5]	50 [4]
1016x305x350	31 [6]	33 [6]	34 [6]	36 [5]	39 [5]	47 [4]
1016x305x314	29 [6]	31 [6]	32 [5]	34 [5]	36 [4]	44 [3]
1016x305x272	27 [5]	28 [5]	30 [5]	31 [4]	34 [4]	41 [3]
1016x305x249	26 [5]	27 [5]	28 [4]	30 [4]	32 [4]	40 [3]
1016x305x222	24 [4]	25 [4]	26 [4]	28 [4]	30 [3]	38 [2]
1000x400x976	56 [13]	58 [12]	60 [12]	63 [11]	67 [11]	79 [9]
1000x400x883	53 [12]	55 [11]	57 [11]	59 [11]	63 [10]	75 [8]
1000x400x748	48 [11]	50 [10]	52 [10]	54 [9]	58 [9]	68 [7]
1000x400x642	44 [9]	46 [9]	47 [9]	50 [8]	53 [8]	63 [6]
1000x400x591	42 [9]	43 [9]	45 [8]	47 [8]	51 [7]	60 [6]
1000x400x554	40 [8]	42 [8]	44 [8]	46 [8]	49 [7]	58 [6]
1000x400x539	40 [8]	41 [8]	43 [8]	45 [7]	48 [7]	58 [6]
1000x400x483	37 [8]	39 [7]	40 [7]	42 [7]	45 [6]	54 [5]
1000x400x443	35 [7]	37 [7]	38 [7]	40 [6]	43 [6]	52 [5]
1000x400x412	34 [7]	35 [7]	37 [6]	39 [6]	42 [5]	50 [4]
1000x400x371	32 [6]	33 [6]	35 [6]	36 [5]	39 [5]	47 [4]
1000x400x321	29 [6]	30 [5]	32 [5]	33 [5]	36 [4]	44 [3]
1000x400x296	28 [5]	29 [5]	30 [5]	32 [5]	35 [4]	42 [3]
920x420x1377	70 [16]	72 [16]	75 [15]	78 [15]	83 [14]	97 [12]
920x420x1269	66 [15]	69 [15]	72 [14]	75 [14]	79 [13]	93 [11]
920x420x1194	64 [15]	67 [14]	69 [14]	72 [13]	77 [13]	90 [11]
920x420x1077	61 [14]	63 [13]	65 [13]	68 [13]	73 [12]	85 [10]
920x420x970	57 [13]	59 [13]	62 [12]	64 [12]	69 [11]	81 [9]
920x420x787	51 [11]	53 [11]	55 [10]	57 [10]	61 [9]	72 [8]
920x420x725	48 [11]	50 [10]	52 [10]	55 [10]	59 [9]	69 [7]
920x420x656	46 [10]	48 [10]	50 [9]	52 [9]	55 [8]	66 [7]
920x420x588	43 [9]	45 [9]	47 [9]	49 [8]	52 [8]	62 [6]
920x420x537	41 [9]	42 [8]	44 [8]	46 [8]	50 [7]	59 [6]
920x420x491	39 [8]	40 [8]	42 [7]	44 [7]	47 [7]	56 [5]
920x420x449	37 [8]	38 [7]	40 [7]	42 [7]	45 [6]	54 [5]



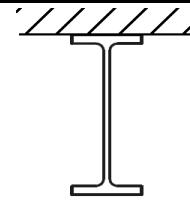
**Table A.2.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
920x420x420	35 [7]	37 [7]	38 [7]	40 [6]	43 [6]	52 [5]
920x420x390	34 [7]	35 [7]	37 [6]	38 [6]	41 [5]	50 [4]
920x420x368	33 [7]	34 [6]	35 [6]	37 [6]	40 [5]	48 [4]
920x420x344	31 [6]	33 [6]	34 [6]	36 [5]	39 [5]	47 [4]
914x305x576	43 [9]	45 [9]	47 [9]	49 [8]	52 [8]	62 [6]
914x305x521	41 [9]	42 [8]	44 [8]	46 [8]	50 [7]	59 [6]
914x305x474	39 [8]	40 [8]	42 [7]	44 [7]	47 [7]	56 [5]
914x305x425	36 [8]	38 [7]	39 [7]	41 [7]	44 [6]	53 [5]
914x305x381	34 [7]	35 [7]	37 [6]	39 [6]	42 [6]	50 [4]
914x305x345	32 [6]	33 [6]	35 [6]	37 [6]	40 [5]	48 [4]
914x305x313	30 [6]	32 [6]	33 [6]	35 [5]	38 [5]	46 [4]
914x305x289	29 [6]	30 [5]	32 [5]	33 [5]	36 [4]	44 [3]
914x305x271	28 [5]	29 [5]	31 [5]	32 [5]	35 [4]	43 [3]
914x305x253	27 [5]	28 [5]	29 [5]	31 [4]	34 [4]	41 [3]
914x305x238	26 [5]	27 [5]	28 [4]	30 [4]	32 [4]	40 [3]
914x305x224	25 [5]	26 [4]	27 [4]	29 [4]	31 [3]	39 [2]
914x305x201	24 [4]	25 [4]	26 [4]	27 [4]	30 [3]	37 [2]
840x400x576	44 [9]	46 [9]	48 [9]	50 [8]	53 [8]	63 [6]
840x400x527	42 [9]	44 [9]	45 [8]	47 [8]	51 [7]	61 [6]
840x400x473	39 [8]	41 [8]	43 [8]	45 [7]	48 [7]	57 [5]
840x400x433	37 [8]	39 [8]	41 [7]	42 [7]	46 [6]	55 [5]
840x400x392	35 [7]	37 [7]	38 [7]	40 [6]	43 [6]	52 [5]
840x400x359	33 [7]	35 [7]	36 [6]	38 [6]	41 [5]	50 [4]
840x400x329	32 [6]	33 [6]	35 [6]	36 [5]	39 [5]	47 [4]
840x400x299	30 [6]	31 [6]	33 [5]	34 [5]	37 [5]	45 [4]
838x292x251	28 [5]	29 [5]	30 [5]	32 [5]	35 [4]	42 [3]
838x292x226	26 [5]	27 [5]	29 [5]	30 [4]	33 [4]	40 [3]
838x292x194	24 [4]	25 [4]	26 [4]	28 [4]	30 [3]	37 [2]
838x292x176	23 [4]	24 [4]	25 [4]	26 [3]	29 [3]	36 [2]
760x380x582	46 [10]	48 [10]	50 [9]	53 [9]	56 [8]	67 [7]
760x380x531	44 [10]	46 [9]	48 [9]	50 [8]	54 [8]	63 [6]
760x380x484	42 [9]	44 [9]	45 [8]	47 [8]	51 [7]	61 [6]
760x380x434	39 [8]	41 [8]	43 [8]	45 [7]	48 [7]	57 [5]
760x380x389	37 [8]	38 [7]	40 [7]	42 [7]	45 [6]	54 [5]
760x380x350	35 [7]	36 [7]	38 [7]	40 [6]	43 [6]	51 [5]
760x380x314	33 [7]	34 [6]	35 [6]	37 [6]	40 [5]	48 [4]
760x380x284	31 [6]	32 [6]	33 [6]	35 [5]	38 [5]	46 [4]
760x380x257	29 [6]	30 [5]	32 [5]	33 [5]	36 [4]	44 [3]
762x267x220	27 [5]	28 [5]	30 [5]	31 [4]	34 [4]	42 [3]
762x267x197	26 [5]	27 [5]	28 [4]	30 [4]	32 [4]	39 [3]
762x267x173	24 [4]	25 [4]	26 [4]	28 [4]	30 [3]	37 [2]



**Table A.2.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

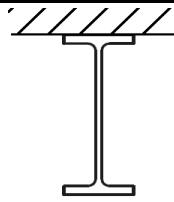
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
UB						
762x267x147	22 [4]	23 [4]	24 [3]	25 [3]	28 [3]	35 [2]
762x267x134	21 [4]	22 [3]	23 [3]	24 [3]	26 [2]	33 [2]
690x360x802	58 [13]	60 [13]	63 [12]	65 [12]	70 [11]	82 [10]
690x360x548	47 [10]	49 [10]	51 [10]	53 [9]	57 [9]	68 [7]
690x360x500	45 [10]	47 [9]	48 [9]	51 [9]	54 [8]	64 [7]
690x360x457	43 [9]	44 [9]	46 [9]	48 [8]	52 [8]	62 [6]
690x360x419	41 [9]	42 [8]	44 [8]	46 [8]	49 [7]	59 [6]
690x360x384	39 [8]	40 [8]	42 [8]	44 [7]	47 [7]	56 [5]
690x360x350	37 [8]	38 [7]	40 [7]	42 [7]	45 [6]	54 [5]
690x360x323	35 [7]	36 [7]	38 [7]	40 [6]	43 [6]	52 [5]
690x360x289	33 [7]	34 [6]	36 [6]	37 [6]	40 [5]	49 [4]
690x360x265	31 [6]	32 [6]	34 [6]	36 [5]	39 [5]	47 [4]
690x360x240	29 [6]	31 [6]	32 [5]	34 [5]	37 [4]	44 [3]
690x360x217	28 [5]	29 [5]	30 [5]	32 [5]	35 [4]	42 [3]
686x254x192	27 [5]	28 [5]	29 [5]	31 [4]	33 [4]	41 [3]
686x254x170	25 [5]	26 [4]	27 [4]	29 [4]	31 [3]	39 [2]
686x254x152	23 [4]	24 [4]	26 [4]	27 [4]	30 [3]	37 [2]
686x254x140	22 [4]	23 [4]	24 [4]	26 [3]	28 [3]	35 [2]
686x254x125	21 [4]	22 [3]	23 [3]	24 [3]	27 [3]	34 [2]
610x325x551	50 [11]	52 [11]	54 [10]	56 [10]	60 [9]	71 [8]
610x325x498	47 [10]	49 [10]	51 [10]	53 [9]	57 [9]	68 [7]
610x325x455	45 [10]	47 [9]	49 [9]	51 [9]	54 [8]	65 [7]
610x325x415	43 [9]	44 [9]	46 [8]	48 [8]	52 [8]	62 [6]
610x325x372	40 [8]	42 [8]	44 [8]	46 [7]	49 [7]	58 [6]
610x325x341	38 [8]	40 [8]	41 [7]	43 [7]	47 [6]	56 [5]
610x325x307	36 [7]	37 [7]	39 [7]	41 [7]	44 [6]	53 [5]
610x325x285	35 [7]	36 [7]	38 [7]	39 [6]	42 [6]	51 [4]
610x325x262	33 [7]	34 [6]	36 [6]	38 [6]	40 [5]	49 [4]
610x325x241	31 [6]	33 [6]	34 [6]	36 [5]	39 [5]	47 [4]
610x325x217	30 [6]	31 [6]	32 [5]	34 [5]	37 [5]	45 [3]
610x325x195	28 [5]	29 [5]	30 [5]	32 [5]	35 [4]	42 [3]
610x325x174	26 [5]	27 [5]	29 [4]	30 [4]	33 [4]	40 [3]
610x325x155	24 [5]	25 [4]	27 [4]	28 [4]	31 [3]	38 [2]
610x305x238	31 [6]	33 [6]	34 [6]	36 [5]	39 [5]	47 [4]
610x305x179	27 [5]	28 [5]	29 [5]	31 [4]	33 [4]	41 [3]
610x305x149	24 [4]	25 [4]	26 [4]	28 [4]	30 [3]	37 [2]
610x229x153	25 [5]	26 [4]	27 [4]	29 [4]	31 [3]	39 [2]
610x229x140	24 [4]	25 [4]	26 [4]	27 [4]	30 [3]	37 [2]
610x229x125	22 [4]	23 [4]	24 [4]	26 [3]	28 [3]	35 [2]
610x229x113	21 [4]	22 [4]	23 [3]	25 [3]	27 [3]	34 [2]
610x229x101	20 [4]	21 [3]	22 [3]	23 [3]	26 [2]	32 [1]



**Table A.2.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**

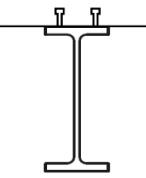
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
UB						
610x178x92	19 [3]	20 [3]	21 [3]	22 [3]	25 [2]	31 [1]
610x178x82	18 [3]	19 [3]	20 [3]	21 [2]	23 [2]	30 [1]
533x210x138	25 [5]	26 [5]	27 [4]	29 [4]	31 [3]	39 [2]
533x210x122	23 [4]	24 [4]	26 [4]	27 [4]	29 [3]	37 [2]
533x210x109	22 [4]	23 [4]	24 [3]	25 [3]	28 [3]	35 [2]
533x210x101	21 [4]	22 [4]	23 [3]	24 [3]	27 [3]	34 [2]
533x210x92	20 [3]	21 [3]	22 [3]	23 [3]	26 [2]	32 [1]
533x210x82	19 [3]	20 [3]	21 [3]	22 [2]	24 [2]	31 [1]
533x165x85	19 [3]	20 [3]	21 [3]	23 [3]	25 [2]	32 [1]
533x165x74	18 [3]	19 [3]	20 [3]	21 [2]	24 [2]	30 [1]
533x165x66	17 [3]	18 [3]	19 [2]	20 [2]	22 [2]	29 [1]
457x191x106	23 [4]	24 [4]	26 [4]	27 [4]	29 [3]	37 [2]
457x191x98	22 [4]	23 [4]	25 [4]	26 [3]	28 [3]	35 [2]
457x191x89	21 [4]	22 [4]	23 [3]	25 [3]	27 [3]	34 [2]
457x191x82	20 [4]	21 [3]	22 [3]	24 [3]	26 [2]	33 [1]
457x191x74	19 [3]	20 [3]	21 [3]	22 [3]	25 [2]	31 [1]
457x191x67	18 [3]	19 [3]	20 [3]	21 [2]	24 [2]	30 [1]
457x152x82	20 [4]	21 [3]	23 [3]	24 [3]	26 [2]	33 [1]
457x152x74	19 [3]	20 [3]	21 [3]	23 [3]	25 [2]	32 [1]
457x152x67	18 [3]	19 [3]	20 [3]	22 [2]	24 [2]	31 [1]
457x152x60	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	29 [1]
457x152x52	16 [3]	17 [2]	18 [2]	19 [2]	21 [1]	28 [1]
406x178x85	22 [4]	23 [4]	24 [3]	25 [3]	28 [3]	35 [2]
406x178x74	20 [4]	21 [3]	22 [3]	24 [3]	26 [2]	33 [1]
406x178x67	19 [3]	20 [3]	21 [3]	22 [3]	25 [2]	31 [1]
406x178x60	18 [3]	19 [3]	20 [3]	21 [2]	23 [2]	30 [1]
406x178x54	17 [3]	18 [3]	19 [2]	20 [2]	22 [2]	29 [1]
406x140x53	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	29 [1]
406x140x46	16 [2]	17 [2]	18 [2]	19 [2]	21 [1]	28 [1]
406x140x39	15 [2]	15 [2]	16 [2]	17 [1]	20 [1]	26 [0]
356x171x67	20 [4]	21 [3]	22 [3]	24 [3]	26 [2]	33 [1]
356x171x57	19 [3]	19 [3]	21 [3]	22 [2]	24 [2]	31 [1]
356x171x51	17 [3]	18 [3]	19 [2]	21 [2]	23 [2]	30 [1]
356x171x45	16 [3]	17 [2]	18 [2]	19 [2]	22 [1]	28 [1]
356x127x39	16 [2]	16 [2]	17 [2]	19 [2]	21 [1]	27 [1]
356x127x33	14 [2]	15 [2]	16 [2]	17 [1]	19 [1]	26 [0]
305x165x54	19 [3]	20 [3]	21 [3]	23 [3]	25 [2]	32 [1]
305x165x46	18 [3]	19 [3]	20 [3]	21 [2]	23 [2]	30 [1]
305x165x40	16 [3]	17 [2]	18 [2]	20 [2]	22 [2]	28 [1]
305x127x48	19 [3]	19 [3]	21 [3]	22 [2]	24 [2]	31 [1]
305x127x42	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	29 [1]

**Table A.2.1.2**  
**Galvanized steel beams exposed to fire on three sides**  
**(Eurocode)**



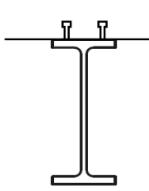
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
UB 305x127x37	16 [3]	17 [2]	18 [2]	19 [2]	22 [1]	28 [1]
305x102x33	15 [2]	16 [2]	17 [2]	18 [2]	20 [1]	27 [1]
305x102x28	14 [2]	15 [2]	16 [2]	17 [1]	19 [1]	26 [0]
305x102x25	13 [2]	14 [2]	15 [1]	16 [1]	18 [1]	25 [0]
254x146x43	19 [3]	20 [3]	21 [3]	22 [2]	24 [2]	31 [1]
254x146x37	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	29 [1]
254x146x31	16 [2]	17 [2]	18 [2]	19 [2]	21 [1]	28 [1]
254x102x28	15 [2]	16 [2]	17 [2]	18 [2]	21 [1]	27 [1]
254x102x25	14 [2]	15 [2]	16 [2]	17 [1]	20 [1]	26 [0]
254x102x22	13 [2]	14 [2]	15 [2]	16 [1]	19 [1]	25 [0]
203x133x30	17 [3]	18 [3]	19 [2]	20 [2]	22 [2]	29 [1]
203x133x25	15 [2]	16 [2]	17 [2]	18 [2]	21 [1]	27 [1]
203x102x23	15 [2]	16 [2]	17 [2]	18 [2]	21 [1]	27 [1]
178x102x19	15 [2]	15 [2]	16 [2]	18 [2]	20 [1]	26 [0]
152x89x16	14 [2]	15 [2]	16 [2]	17 [1]	20 [1]	26 [0]
127x76x13	14 [2]	15 [2]	16 [2]	17 [1]	19 [1]	26 [0]

**Table A.2.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



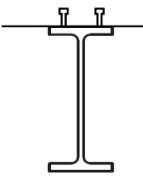
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
1100x400x607	38 [9]	40 [9]	41 [8]	44 [8]	46 [8]	55 [6]
1100x400x548	36 [8]	37 [8]	39 [8]	41 [7]	44 [7]	52 [6]
1100x400x499	34 [8]	35 [8]	37 [7]	39 [7]	41 [6]	49 [5]
1100x400x433	31 [7]	33 [7]	34 [7]	36 [6]	38 [6]	46 [5]
1100x400x390	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
1100x400x343	27 [6]	28 [6]	30 [6]	31 [5]	34 [5]	41 [4]
1016x305x584	40 [9]	41 [9]	43 [9]	45 [8]	48 [8]	57 [7]
1016x305x494	36 [9]	37 [8]	39 [8]	41 [7]	44 [7]	52 [6]
1016x305x438	33 [8]	35 [7]	36 [7]	38 [7]	41 [6]	49 [5]
1016x305x415	33 [8]	34 [7]	35 [7]	37 [7]	40 [6]	47 [5]
1016x305x393	31 [7]	33 [7]	34 [7]	36 [6]	38 [6]	46 [5]
1016x305x350	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
1016x305x314	28 [6]	29 [6]	30 [6]	32 [5]	34 [5]	41 [4]
1016x305x272	25 [6]	26 [5]	28 [5]	29 [5]	31 [4]	38 [3]
1016x305x249	24 [5]	25 [5]	26 [5]	28 [4]	30 [4]	36 [3]
1016x305x222	23 [5]	23 [5]	25 [4]	26 [4]	28 [4]	35 [3]
1000x400x976	53 [13]	55 [13]	57 [12]	60 [12]	63 [11]	74 [10]
1000x400x883	50 [12]	52 [12]	54 [12]	57 [11]	60 [10]	70 [9]
1000x400x748	45 [11]	47 [11]	49 [10]	52 [10]	54 [9]	64 [8]
1000x400x642	41 [10]	43 [10]	45 [9]	47 [9]	50 [8]	59 [7]
1000x400x591	39 [9]	41 [9]	43 [9]	45 [8]	48 [8]	56 [6]
1000x400x554	38 [9]	39 [9]	41 [8]	43 [8]	46 [7]	54 [6]
1000x400x539	37 [9]	39 [8]	40 [8]	43 [8]	45 [7]	54 [6]
1000x400x483	35 [8]	36 [8]	38 [8]	40 [7]	43 [7]	51 [5]
1000x400x443	33 [8]	34 [7]	36 [7]	38 [7]	40 [6]	48 [5]
1000x400x412	32 [7]	33 [7]	35 [7]	36 [6]	39 [6]	46 [5]
1000x400x371	30 [7]	31 [7]	32 [6]	34 [6]	37 [5]	44 [4]
1000x400x321	27 [6]	28 [6]	30 [6]	32 [5]	34 [5]	41 [4]
1000x400x296	26 [6]	27 [6]	28 [5]	30 [5]	32 [5]	39 [3]
920x420x1377	66 [17]	69 [17]	71 [16]	75 [15]	79 [15]	91 [13]
920x420x1269	63 [16]	65 [16]	68 [15]	71 [15]	75 [14]	87 [12]
920x420x1194	61 [15]	63 [15]	65 [15]	69 [14]	73 [13]	84 [12]
920x420x1077	57 [14]	59 [14]	62 [14]	65 [13]	69 [12]	80 [11]
920x420x970	54 [14]	56 [13]	58 [13]	61 [12]	65 [12]	76 [10]
920x420x787	48 [12]	50 [11]	52 [11]	55 [11]	58 [10]	68 [8]
920x420x725	46 [11]	47 [11]	49 [10]	52 [10]	55 [9]	65 [8]
920x420x656	43 [10]	45 [10]	47 [10]	49 [9]	52 [9]	61 [7]
920x420x588	40 [10]	42 [9]	44 [9]	46 [9]	49 [8]	58 [7]
920x420x537	38 [9]	40 [9]	42 [8]	44 [8]	47 [8]	55 [6]
920x420x491	36 [9]	38 [8]	39 [8]	42 [8]	44 [7]	52 [6]
920x420x449	35 [8]	36 [8]	37 [7]	40 [7]	42 [7]	50 [5]

**Table A.2.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



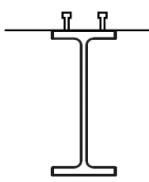
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
920x420x420	33 [8]	34 [7]	36 [7]	38 [7]	40 [6]	48 [5]
920x420x390	32 [7]	33 [7]	34 [7]	36 [6]	39 [6]	46 [5]
920x420x368	31 [7]	32 [7]	33 [6]	35 [6]	37 [6]	45 [4]
920x420x344	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
914x305x576	41 [10]	42 [9]	44 [9]	46 [9]	49 [8]	58 [7]
914x305x521	38 [9]	40 [9]	42 [9]	44 [8]	47 [8]	55 [6]
914x305x474	36 [9]	38 [8]	39 [8]	42 [8]	44 [7]	52 [6]
914x305x425	34 [8]	35 [8]	37 [7]	39 [7]	42 [6]	49 [5]
914x305x381	32 [7]	33 [7]	35 [7]	37 [6]	39 [6]	47 [5]
914x305x345	30 [7]	31 [7]	33 [6]	35 [6]	37 [6]	44 [4]
914x305x313	28 [6]	30 [6]	31 [6]	33 [6]	35 [5]	42 [4]
914x305x289	27 [6]	28 [6]	30 [6]	31 [5]	34 [5]	41 [4]
914x305x271	26 [6]	27 [6]	29 [5]	30 [5]	32 [5]	39 [3]
914x305x253	25 [6]	26 [5]	27 [5]	29 [5]	31 [4]	38 [3]
914x305x238	24 [5]	25 [5]	27 [5]	28 [4]	30 [4]	37 [3]
914x305x224	23 [5]	24 [5]	26 [5]	27 [4]	29 [4]	36 [3]
914x305x201	22 [5]	23 [4]	24 [4]	26 [4]	27 [4]	34 [2]
840x400x576	41 [10]	43 [10]	45 [9]	47 [9]	50 [8]	59 [7]
840x400x527	39 [9]	41 [9]	43 [9]	45 [8]	48 [8]	56 [7]
840x400x473	37 [9]	38 [8]	40 [8]	42 [8]	45 [7]	53 [6]
840x400x433	35 [8]	37 [8]	38 [8]	40 [7]	43 [7]	51 [6]
840x400x392	33 [8]	34 [7]	36 [7]	38 [7]	40 [6]	48 [5]
840x400x359	31 [7]	33 [7]	34 [7]	36 [6]	39 [6]	46 [5]
840x400x329	30 [7]	31 [7]	33 [6]	34 [6]	37 [5]	44 [4]
840x400x299	28 [6]	29 [6]	31 [6]	33 [5]	35 [5]	42 [4]
838x292x251	26 [6]	27 [6]	28 [5]	30 [5]	32 [5]	39 [3]
838x292x226	25 [5]	26 [5]	27 [5]	28 [5]	30 [4]	37 [3]
838x292x194	22 [5]	23 [5]	25 [4]	26 [4]	28 [4]	34 [3]
838x292x176	21 [4]	22 [4]	23 [4]	25 [4]	27 [3]	33 [2]
760x380x582	44 [11]	45 [10]	47 [10]	50 [9]	53 [9]	62 [8]
760x380x531	42 [10]	43 [10]	45 [9]	47 [9]	50 [8]	59 [7]
760x380x484	39 [9]	41 [9]	43 [9]	45 [8]	48 [8]	56 [7]
760x380x434	37 [9]	38 [8]	40 [8]	42 [8]	45 [7]	53 [6]
760x380x389	35 [8]	36 [8]	38 [7]	40 [7]	42 [7]	50 [5]
760x380x350	33 [8]	34 [7]	35 [7]	37 [7]	40 [6]	48 [5]
760x380x314	31 [7]	32 [7]	33 [6]	35 [6]	38 [6]	45 [4]
760x380x284	29 [6]	30 [6]	31 [6]	33 [6]	35 [5]	43 [4]
760x380x257	27 [6]	28 [6]	30 [6]	31 [5]	34 [5]	41 [4]
762x267x220	26 [6]	27 [5]	28 [5]	30 [5]	32 [4]	38 [3]
762x267x197	24 [5]	25 [5]	26 [5]	28 [4]	30 [4]	36 [3]
762x267x173	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]	34 [3]

**Table A.2.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



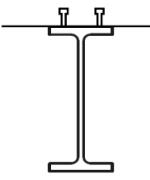
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
762x267x147	20 [4]	21 [4]	22 [4]	24 [4]	25 [3]	32 [2]
762x267x134	19 [4]	20 [4]	21 [4]	23 [3]	24 [3]	30 [2]
690x360x802	55 [14]	57 [13]	59 [13]	62 [12]	66 [12]	77 [10]
690x360x548	44 [11]	46 [11]	48 [10]	51 [10]	54 [9]	63 [8]
690x360x500	42 [10]	44 [10]	46 [10]	48 [9]	51 [9]	60 [7]
690x360x457	40 [10]	42 [9]	44 [9]	46 [9]	49 [8]	57 [7]
690x360x419	38 [9]	40 [9]	41 [8]	44 [8]	46 [8]	55 [6]
690x360x384	36 [9]	38 [8]	39 [8]	42 [8]	44 [7]	52 [6]
690x360x350	34 [8]	36 [8]	37 [7]	39 [7]	42 [7]	50 [5]
690x360x323	33 [8]	34 [7]	36 [7]	38 [7]	40 [6]	48 [5]
690x360x289	31 [7]	32 [7]	33 [7]	35 [6]	38 [6]	45 [5]
690x360x265	29 [7]	30 [6]	32 [6]	34 [6]	36 [5]	43 [4]
690x360x240	28 [6]	29 [6]	30 [6]	32 [5]	34 [5]	41 [4]
690x360x217	26 [6]	27 [6]	28 [5]	30 [5]	32 [5]	39 [3]
686x254x192	25 [5]	26 [5]	27 [5]	29 [5]	31 [4]	38 [3]
686x254x170	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]	35 [3]
686x254x152	22 [5]	23 [4]	24 [4]	25 [4]	27 [3]	34 [2]
686x254x140	21 [4]	22 [4]	23 [4]	24 [4]	26 [3]	32 [2]
686x254x125	20 [4]	20 [4]	21 [4]	23 [3]	25 [3]	31 [2]
610x325x551	47 [12]	49 [11]	51 [11]	54 [10]	57 [10]	67 [8]
610x325x498	45 [11]	46 [11]	48 [10]	51 [10]	54 [9]	63 [8]
610x325x455	42 [10]	44 [10]	46 [10]	48 [9]	51 [9]	60 [7]
610x325x415	40 [10]	42 [9]	44 [9]	46 [9]	49 [8]	58 [7]
610x325x372	38 [9]	39 [9]	41 [8]	43 [8]	46 [7]	54 [6]
610x325x341	36 [8]	37 [8]	39 [8]	41 [7]	44 [7]	52 [6]
610x325x307	34 [8]	35 [8]	37 [7]	39 [7]	41 [7]	49 [5]
610x325x285	32 [7]	34 [7]	35 [7]	37 [7]	40 [6]	47 [5]
610x325x262	31 [7]	32 [7]	34 [6]	36 [6]	38 [6]	45 [5]
610x325x241	30 [7]	31 [6]	32 [6]	34 [6]	36 [5]	44 [4]
610x325x217	28 [6]	29 [6]	30 [6]	32 [5]	34 [5]	41 [4]
610x325x195	26 [6]	27 [6]	28 [5]	30 [5]	32 [5]	39 [3]
610x325x174	24 [5]	25 [5]	27 [5]	28 [5]	30 [4]	37 [3]
610x325x155	23 [5]	24 [5]	25 [4]	27 [4]	28 [4]	35 [3]
610x305x238	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
610x305x179	25 [5]	26 [5]	27 [5]	29 [5]	31 [4]	38 [3]
610x305x149	22 [5]	23 [5]	25 [4]	26 [4]	28 [4]	34 [3]
610x229x153	23 [5]	24 [5]	26 [5]	27 [4]	29 [4]	36 [3]
610x229x140	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]	34 [3]
610x229x125	21 [4]	22 [4]	23 [4]	24 [4]	26 [3]	32 [2]
610x229x113	20 [4]	21 [4]	22 [4]	23 [3]	25 [3]	31 [2]
610x229x101	18 [4]	19 [4]	20 [3]	22 [3]	23 [3]	29 [2]

**Table A.2.2**  
**Galvanized steel composite beams**  
**(Eurocode)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
UB						
610x178x92	18 [4]	18 [3]	19 [3]	21 [3]	23 [3]	28 [2]
610x178x82	17 [3]	17 [3]	18 [3]	20 [3]	21 [2]	27 [1]
533x210x138	23 [5]	24 [5]	26 [5]	27 [4]	29 [4]	36 [3]
533x210x122	22 [5]	23 [4]	24 [4]	25 [4]	27 [3]	34 [2]
533x210x109	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]	32 [2]
533x210x101	20 [4]	20 [4]	21 [4]	23 [3]	25 [3]	31 [2]
533x210x92	19 [4]	19 [4]	20 [3]	22 [3]	24 [3]	30 [2]
533x210x82	17 [3]	18 [3]	19 [3]	21 [3]	22 [2]	28 [1]
533x165x85	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
533x165x74	17 [3]	18 [3]	19 [3]	20 [3]	21 [2]	27 [1]
533x165x66	16 [3]	16 [3]	17 [3]	19 [2]	20 [2]	26 [1]
457x191x106	22 [5]	23 [4]	24 [4]	25 [4]	27 [3]	33 [2]
457x191x98	21 [4]	22 [4]	23 [4]	24 [4]	26 [3]	32 [2]
457x191x89	20 [4]	21 [4]	22 [4]	23 [3]	25 [3]	31 [2]
457x191x82	19 [4]	20 [4]	21 [3]	22 [3]	24 [3]	30 [2]
457x191x74	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
457x191x67	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	27 [1]
457x152x82	19 [4]	20 [4]	21 [4]	22 [3]	24 [3]	30 [2]
457x152x74	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
457x152x67	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	28 [1]
457x152x60	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	26 [1]
457x152x52	15 [3]	16 [3]	16 [2]	18 [2]	19 [2]	25 [1]
406x178x85	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]	32 [2]
406x178x74	19 [4]	20 [4]	21 [3]	22 [3]	24 [3]	30 [2]
406x178x67	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
406x178x60	17 [3]	17 [3]	18 [3]	20 [3]	21 [2]	27 [1]
406x178x54	16 [3]	17 [3]	17 [3]	19 [2]	20 [2]	26 [1]
406x140x53	16 [3]	17 [3]	18 [3]	19 [2]	20 [2]	26 [1]
406x140x46	15 [3]	15 [3]	16 [2]	17 [2]	19 [2]	25 [1]
406x140x39	13 [2]	14 [2]	15 [2]	16 [2]	18 [1]	24 [1]
356x171x67	19 [4]	20 [4]	21 [3]	22 [3]	24 [3]	30 [2]
356x171x57	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]	28 [1]
356x171x51	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	27 [1]
356x171x45	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]	25 [1]
356x127x39	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]	25 [1]
356x127x33	13 [2]	14 [2]	15 [2]	16 [2]	17 [1]	23 [1]
305x165x54	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
305x165x46	16 [3]	17 [3]	18 [3]	20 [3]	21 [2]	27 [1]
305x165x40	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]	26 [1]
305x127x48	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	28 [1]
305x127x42	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	27 [1]

**Table A.2.2**  
**Galvanized steel composite beams**  
**(Eurocode)**

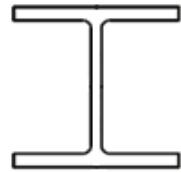


Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
UB 305x127x37	15 [3]	16 [3]	17 [2]	18 [2]	19 [2]	25 [1]
305x102x33	14 [3]	15 [2]	16 [2]	17 [2]	18 [2]	24 [1]
305x102x28	13 [2]	14 [2]	14 [2]	16 [2]	17 [1]	23 [1]
305x102x25	12 [2]	13 [2]	14 [2]	15 [2]	16 [1]	22 [0]
254x146x43	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]	28 [1]
254x146x37	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	26 [1]
254x146x31	15 [3]	15 [3]	16 [2]	17 [2]	19 [2]	25 [1]
254x102x28	14 [3]	15 [2]	16 [2]	17 [2]	18 [2]	24 [1]
254x102x25	13 [2]	14 [2]	15 [2]	16 [2]	18 [1]	23 [1]
254x102x22	12 [2]	13 [2]	14 [2]	15 [2]	17 [1]	22 [0]
203x133x30	16 [3]	16 [3]	17 [3]	19 [2]	20 [2]	26 [1]
203x133x25	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]	25 [1]
203x102x23	14 [3]	15 [2]	16 [2]	17 [2]	18 [2]	24 [1]
178x102x19	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]	24 [1]
152x89x16	13 [2]	14 [2]	15 [2]	16 [2]	18 [1]	23 [1]
127x76x13	13 [2]	14 [2]	14 [2]	16 [2]	17 [1]	23 [1]

**Table A.2.3**  
**Galvanized steel tension plates exposed to fire**  
**(Eurocode)**

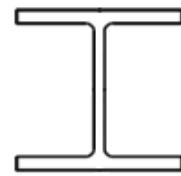
Thickness (mm)	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
5	8 [1]	9 [1]	9 [1]	10 [1]	12 [0]	16 [0]
8	10 [2]	11 [2]	12 [2]	13 [1]	14 [1]	18 [0]
10	12 [2]	12 [2]	13 [2]	14 [2]	16 [1]	19 [1]
12	13 [3]	14 [2]	15 [2]	16 [2]	17 [2]	21 [1]
14	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [1]
16	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
18	17 [4]	17 [3]	18 [3]	20 [3]	21 [3]	25 [2]
20	18 [4]	19 [4]	20 [3]	21 [3]	23 [3]	26 [2]
22	19 [4]	20 [4]	21 [4]	22 [3]	24 [3]	27 [2]
24	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]	29 [3]
26	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	30 [3]
28	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	31 [3]
30	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]	32 [3]
32	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]	34 [4]
34	25 [6]	26 [5]	27 [5]	29 [5]	31 [4]	35 [4]
36	26 [6]	27 [6]	28 [6]	30 [5]	32 [5]	36 [4]
38	26 [6]	28 [6]	29 [6]	31 [5]	33 [5]	37 [4]
40	27 [7]	29 [6]	30 [6]	32 [6]	34 [5]	38 [4]
42	28 [7]	29 [6]	31 [6]	33 [6]	35 [5]	39 [5]
44	29 [7]	30 [7]	32 [6]	34 [6]	36 [6]	40 [5]
46	30 [7]	31 [7]	33 [7]	35 [6]	37 [6]	41 [5]
48	31 [8]	32 [7]	34 [7]	35 [6]	38 [6]	42 [5]
50	31 [8]	33 [7]	34 [7]	36 [7]	39 [6]	43 [5]

**Table A.2.4.1.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**



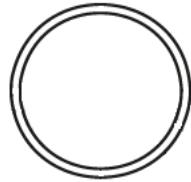
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	67 [19]	71 [20]	75 [19]	78 [18]	83 [17]	89 [16]
356x406x1202	65 [18]	69 [19]	72 [18]	75 [17]	80 [17]	86 [16]
356x406x1086	61 [17]	65 [18]	68 [17]	72 [17]	76 [16]	82 [15]
356x406x990	59 [17]	63 [17]	65 [16]	68 [16]	73 [15]	78 [14]
356x406x900	56 [16]	60 [16]	62 [15]	65 [15]	70 [14]	75 [13]
356x406x818	53 [15]	57 [15]	59 [15]	62 [14]	66 [13]	71 [13]
356x406x744	51 [14]	54 [14]	57 [14]	59 [13]	63 [13]	68 [12]
356x406x677	48 [13]	51 [13]	54 [13]	56 [13]	60 [12]	65 [11]
356x406x634	47 [13]	50 [13]	52 [12]	54 [12]	58 [11]	62 [11]
356x406x592	45 [12]	48 [12]	50 [12]	53 [12]	56 [11]	60 [10]
356x406x551	43 [12]	46 [12]	48 [12]	51 [11]	54 [10]	58 [10]
356x406x509	41 [11]	44 [11]	46 [11]	49 [11]	52 [10]	56 [9]
356x406x467	40 [11]	42 [11]	44 [10]	46 [10]	50 [9]	53 [9]
356x406x393	36 [10]	38 [10]	40 [9]	42 [9]	45 [8]	49 [8]
356x406x340	33 [9]	35 [9]	37 [8]	39 [8]	42 [8]	45 [7]
356x406x287	30 [8]	32 [8]	34 [8]	35 [7]	38 [7]	41 [6]
356x406x235	27 [7]	29 [7]	30 [7]	32 [6]	34 [6]	37 [5]
356x368x202	25 [6]	27 [6]	28 [6]	29 [6]	32 [5]	34 [5]
356x368x177	23 [6]	25 [6]	26 [5]	27 [5]	29 [5]	32 [4]
356x368x153	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
356x368x129	19 [5]	21 [5]	22 [4]	23 [4]	25 [4]	27 [3]
305x305x342	36 [10]	39 [10]	41 [9]	43 [9]	46 [8]	49 [8]
305x305x313	35 [9]	37 [9]	39 [9]	41 [9]	43 [8]	47 [7]
305x305x283	33 [9]	35 [9]	37 [8]	38 [8]	41 [7]	45 [7]
305x305x240	30 [8]	32 [8]	33 [8]	35 [7]	38 [7]	41 [6]
305x305x198	27 [7]	29 [7]	30 [7]	32 [6]	34 [6]	37 [5]
305x305x158	24 [6]	25 [6]	27 [6]	28 [5]	30 [5]	33 [4]
305x305x137	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
305x305x118	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
305x305x97	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
254x254x167	27 [7]	28 [7]	30 [7]	31 [6]	34 [6]	37 [5]
254x254x132	23 [6]	25 [6]	26 [6]	28 [5]	30 [5]	33 [4]
254x254x107	21 [5]	22 [5]	23 [5]	25 [5]	27 [4]	29 [4]
254x254x89	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	27 [3]
254x254x73	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]	24 [3]
203x203x100	22 [5]	24 [6]	25 [5]	26 [5]	28 [5]	31 [4]
203x203x86	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
203x203x71	18 [4]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
203x203x60	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]	24 [3]
203x203x52	15 [4]	17 [4]	17 [3]	19 [3]	20 [3]	22 [2]
203x203x46	14 [3]	16 [3]	16 [3]	17 [3]	19 [2]	21 [2]

**Table A.2.4.1.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**



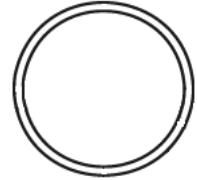
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
152x152x44	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
152x152x37	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	22 [2]
152x152x30	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	20 [2]
152x152x23	11 [2]	12 [2]	13 [2]	14 [2]	15 [2]	17 [1]

**Table A.2.4.1.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
76.1x6.3	12 [3]	13 [3]	14 [2]	14 [2]	16 [2]	18 [1]
76.1x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
88.9x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
88.9x8	14 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
88.9x10	15 [4]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
101.6x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
101.6x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
101.6x10	15 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
114.3x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
114.3x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
114.3x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
139.7x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
139.7x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
139.7x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
139.7x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	26 [3]
168.3x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
168.3x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
168.3x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
168.3x12.5	18 [4]	19 [4]	20 [4]	22 [4]	23 [3]	26 [3]
193.7x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
193.7x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
193.7x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
193.7x12.5	18 [4]	19 [4]	21 [4]	22 [4]	24 [3]	26 [3]
193.7x16	21 [5]	22 [5]	24 [5]	25 [5]	27 [4]	30 [4]
219.1x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	19 [1]
219.1x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
219.1x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
219.1x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
219.1x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [3]
219.1x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
244.5x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
244.5x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
244.5x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
244.5x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
244.5x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
244.5x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
273x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
273x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
273x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
273x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]

**Table A.2.4.1.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
273x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
323.9x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
323.9x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
323.9x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
323.9x14.2	20 [5]	21 [5]	23 [5]	24 [4]	26 [4]	28 [3]
323.9x16	21 [5]	23 [5]	24 [5]	25 [5]	28 [4]	30 [4]
355.6x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
355.6x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
355.6x14.2	20 [5]	21 [5]	23 [5]	24 [4]	26 [4]	28 [3]
355.6x16	21 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
406.4x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
406.4x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
406.4x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
406.4x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
457x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	27 [3]
457x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
457x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
508x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	27 [3]
508x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
508x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
508x20	25 [6]	27 [6]	28 [6]	29 [6]	32 [5]	35 [5]

**Table A.2.4.1.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
50x50x6.3	12 [3]	13 [3]	14 [2]	14 [2]	16 [2]	18 [1]
50x50x7.1	13 [3]	14 [3]	14 [3]	15 [2]	17 [2]	19 [2]
50x50x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
60x60x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
60x60x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
60x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
70x70x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
70x70x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
70x70x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
70x70x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [2]	21 [2]
80x80x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
80x80x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
80x80x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
80x80x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]
80x80x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
80x80x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
90x90x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
90x90x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
90x90x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
90x90x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	22 [2]
90x90x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
90x90x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
100x100x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
100x100x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
100x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
100x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	22 [2]
100x100x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
100x100x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	26 [3]
120x120x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
120x120x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	20 [2]
120x120x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
120x120x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
120x120x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
120x120x12.5	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]	26 [3]
140x140x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	19 [1]
140x140x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	20 [2]
140x140x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
140x140x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
140x140x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
140x140x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
150x150x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	19 [1]

**Table A.2.4.1.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [2]
150x150x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
150x150x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
150x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
150x150x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
150x150x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [3]
150x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
160x160x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
160x160x7.1	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [2]
160x160x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
160x160x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
160x160x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
160x160x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
160x160x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
160x160x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
180x180x6.3	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]	19 [1]
180x180x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
180x180x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
180x180x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
180x180x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
180x180x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
180x180x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
180x180x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
200x200x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	19 [1]
200x200x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
200x200x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x200x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x200x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
200x200x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
200x200x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
200x200x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
250x250x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
250x250x8.8	15 [4]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
250x250x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
250x250x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
250x250x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
250x250x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
260x260x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
260x260x10	16 [4]	17 [4]	18 [4]	20 [3]	21 [3]	24 [2]
260x260x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
260x260x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]

**Table A.2.4.1.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS 260x260x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
300x300x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
300x300x10	16 [4]	18 [4]	18 [4]	20 [3]	21 [3]	24 [3]
300x300x12.5	19 [5]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
300x300x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
300x300x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
350x350x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	27 [3]
350x350x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	29 [4]
350x350x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
400x400x12.5	19 [5]	20 [5]	21 [4]	22 [4]	24 [4]	27 [3]
400x400x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	29 [4]
400x400x16	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
400x400x20	25 [6]	27 [6]	28 [6]	30 [6]	32 [5]	35 [5]

**Table A.2.4.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	12 [3]	13 [3]	14 [2]	14 [2]	16 [2]	18 [1]
80x40x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
80x40x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
80x40x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
90x50x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
90x50x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
90x50x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x50x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
100x50x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
100x50x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x50x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
100x50x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
100x60x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
100x60x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
100x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
100x60x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]
100x60x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
120x60x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
120x60x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
120x60x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	22 [2]
120x60x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
120x60x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
120x80x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]
120x80x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x80x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
120x80x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	22 [2]
120x80x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
120x80x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	26 [3]
150x100x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
150x100x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	20 [2]
150x100x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
150x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
150x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
150x100x12.5	18 [4]	19 [4]	21 [4]	22 [4]	24 [3]	26 [3]
160x80x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
160x80x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	20 [2]
160x80x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
160x80x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
160x80x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
160x80x12.5	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]	26 [3]

**Table A.2.4.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
180x60x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	20 [2]
180x60x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
180x60x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
180x60x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
180x60x12.5	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]	26 [3]
180x100x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	19 [1]
180x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	20 [2]
180x100x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
180x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
180x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
180x100x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
200x100x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	19 [1]
200x100x7.1	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [2]
200x100x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
200x100x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
200x100x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [3]
200x100x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
200x120x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
200x120x7.1	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [2]
200x120x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x120x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x120x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
200x120x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
200x120x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
200x120x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
200x150x6.3	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]	19 [1]
200x150x7.1	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [2]
200x150x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x150x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
200x150x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
200x150x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
200x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
220x120x7.1	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [2]
220x120x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
220x120x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
220x120x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
220x120x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]

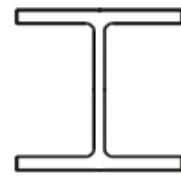
**Table A.2.4.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
220x120x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
250x100x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
250x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
250x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
250x100x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
250x100x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
250x100x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
250x150x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
250x150x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
250x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
250x150x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
250x150x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
250x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
260x140x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
260x140x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
260x140x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
260x140x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
260x140x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
300x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
300x100x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x100x14.2	20 [5]	21 [5]	22 [5]	24 [4]	26 [4]	28 [3]
300x100x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
300x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
300x150x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x150x14.2	20 [5]	21 [5]	23 [5]	24 [4]	26 [4]	28 [3]
300x150x16	21 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
300x200x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
300x200x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x200x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
300x200x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
300x250x10	16 [4]	18 [4]	18 [4]	20 [3]	21 [3]	24 [2]
300x250x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	27 [3]
300x250x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
300x250x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
350x150x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
350x150x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
350x150x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
350x250x12.5	19 [5]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
350x250x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
350x250x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]

**Table A.2.4.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + UK National Annex)**

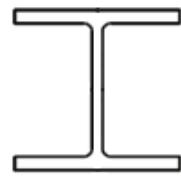
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	27 [3]
400x150x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
400x150x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
400x200x12.5	19 [5]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
400x200x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
400x200x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
400x300x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	27 [3]
400x300x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	29 [4]
400x300x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
450x250x14.2	20 [5]	22 [5]	23 [5]	24 [4]	26 [4]	29 [4]
450x250x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
500x200x16	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
500x300x16	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
500x300x20	25 [6]	27 [6]	28 [6]	30 [6]	32 [5]	35 [5]

**Table A.2.4.2.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**



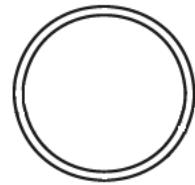
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	65 [19]	71 [20]	74 [19]	77 [18]	82 [18]	88 [17]
356x406x1202	63 [18]	68 [19]	71 [18]	74 [18]	79 [17]	85 [16]
356x406x1086	60 [17]	65 [18]	68 [17]	71 [17]	75 [16]	81 [15]
356x406x990	57 [16]	62 [17]	65 [16]	68 [16]	72 [15]	77 [14]
356x406x900	54 [15]	59 [16]	62 [16]	65 [15]	69 [14]	74 [13]
356x406x818	52 [14]	56 [15]	59 [15]	62 [14]	65 [13]	70 [13]
356x406x744	49 [14]	54 [14]	56 [14]	59 [13]	62 [13]	67 [12]
356x406x677	47 [13]	51 [14]	53 [13]	56 [13]	59 [12]	64 [11]
356x406x634	45 [12]	49 [13]	51 [13]	54 [12]	57 [12]	62 [11]
356x406x592	44 [12]	47 [13]	50 [12]	52 [12]	55 [11]	60 [10]
356x406x551	42 [11]	46 [12]	48 [12]	50 [11]	53 [11]	57 [10]
356x406x509	40 [11]	44 [11]	46 [11]	48 [11]	51 [10]	55 [9]
356x406x467	38 [10]	42 [11]	44 [10]	46 [10]	49 [9]	53 [9]
356x406x393	35 [9]	38 [10]	40 [9]	42 [9]	45 [8]	48 [8]
356x406x340	32 [8]	35 [9]	37 [8]	38 [8]	41 [8]	44 [7]
356x406x287	29 [8]	32 [8]	33 [8]	35 [7]	37 [7]	41 [6]
356x406x235	26 [7]	28 [7]	30 [7]	31 [6]	34 [6]	36 [5]
356x368x202	24 [6]	26 [6]	28 [6]	29 [6]	31 [5]	34 [5]
356x368x177	22 [6]	24 [6]	26 [6]	27 [5]	29 [5]	32 [4]
356x368x153	20 [5]	22 [5]	24 [5]	25 [5]	27 [4]	29 [4]
356x368x129	18 [4]	20 [5]	21 [4]	23 [4]	24 [4]	27 [3]
305x305x342	35 [9]	38 [10]	40 [10]	42 [9]	45 [9]	49 [8]
305x305x313	33 [9]	37 [9]	38 [9]	40 [9]	43 [8]	46 [7]
305x305x283	32 [8]	35 [9]	36 [8]	38 [8]	41 [8]	44 [7]
305x305x240	29 [8]	32 [8]	33 [8]	35 [7]	37 [7]	40 [6]
305x305x198	26 [7]	28 [7]	30 [7]	31 [6]	34 [6]	36 [5]
305x305x158	23 [6]	25 [6]	26 [6]	28 [5]	30 [5]	32 [4]
305x305x137	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	30 [4]
305x305x118	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [4]
305x305x97	17 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
254x254x167	26 [7]	28 [7]	30 [7]	31 [6]	33 [6]	36 [5]
254x254x132	23 [6]	25 [6]	26 [6]	27 [5]	29 [5]	32 [4]
254x254x107	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
254x254x89	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
254x254x73	16 [4]	18 [4]	19 [4]	20 [3]	21 [3]	24 [3]
203x203x100	21 [5]	23 [6]	25 [5]	26 [5]	28 [5]	31 [4]
203x203x86	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
203x203x71	18 [4]	19 [4]	21 [4]	22 [4]	23 [4]	26 [3]
203x203x60	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	24 [3]
203x203x52	15 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
203x203x46	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]

**Table A.2.4.2.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**



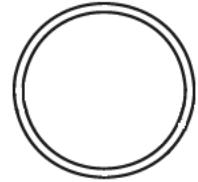
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	17 [4]	19 [4]	20 [4]	21 [4]	22 [3]	25 [3]
152x152x44	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
152x152x37	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
152x152x30	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
152x152x23	11 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [1]

**Table A.2.4.2.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS						
60.3x8	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
76.1x6.3	11 (2)	13 (3)	13 (2)	14 (2)	16 (2)	18 (1)
76.1x8	13 (3)	14 (3)	15 (3)	16 (3)	18 (2)	20 (2)
88.9x6.3	12 (3)	13 (3)	13 (2)	14 (2)	16 (2)	18 (1)
88.9x8	13 (3)	14 (3)	15 (3)	16 (3)	18 (2)	20 (2)
88.9x10	15 (3)	16 (4)	17 (3)	18 (3)	20 (3)	22 (2)
101.6x6.3	12 (3)	13 (3)	14 (2)	14 (2)	16 (2)	18 (1)
101.6x8	13 (3)	15 (3)	15 (3)	16 (3)	18 (2)	20 (2)
101.6x10	15 (4)	16 (4)	17 (3)	18 (3)	20 (3)	22 (2)
114.3x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
114.3x8	13 (3)	15 (3)	15 (3)	16 (3)	18 (2)	20 (2)
114.3x10	15 (4)	17 (4)	17 (3)	18 (3)	20 (3)	22 (2)
139.7x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (1)
139.7x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
139.7x10	15 (4)	17 (4)	18 (3)	19 (3)	20 (3)	22 (2)
139.7x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (3)	25 (3)
168.3x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
168.3x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
168.3x10	15 (4)	17 (4)	18 (4)	19 (3)	20 (3)	23 (2)
168.3x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (3)	25 (3)
193.7x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (1)
193.7x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
193.7x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
193.7x12.5	18 (4)	19 (4)	20 (4)	21 (4)	23 (4)	25 (3)
193.7x16	20 (5)	22 (5)	23 (5)	25 (5)	27 (4)	29 (4)
219.1x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
219.1x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
219.1x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
219.1x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
219.1x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	27 (3)
219.1x16	20 (5)	22 (5)	23 (5)	25 (5)	27 (4)	29 (4)
244.5x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
244.5x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
244.5x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
244.5x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
244.5x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	27 (3)
244.5x16	20 (5)	22 (5)	24 (5)	25 (5)	27 (4)	29 (4)
273x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
273x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
273x12.5	18 (4)	20 (5)	21 (4)	22 (4)	23 (4)	26 (3)
273x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (4)

**Table A.2.4.2.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 273x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	29 (4)
323.9x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (3)	21 (2)
323.9x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
323.9x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
323.9x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (4)
323.9x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
355.6x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
355.6x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
355.6x14.2	19 (5)	21 (5)	22 (5)	24 (4)	25 (4)	28 (4)
355.6x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
406.4x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
406.4x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
406.4x14.2	19 (5)	21 (5)	22 (5)	24 (4)	25 (4)	28 (4)
406.4x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
457x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
457x14.2	19 (5)	21 (5)	22 (5)	24 (4)	26 (4)	28 (4)
457x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
508x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
508x14.2	19 (5)	21 (5)	22 (5)	24 (4)	26 (4)	28 (4)
508x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (5)	30 (4)
508x20	24 (6)	26 (6)	28 (6)	29 (6)	31 (5)	34 (5)

**Table A.2.4.2.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x6.3	11 (3)	13 (3)	13 (2)	14 (2)	16 (2)	18 (1)
50x50x7.1	12 (3)	13 (3)	14 (3)	15 (2)	17 (2)	19 (2)
50x50x8	13 (3)	14 (3)	15 (3)	16 (3)	18 (2)	20 (2)
60x60x6.3	11 (3)	13 (3)	13 (2)	14 (2)	16 (2)	18 (1)
60x60x7.1	12 (3)	14 (3)	14 (3)	15 (2)	17 (2)	19 (2)
60x60x8	13 (3)	14 (3)	15 (3)	16 (3)	18 (2)	20 (2)
70x70x6.3	12 (3)	13 (3)	14 (2)	14 (2)	16 (2)	18 (1)
70x70x7.1	12 (3)	14 (3)	14 (3)	15 (2)	17 (2)	19 (2)
70x70x8	13 (3)	15 (3)	15 (3)	16 (3)	18 (2)	20 (2)
70x70x8.8	14 (3)	15 (3)	16 (3)	17 (3)	19 (3)	21 (2)
80x80x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
80x80x7.1	12 (3)	14 (3)	15 (3)	15 (2)	17 (2)	19 (2)
80x80x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
80x80x8.8	14 (3)	15 (3)	16 (3)	17 (3)	19 (3)	21 (2)
80x80x10	15 (4)	17 (4)	18 (4)	19 (3)	20 (3)	22 (2)
80x80x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (3)	25 (3)
90x90x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (1)
90x90x7.1	12 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
90x90x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
90x90x8.8	14 (3)	16 (3)	16 (3)	17 (3)	19 (3)	21 (2)
90x90x10	15 (4)	17 (4)	18 (3)	19 (3)	20 (3)	22 (2)
90x90x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (3)	25 (3)
100x100x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
100x100x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (2)
100x100x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
100x100x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
100x100x10	15 (4)	17 (4)	18 (4)	19 (3)	20 (3)	23 (2)
100x100x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (3)	25 (3)
120x120x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
120x120x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
120x120x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
120x120x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
120x120x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
120x120x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (4)	25 (3)
140x140x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
140x140x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
140x140x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
140x140x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
140x140x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
140x140x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
150x150x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (2)

**Table A.2.4.2.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
150x150x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
150x150x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	21 (2)
150x150x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
150x150x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
150x150x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	27 (3)
150x150x16	20 (5)	22 (5)	24 (5)	25 (5)	27 (4)	29 (4)
160x160x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
160x160x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
160x160x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
160x160x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	21 (2)
160x160x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
160x160x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
160x160x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (4)
160x160x16	20 (5)	22 (5)	24 (5)	25 (5)	27 (4)	29 (4)
180x180x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
180x180x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
180x180x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
180x180x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
180x180x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
180x180x12.5	18 (4)	20 (5)	21 (4)	22 (4)	23 (4)	26 (3)
180x180x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (4)
180x180x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	29 (4)
200x200x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (1)
200x200x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
200x200x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (3)	21 (2)
200x200x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	22 (2)
200x200x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
200x200x12.5	18 (4)	20 (4)	21 (4)	22 (4)	24 (4)	26 (3)
200x200x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (3)
200x200x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
250x250x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	21 (2)
250x250x8.8	15 (3)	16 (3)	17 (3)	18 (3)	19 (3)	22 (2)
250x250x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
250x250x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
250x250x14.2	19 (5)	21 (5)	22 (5)	24 (4)	25 (4)	28 (4)
250x250x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
260x260x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	22 (2)
260x260x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
260x260x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
260x260x14.2	19 (5)	21 (5)	22 (5)	24 (4)	25 (4)	28 (4)

**Table A.2.4.2.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
260x260x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
300x300x8.8	15 (3)	16 (4)	17 (3)	18 (3)	20 (3)	22 (2)
300x300x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
300x300x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
300x300x14.2	19 (5)	21 (5)	22 (5)	24 (4)	26 (4)	28 (4)
300x300x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
350x350x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
350x350x14.2	20 (5)	21 (5)	23 (5)	24 (4)	26 (4)	28 (4)
350x350x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (5)	30 (4)
400x400x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
400x400x14.2	20 (5)	21 (5)	23 (5)	24 (4)	26 (4)	28 (4)
400x400x16	21 (5)	23 (5)	24 (5)	26 (5)	28 (5)	30 (4)
400x400x20	24 (6)	26 (6)	28 (6)	29 (6)	31 (5)	34 (5)

**Table A.2.4.2.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	11 (3)	13 (3)	13 (2)	14 (2)	16 (2)	18 (1)
80x40x6.3	11 (3)	13 (3)	13 (2)	14 (2)	16 (2)	18 (1)
80x40x7.1	12 (3)	14 (3)	14 (3)	15 (2)	17 (2)	19 (2)
80x40x8	13 (3)	14 (3)	15 (3)	16 (3)	18 (2)	20 (2)
90x50x6.3	12 (3)	13 (3)	14 (2)	14 (2)	16 (2)	18 (1)
90x50x7.1	12 (3)	14 (3)	14 (3)	15 (2)	17 (2)	19 (2)
90x50x8	13 (3)	15 (3)	15 (3)	16 (3)	18 (2)	20 (2)
100x50x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
100x50x7.1	12 (3)	14 (3)	14 (3)	15 (2)	17 (2)	19 (2)
100x50x8	13 (3)	15 (3)	16 (3)	16 (3)	18 (2)	20 (2)
100x50x8.8	14 (3)	15 (3)	16 (3)	17 (3)	19 (3)	21 (2)
100x50x10	15 (4)	17 (4)	17 (3)	18 (3)	20 (3)	22 (2)
100x60x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
100x60x7.1	12 (3)	14 (3)	15 (3)	15 (2)	17 (2)	19 (2)
100x60x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
100x60x8.8	14 (3)	15 (3)	16 (3)	17 (3)	19 (3)	21 (2)
100x60x10	15 (4)	17 (4)	18 (4)	19 (3)	20 (3)	22 (2)
120x60x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (1)
120x60x7.1	12 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
120x60x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
120x60x8.8	14 (3)	16 (3)	16 (3)	17 (3)	19 (3)	21 (2)
120x60x10	15 (4)	17 (4)	18 (3)	19 (3)	20 (3)	22 (2)
120x60x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (3)	25 (3)
120x80x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
120x80x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (2)
120x80x8	13 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
120x80x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
120x80x10	15 (4)	17 (4)	18 (4)	19 (3)	20 (3)	23 (2)
120x80x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (3)	25 (3)
150x100x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (1)
150x100x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (2)
150x100x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
150x100x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
150x100x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
150x100x12.5	18 (4)	19 (4)	20 (4)	21 (4)	23 (4)	25 (3)
160x80x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
160x80x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
160x80x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
160x80x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
160x80x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
160x80x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (4)	25 (3)

**Table A.2.4.2.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
180x60x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
180x60x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
180x60x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
180x60x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
180x60x12.5	17 (4)	19 (4)	20 (4)	21 (4)	23 (4)	25 (3)
180x100x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (1)
180x100x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
180x100x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
180x100x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
180x100x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
180x100x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
200x100x6.3	12 (3)	13 (3)	14 (2)	15 (2)	16 (2)	18 (2)
200x100x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
200x100x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
200x100x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	21 (2)
200x100x10	15 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
200x100x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
200x100x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	27 (3)
200x100x16	20 (5)	22 (5)	24 (5)	25 (5)	27 (4)	29 (4)
200x120x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
200x120x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
200x120x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
200x120x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	21 (2)
200x120x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
200x120x12.5	18 (4)	19 (4)	20 (4)	22 (4)	23 (4)	26 (3)
200x120x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (4)
200x120x16	20 (5)	22 (5)	24 (5)	25 (5)	27 (4)	29 (4)
200x150x6.3	12 (3)	13 (3)	14 (3)	15 (2)	16 (2)	18 (2)
200x150x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (2)
200x150x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
200x150x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
200x150x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
200x150x12.5	18 (4)	20 (5)	21 (4)	22 (4)	23 (4)	26 (3)
200x150x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (4)
200x150x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	29 (4)
220x120x7.1	13 (3)	14 (3)	15 (3)	16 (3)	17 (2)	19 (2)
220x120x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
220x120x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
220x120x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
220x120x12.5	18 (4)	19 (4)	21 (4)	22 (4)	23 (4)	26 (3)

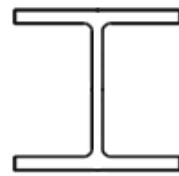
**Table A.2.4.2.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (3)
220x120x16	21 (5)	22 (5)	24 (5)	25 (5)	27 (4)	29 (4)
250x100x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
250x100x8.8	14 (3)	16 (3)	17 (3)	18 (3)	19 (3)	21 (2)
250x100x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (2)
250x100x12.5	18 (4)	20 (5)	21 (4)	22 (4)	23 (4)	26 (3)
250x100x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (4)
250x100x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	29 (4)
250x150x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (3)	21 (2)
250x150x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	22 (2)
250x150x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
250x150x12.5	18 (4)	20 (4)	21 (4)	22 (4)	24 (4)	26 (3)
250x150x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (3)
250x150x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
260x140x8.8	14 (3)	16 (4)	17 (3)	18 (3)	19 (3)	22 (2)
260x140x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
260x140x12.5	18 (4)	20 (4)	21 (4)	22 (4)	24 (4)	26 (3)
260x140x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (3)
260x140x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
300x100x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
300x100x12.5	18 (4)	20 (4)	21 (4)	22 (4)	24 (4)	26 (3)
300x100x14.2	19 (5)	21 (5)	22 (5)	23 (4)	25 (4)	28 (3)
300x100x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
300x150x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
300x150x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
300x150x14.2	19 (5)	21 (5)	22 (5)	24 (4)	25 (4)	28 (4)
300x150x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
300x200x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
300x200x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
300x200x14.2	19 (5)	21 (5)	22 (5)	24 (4)	25 (4)	28 (4)
300x200x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
300x250x10	16 (4)	17 (4)	18 (4)	19 (3)	21 (3)	23 (3)
300x250x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
300x250x14.2	19 (5)	21 (5)	22 (5)	24 (4)	26 (4)	28 (4)
300x250x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
350x150x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
350x150x14.2	19 (5)	21 (5)	22 (5)	24 (4)	25 (4)	28 (4)
350x150x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
350x250x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
350x250x14.2	19 (5)	21 (5)	22 (5)	24 (4)	26 (4)	28 (4)
350x250x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)

**Table A.2.4.2.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + UK National Annex)**

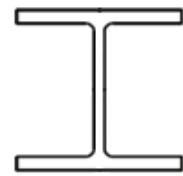
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
400x150x14.2	19 (5)	21 (5)	22 (5)	24 (4)	26 (4)	28 (4)
400x150x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
400x200x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
400x200x14.2	19 (5)	21 (5)	22 (5)	24 (4)	26 (4)	28 (4)
400x200x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
400x300x12.5	18 (4)	20 (5)	21 (4)	22 (4)	24 (4)	26 (3)
400x300x14.2	20 (5)	21 (5)	23 (5)	24 (4)	26 (4)	28 (4)
400x300x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (5)	30 (4)
450x250x14.2	20 (5)	21 (5)	23 (5)	24 (4)	26 (4)	28 (4)
450x250x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (5)	30 (4)
500x200x16	21 (5)	23 (5)	24 (5)	25 (5)	27 (5)	30 (4)
500x300x16	21 (5)	23 (5)	24 (5)	26 (5)	28 (5)	30 (4)
500x300x20	24 (6)	26 (6)	28 (6)	29 (6)	31 (5)	34 (5)

**Table A.2.4.3.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**



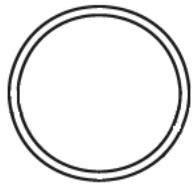
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	62 [18]	70 [20]	73 [19]	76 [18]	81 [18]	87 [17]
356x406x1202	60 [17]	67 [19]	70 [18]	74 [18]	78 [17]	84 [16]
356x406x1086	57 [16]	64 [18]	67 [17]	70 [17]	74 [16]	80 [15]
356x406x990	54 [15]	61 [17]	64 [17]	67 [16]	71 [15]	76 [14]
356x406x900	52 [15]	59 [16]	61 [16]	64 [15]	68 [14]	73 [14]
356x406x818	49 [14]	56 [15]	58 [15]	61 [14]	65 [14]	69 [13]
356x406x744	47 [13]	53 [15]	55 [14]	58 [13]	62 [13]	66 [12]
356x406x677	45 [12]	50 [14]	53 [13]	55 [13]	59 [12]	63 [11]
356x406x634	43 [12]	49 [13]	51 [13]	53 [12]	57 [12]	61 [11]
356x406x592	42 [11]	47 [13]	49 [12]	52 [12]	55 [11]	59 [10]
356x406x551	40 [11]	45 [12]	47 [12]	50 [11]	53 [11]	57 [10]
356x406x509	38 [10]	43 [12]	45 [11]	48 [11]	50 [10]	54 [9]
356x406x467	37 [10]	41 [11]	43 [11]	45 [10]	48 [10]	52 [9]
356x406x393	33 [9]	38 [10]	39 [9]	41 [9]	44 [9]	47 [8]
356x406x340	31 [8]	35 [9]	36 [9]	38 [8]	41 [8]	44 [7]
356x406x287	28 [7]	31 [8]	33 [8]	35 [7]	37 [7]	40 [6]
356x406x235	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	36 [5]
356x368x202	23 [6]	26 [6]	27 [6]	29 [6]	31 [5]	33 [5]
356x368x177	21 [5]	24 [6]	25 [6]	27 [5]	29 [5]	31 [4]
356x368x153	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
356x368x129	18 [4]	20 [5]	21 [5]	22 [4]	24 [4]	26 [3]
305x305x342	34 [9]	38 [10]	40 [10]	42 [9]	44 [9]	48 [8]
305x305x313	32 [8]	36 [9]	38 [9]	40 [9]	42 [8]	46 [8]
305x305x283	30 [8]	34 [9]	36 [8]	38 [8]	40 [8]	43 [7]
305x305x240	28 [7]	31 [8]	33 [8]	34 [7]	37 [7]	40 [6]
305x305x198	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	36 [5]
305x305x158	22 [5]	25 [6]	26 [6]	27 [5]	29 [5]	32 [5]
305x305x137	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
305x305x118	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
305x305x97	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
254x254x167	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	36 [5]
254x254x132	22 [5]	24 [6]	26 [6]	27 [5]	29 [5]	32 [5]
254x254x107	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
254x254x89	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
254x254x73	15 [4]	18 [4]	18 [4]	20 [4]	21 [3]	23 [3]
203x203x100	20 [5]	23 [6]	24 [5]	26 [5]	28 [5]	30 [4]
203x203x86	19 [5]	21 [5]	23 [5]	24 [5]	25 [4]	28 [4]
203x203x71	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
203x203x60	15 [4]	18 [4]	18 [4]	20 [4]	21 [3]	23 [3]
203x203x52	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
203x203x46	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.4.3.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**



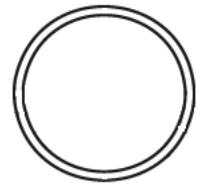
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	16 [4]	18 [4]	19 [4]	21 [4]	22 [3]	24 [3]
152x152x44	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
152x152x37	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
152x152x30	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
152x152x23	10 [2]	12 [3]	13 [2]	13 [2]	15 [2]	17 [1]

**Table A.2.4.3.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
76.1x6.3	11 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [1]
76.1x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x6.3	11 [2]	13 [3]	13 [2]	14 [2]	15 [2]	17 [1]
88.9x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	22 [2]
101.6x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	17 [2]
101.6x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
101.6x10	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
114.3x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	18 [2]
114.3x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
114.3x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [2]
139.7x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
139.7x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
139.7x10	15 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [2]
139.7x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
168.3x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
168.3x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
168.3x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
168.3x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x6.3	11 [2]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
193.7x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
193.7x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
193.7x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
219.1x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
219.1x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
219.1x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
219.1x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
219.1x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
219.1x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
244.5x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
244.5x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
244.5x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
244.5x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
244.5x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
244.5x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
273x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
273x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
273x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
273x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]

**Table A.2.4.3.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
273x16	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	29 [4]
323.9x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
323.9x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
323.9x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
323.9x14.2	18 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
323.9x16	20 [5]	22 [5]	24 [5]	25 [5]	27 [5]	29 [4]
355.6x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
355.6x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
355.6x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
355.6x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
406.4x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
406.4x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
406.4x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
406.4x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
457x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
457x14.2	19 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
457x16	20 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
508x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
508x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	28 [4]
508x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
508x20	23 [6]	26 [6]	27 [6]	29 [6]	31 [5]	33 [5]

**Table A.2.4.3.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
50x50x6.3	11 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [2]
50x50x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
50x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x6.3	11 [2]	13 [3]	13 [2]	14 [2]	15 [2]	17 [1]
60x60x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
60x60x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	17 [2]
70x70x7.1	12 [3]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
70x70x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
70x70x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	18 [2]
80x80x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
80x80x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
80x80x8.8	13 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
80x80x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [2]
80x80x12.5	16 [4]	19 [4]	19 [4]	21 [4]	22 [4]	24 [3]
90x90x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
90x90x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
90x90x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
90x90x8.8	13 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
90x90x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
90x90x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
100x100x6.3	11 [3]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
100x100x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
100x100x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
100x100x8.8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
100x100x10	15 [3]	17 [4]	17 [4]	19 [3]	20 [3]	22 [3]
100x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
120x120x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
120x120x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
120x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
120x120x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
120x120x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
120x120x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
140x140x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
140x140x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
140x140x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
140x140x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
140x140x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
140x140x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]

**Table A.2.4.3.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
150x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
150x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
150x150x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x150x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
150x150x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
160x160x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
160x160x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
160x160x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
160x160x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
160x160x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x160x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
160x160x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
160x160x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
180x180x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
180x180x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x180x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x180x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
180x180x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
180x180x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
180x180x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
180x180x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
200x200x6.3	11 [2]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
200x200x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x200x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x200x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x200x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
200x200x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
200x200x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x200x16	20 [5]	22 [5]	24 [5]	25 [5]	27 [4]	29 [4]
250x250x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x250x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x250x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
250x250x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
250x250x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
250x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
260x260x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
260x260x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
260x260x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
260x260x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]

**Table A.2.4.3.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS 260x260x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
300x300x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
300x300x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x300x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
300x300x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	28 [4]
300x300x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x350x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
350x350x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
350x350x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x400x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
400x400x16	20 [5]	23 [6]	24 [5]	25 [5]	27 [5]	30 [4]
400x400x20	23 [6]	26 [7]	27 [6]	29 [6]	31 [6]	34 [5]

**Table A.2.4.3.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	11 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [2]
80x40x6.3	11 [2]	13 [3]	13 [2]	14 [2]	15 [2]	17 [1]
80x40x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
80x40x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x50x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	17 [2]
90x50x7.1	12 [3]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x50x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
100x50x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	18 [2]
100x50x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
100x50x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
100x50x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	21 [2]
100x50x10	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
100x60x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	18 [2]
100x60x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
100x60x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
100x60x8.8	13 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
100x60x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [2]
120x60x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
120x60x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
120x60x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
120x60x8.8	13 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
120x60x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x60x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
120x80x6.3	11 [3]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
120x80x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
120x80x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
120x80x8.8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
120x80x10	15 [3]	17 [4]	17 [4]	19 [3]	20 [3]	22 [3]
120x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x100x6.3	11 [2]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
150x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
150x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
150x100x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
150x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
160x80x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
160x80x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
160x80x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
160x80x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
160x80x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x80x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]

**Table A.2.4.3.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
180x60x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
180x60x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
180x60x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
180x60x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x60x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
180x100x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
180x100x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
180x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
200x100x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x100x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x100x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
200x120x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
200x120x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
200x120x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x120x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x120x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x120x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
200x150x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
200x150x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
200x150x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x150x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
220x120x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
220x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
220x120x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
220x120x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
220x120x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]

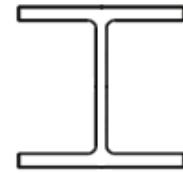
**Table A.2.4.3.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
220x120x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
250x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
250x100x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x100x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
250x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x150x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
250x150x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
250x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x150x16	20 [5]	22 [5]	24 [5]	25 [5]	27 [4]	29 [4]
260x140x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
260x140x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
260x140x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
260x140x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
260x140x16	20 [5]	22 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
300x100x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
300x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x100x16	20 [5]	22 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
300x150x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
300x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x150x16	20 [5]	22 [5]	24 [5]	25 [5]	27 [5]	29 [4]
300x200x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
300x200x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
300x200x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
300x250x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x250x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
300x250x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	28 [4]
300x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x150x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
350x150x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x250x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
350x250x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	28 [4]
350x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]

**Table A.2.4.3.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + UK National Annex)**

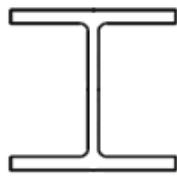
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x150x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	28 [4]
400x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x200x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x200x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	28 [4]
400x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x300x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x300x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
400x300x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
450x250x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
450x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x16	20 [5]	23 [6]	24 [5]	25 [5]	27 [5]	30 [4]
500x300x20	23 [6]	26 [7]	27 [6]	29 [6]	31 [6]	34 [5]

**Table A.2.4.4.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**



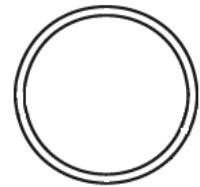
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	60 [17]	70 [20]	73 [19]	76 [19]	80 [18]	86 [17]
356x406x1202	58 [16]	67 [19]	70 [18]	73 [18]	77 [17]	83 [16]
356x406x1086	55 [15]	64 [18]	67 [17]	70 [17]	74 [16]	79 [15]
356x406x990	52 [15]	61 [17]	64 [17]	67 [16]	70 [15]	75 [14]
356x406x900	50 [14]	58 [16]	61 [16]	64 [15]	67 [15]	72 [14]
356x406x818	48 [13]	55 [15]	58 [15]	61 [14]	64 [14]	69 [13]
356x406x744	45 [12]	53 [15]	55 [14]	58 [14]	61 [13]	66 [12]
356x406x677	43 [12]	50 [14]	52 [13]	55 [13]	58 [12]	62 [11]
356x406x634	42 [11]	48 [13]	51 [13]	53 [12]	56 [12]	60 [11]
356x406x592	40 [11]	47 [13]	49 [12]	51 [12]	54 [11]	58 [11]
356x406x551	39 [10]	45 [12]	47 [12]	49 [11]	52 [11]	56 [10]
356x406x509	37 [10]	43 [12]	45 [11]	47 [11]	50 [10]	54 [10]
356x406x467	35 [9]	41 [11]	43 [11]	45 [10]	48 [10]	51 [9]
356x406x393	32 [8]	37 [10]	39 [9]	41 [9]	43 [9]	47 [8]
356x406x340	29 [8]	34 [9]	36 [9]	38 [8]	40 [8]	43 [7]
356x406x287	27 [7]	31 [8]	33 [8]	34 [7]	36 [7]	40 [6]
356x406x235	24 [6]	28 [7]	29 [7]	31 [6]	33 [6]	36 [6]
356x368x202	22 [5]	26 [7]	27 [6]	29 [6]	30 [6]	33 [5]
356x368x177	20 [5]	24 [6]	25 [6]	26 [5]	28 [5]	31 [4]
356x368x153	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
356x368x129	17 [4]	20 [5]	21 [5]	22 [4]	24 [4]	26 [3]
305x305x342	32 [9]	38 [10]	40 [10]	41 [9]	44 [9]	47 [8]
305x305x313	31 [8]	36 [9]	38 [9]	39 [9]	42 [8]	45 [8]
305x305x283	29 [8]	34 [9]	36 [9]	37 [8]	40 [8]	43 [7]
305x305x240	27 [7]	31 [8]	33 [8]	34 [7]	36 [7]	39 [6]
305x305x198	24 [6]	28 [7]	29 [7]	31 [6]	33 [6]	36 [6]
305x305x158	21 [5]	25 [6]	26 [6]	27 [6]	29 [5]	31 [5]
305x305x137	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
305x305x118	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
305x305x97	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
254x254x167	24 [6]	28 [7]	29 [7]	31 [6]	32 [6]	35 [5]
254x254x132	21 [5]	24 [6]	25 [6]	27 [5]	29 [5]	31 [5]
254x254x107	18 [4]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
254x254x89	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
254x254x73	15 [3]	17 [4]	18 [4]	19 [4]	21 [3]	23 [3]
203x203x100	20 [5]	23 [6]	24 [5]	26 [5]	27 [5]	30 [4]
203x203x86	18 [4]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
203x203x71	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
203x203x60	15 [3]	17 [4]	18 [4]	19 [4]	21 [3]	23 [3]
203x203x52	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
203x203x46	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.4.4.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**



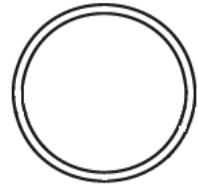
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	16 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
152x152x44	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
152x152x37	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
152x152x30	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
152x152x23	10 [2]	12 [3]	13 [2]	13 [2]	14 [2]	16 [1]

**Table A.2.4.4.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS						
60.3x8	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
76.1x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
76.1x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x6.3	11 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
88.9x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
101.6x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
101.6x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
101.6x10	14 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
114.3x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
114.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
114.3x10	14 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
139.7x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
139.7x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
139.7x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
139.7x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
168.3x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
168.3x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
168.3x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
168.3x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
193.7x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
193.7x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
193.7x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
193.7x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
193.7x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
219.1x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
219.1x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
219.1x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
219.1x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
219.1x14.2	17 [4]	20 [5]	22 [5]	23 [4]	24 [4]	27 [4]
219.1x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
244.5x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
244.5x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
244.5x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
244.5x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
244.5x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
244.5x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
273x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
273x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
273x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
273x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]

**Table A.2.4.4.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
273x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
323.9x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
323.9x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
323.9x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
323.9x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
323.9x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
355.6x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
355.6x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
355.6x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
355.6x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
406.4x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
406.4x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
406.4x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
406.4x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
457x12.5	16 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
457x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
457x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
508x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
508x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
508x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
508x20	22 [6]	26 [6]	27 [6]	29 [6]	30 [6]	33 [5]

**Table A.2.4.4.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x6.3	10 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [2]
50x50x7.1	11 [2]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
50x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
60x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
60x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
70x70x7.1	11 [3]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
70x70x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x80x7.1	11 [3]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x80x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
80x80x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x10	14 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
80x80x12.5	16 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
90x90x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x90x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x90x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
90x90x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
90x90x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
90x90x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
100x100x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x100x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x100x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
100x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	21 [2]
100x100x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
100x100x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
120x120x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	17 [2]
120x120x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
120x120x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
120x120x8.8	13 [3]	15 [4]	16 [3]	17 [3]	19 [3]	21 [2]
120x120x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
120x120x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
140x140x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
140x140x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
140x140x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
140x140x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
140x140x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
140x140x12.5	16 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]

**Table A.2.4.4.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
150x150x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
150x150x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
150x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x14.2	17 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
150x150x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
160x160x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
160x160x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
160x160x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
160x160x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
160x160x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x160x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
160x160x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
160x160x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [5]	29 [4]
180x180x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
180x180x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
180x180x8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x180x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
180x180x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x180x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
180x180x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
180x180x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
200x200x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
200x200x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
200x200x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x200x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
200x200x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x200x14.2	18 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
200x200x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
250x250x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x250x8.8	13 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x250x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
250x250x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
260x260x8.8	13 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
260x260x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x260x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x260x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]

**Table A.2.4.4.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
260x260x16	19 [5]	22 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x300x8.8	13 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
300x300x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x300x12.5	16 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
300x300x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x300x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
350x350x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
350x350x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x350x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
400x400x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x400x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x20	22 [6]	26 [7]	27 [6]	29 [6]	31 [6]	33 [5]

**Table A.2.4.4.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	10 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [2]
80x40x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x40x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x40x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x50x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x50x7.1	11 [3]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
100x50x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x50x10	14 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
100x60x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x60x7.1	11 [3]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
100x60x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x60x10	14 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
120x60x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x60x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x60x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
120x60x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x60x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
120x80x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x80x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x80x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
120x80x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	21 [2]
120x80x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x80x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
150x100x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
150x100x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
150x100x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
150x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	19 [3]	21 [2]
150x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x100x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
160x80x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	17 [2]
160x80x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
160x80x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
160x80x8.8	13 [3]	15 [4]	16 [3]	17 [3]	19 [3]	21 [2]
160x80x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x80x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]

**Table A.2.4.4.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	11 [2]	13 [3]	13 [3]	14 [2]	16 [2]	17 [2]
180x60x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
180x60x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
180x60x8.8	13 [3]	15 [4]	16 [3]	17 [3]	19 [3]	21 [2]
180x60x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x60x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
180x100x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
180x100x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
180x100x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
180x100x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
180x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x100x12.5	16 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
200x100x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	19 [2]
200x100x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
200x100x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
200x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x14.2	17 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
200x100x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
200x120x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
200x120x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
200x120x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
200x120x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
200x120x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x120x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
200x120x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [5]	29 [4]
200x150x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
200x150x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
200x150x8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x150x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
200x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
200x150x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
220x120x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
220x120x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
220x120x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
220x120x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
220x120x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]

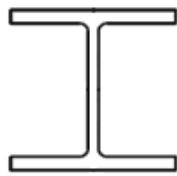
**Table A.2.4.4.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
220x120x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [5]	29 [4]
250x100x8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x100x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
250x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
250x100x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
250x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x150x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
250x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x150x14.2	18 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x150x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
260x140x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
260x140x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x140x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x140x14.2	18 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
260x140x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
300x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x100x14.2	18 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x100x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
300x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x150x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x150x16	19 [5]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x200x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x200x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x200x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
300x250x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x250x12.5	16 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
300x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x250x16	19 [5]	22 [6]	24 [5]	25 [5]	27 [5]	29 [4]
350x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x150x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x150x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
350x250x12.5	16 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
350x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x250x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]

**Table A.2.4.4.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + UK National Annex)**

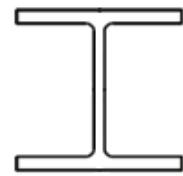
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	16 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
400x150x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x150x16	19 [5]	22 [6]	24 [5]	25 [5]	27 [5]	29 [4]
400x200x12.5	16 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
400x200x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x200x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
400x300x12.5	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	25 [3]
400x300x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x300x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
450x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
450x250x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
500x200x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x20	22 [6]	26 [7]	27 [6]	29 [6]	31 [6]	33 [5]

**Table A.2.4.5.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**



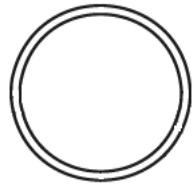
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	58 [16]	69 [20]	72 [19]	76 [19]	80 [18]	85 [17]
356x406x1202	56 [16]	67 [19]	70 [18]	73 [18]	77 [17]	82 [16]
356x406x1086	53 [15]	64 [18]	66 [17]	69 [17]	73 [16]	79 [15]
356x406x990	51 [14]	61 [17]	63 [17]	66 [16]	70 [15]	75 [15]
356x406x900	49 [14]	58 [16]	61 [16]	63 [15]	67 [15]	72 [14]
356x406x818	46 [13]	55 [15]	58 [15]	60 [14]	63 [14]	68 [13]
356x406x744	44 [12]	52 [15]	55 [14]	57 [14]	60 [13]	65 [12]
356x406x677	42 [11]	50 [14]	52 [13]	55 [13]	58 [12]	62 [12]
356x406x634	40 [11]	48 [13]	50 [13]	53 [12]	56 [12]	60 [11]
356x406x592	39 [11]	47 [13]	49 [12]	51 [12]	54 [11]	58 [11]
356x406x551	38 [10]	45 [12]	47 [12]	49 [11]	52 [11]	56 [10]
356x406x509	36 [10]	43 [12]	45 [11]	47 [11]	50 [10]	54 [10]
356x406x467	34 [9]	41 [11]	43 [11]	45 [10]	47 [10]	51 [9]
356x406x393	31 [8]	37 [10]	39 [10]	41 [9]	43 [9]	47 [8]
356x406x340	29 [7]	34 [9]	36 [9]	38 [8]	40 [8]	43 [7]
356x406x287	26 [7]	31 [8]	33 [8]	34 [7]	36 [7]	39 [6]
356x406x235	23 [6]	28 [7]	29 [7]	31 [6]	32 [6]	35 [6]
356x368x202	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]
356x368x177	20 [5]	24 [6]	25 [6]	26 [5]	28 [5]	31 [4]
356x368x153	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
356x368x129	16 [4]	20 [5]	21 [5]	22 [4]	23 [4]	26 [4]
305x305x342	31 [8]	38 [10]	39 [10]	41 [9]	44 [9]	47 [8]
305x305x313	30 [8]	36 [10]	37 [9]	39 [9]	42 [8]	45 [8]
305x305x283	28 [7]	34 [9]	35 [9]	37 [8]	39 [8]	43 [7]
305x305x240	26 [7]	31 [8]	32 [8]	34 [7]	36 [7]	39 [6]
305x305x198	23 [6]	28 [7]	29 [7]	31 [6]	32 [6]	35 [6]
305x305x158	20 [5]	24 [6]	26 [6]	27 [6]	29 [5]	31 [5]
305x305x137	19 [5]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
305x305x118	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
305x305x97	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
254x254x167	23 [6]	28 [7]	29 [7]	30 [6]	32 [6]	35 [5]
254x254x132	20 [5]	24 [6]	25 [6]	27 [5]	28 [5]	31 [5]
254x254x107	18 [4]	21 [5]	23 [5]	24 [5]	25 [4]	28 [4]
254x254x89	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
254x254x73	14 [3]	17 [4]	18 [4]	19 [4]	21 [3]	23 [3]
203x203x100	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	30 [4]
203x203x86	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
203x203x71	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
203x203x60	14 [3]	17 [4]	18 [4]	19 [4]	21 [3]	23 [3]
203x203x52	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
203x203x46	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.4.5.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**



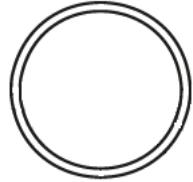
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
152x152x44	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
152x152x37	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
152x152x30	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
152x152x23	10 [2]	12 [3]	12 [2]	13 [2]	14 [2]	16 [1]

**Table A.2.4.5.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	11 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
76.1x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
76.1x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
88.9x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [2]
101.6x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
101.6x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
101.6x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
114.3x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
114.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
114.3x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
139.7x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
139.7x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
139.7x10	14 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
139.7x12.5	15 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
168.3x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
168.3x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
168.3x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
168.3x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
193.7x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
193.7x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
193.7x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
193.7x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
193.7x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
219.1x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
219.1x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
219.1x10	14 [3]	17 [4]	18 [4]	18 [3]	20 [3]	22 [3]
219.1x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
219.1x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
219.1x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
244.5x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
244.5x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
244.5x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
244.5x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
244.5x14.2	17 [4]	20 [5]	22 [5]	23 [5]	24 [4]	27 [4]
244.5x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
273x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
273x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
273x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
273x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]

**Table A.2.4.5.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
273x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
323.9x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
323.9x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
323.9x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
323.9x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
323.9x16	18 [4]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
355.6x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
355.6x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
355.6x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
355.6x16	19 [5]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
406.4x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
406.4x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
406.4x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
406.4x16	19 [5]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
457x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
457x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
457x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
508x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
508x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
508x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
508x20	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]

**Table A.2.4.5.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
50x50x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
50x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
50x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
60x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
60x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
70x70x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
70x70x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
70x70x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x80x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x80x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
80x80x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
80x80x12.5	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
90x90x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x90x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x90x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
90x90x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
90x90x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
90x90x12.5	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
100x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x100x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x100x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
100x100x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
100x100x12.5	15 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
120x120x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x120x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x120x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x120x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x120x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x120x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
140x140x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
140x140x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
140x140x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
140x140x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	21 [2]
140x140x10	14 [3]	17 [4]	18 [4]	18 [3]	20 [3]	22 [3]
140x140x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
150x150x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]

**Table A.2.4.5.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
150x150x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
150x150x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	21 [2]
150x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
150x150x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
150x150x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
160x160x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
160x160x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
160x160x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
160x160x8.8	13 [3]	15 [4]	16 [3]	17 [3]	19 [3]	21 [2]
160x160x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x160x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
160x160x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
160x160x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
180x180x6.3	10 [2]	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]
180x180x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x180x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
180x180x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
180x180x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x180x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
180x180x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
180x180x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
200x200x6.3	11 [2]	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]
200x200x7.1	11 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
200x200x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
200x200x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
200x200x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
200x200x16	18 [5]	22 [6]	23 [5]	24 [5]	26 [5]	29 [4]
250x250x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
250x250x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
250x250x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
250x250x16	19 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
260x260x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
260x260x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
260x260x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x260x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]

**Table A.2.4.5.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS 260x260x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
300x300x8.8	13 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
300x300x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x300x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x300x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x300x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
350x350x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x350x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x350x16	19 [5]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
400x400x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x400x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x400x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x20	22 [5]	26 [7]	27 [6]	29 [6]	30 [6]	33 [5]

**Table A.2.4.5.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x40x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x40x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x40x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x50x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x50x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
100x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x60x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x60x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
120x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x60x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
120x60x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
120x60x12.5	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
120x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x80x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x80x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x80x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x80x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x80x12.5	15 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
150x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
150x100x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
150x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
150x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
150x100x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
150x100x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
160x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
160x80x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
160x80x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
160x80x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
160x80x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
160x80x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]

**Table A.2.4.5.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x60x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x60x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
180x60x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
180x60x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
180x60x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
180x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x100x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
180x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	21 [2]
180x100x10	14 [3]	17 [4]	18 [4]	18 [3]	20 [3]	22 [3]
180x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x100x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
200x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	21 [2]
200x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x100x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
200x100x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
200x120x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x120x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x120x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
200x120x8.8	13 [3]	15 [4]	16 [3]	17 [3]	19 [3]	21 [2]
200x120x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x120x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x120x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
200x120x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
200x150x6.3	10 [2]	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]
200x150x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x150x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
200x150x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
200x150x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
200x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
200x150x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
220x120x7.1	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
220x120x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
220x120x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
220x120x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
220x120x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]

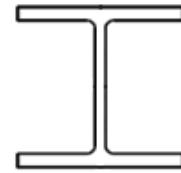
**Table A.2.4.5.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	17 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
220x120x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
250x100x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
250x100x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
250x100x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
250x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x100x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x100x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
250x150x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
250x150x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
250x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x150x16	18 [5]	22 [6]	23 [5]	24 [5]	26 [5]	29 [4]
260x140x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
260x140x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x140x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x140x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
260x140x16	18 [5]	22 [6]	23 [5]	24 [5]	26 [5]	29 [4]
300x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x100x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x100x16	18 [5]	22 [6]	23 [5]	24 [5]	26 [5]	29 [4]
300x150x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x150x16	19 [5]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x200x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x200x16	19 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x250x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x250x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
350x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x150x16	19 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
350x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x250x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]

**Table A.2.4.5.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + UK National Annex)**

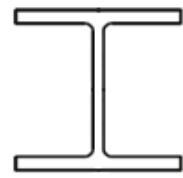
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x150x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
400x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x200x16	19 [5]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
400x300x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x300x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x300x16	19 [5]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
450x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
450x250x16	19 [5]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x200x16	19 [5]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x300x16	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x20	22 [5]	26 [7]	27 [6]	29 [6]	30 [6]	33 [5]

**Table A.2.4.6.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**



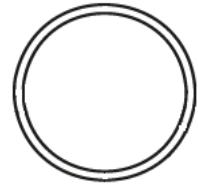
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	57 [16]	69 [20]	72 [19]	75 [19]	79 [18]	85 [17]
356x406x1202	55 [16]	67 [19]	70 [18]	73 [18]	76 [17]	82 [16]
356x406x1086	53 [15]	63 [18]	66 [18]	69 [17]	73 [16]	78 [15]
356x406x990	50 [14]	61 [17]	63 [17]	66 [16]	70 [16]	75 [15]
356x406x900	48 [13]	58 [16]	60 [16]	63 [15]	66 [15]	72 [14]
356x406x818	46 [12]	55 [15]	57 [15]	60 [14]	63 [14]	68 [13]
356x406x744	43 [12]	52 [15]	55 [14]	57 [14]	60 [13]	65 [12]
356x406x677	41 [11]	50 [14]	52 [13]	55 [13]	57 [12]	62 [12]
356x406x634	40 [11]	48 [13]	50 [13]	53 [12]	55 [12]	60 [11]
356x406x592	38 [10]	46 [13]	49 [12]	51 [12]	54 [11]	58 [11]
356x406x551	37 [10]	45 [12]	47 [12]	49 [11]	52 [11]	56 [10]
356x406x509	35 [9]	43 [12]	45 [11]	47 [11]	49 [10]	53 [10]
356x406x467	34 [9]	41 [11]	43 [11]	45 [10]	47 [10]	51 [9]
356x406x393	31 [8]	37 [10]	39 [10]	41 [9]	43 [9]	47 [8]
356x406x340	28 [7]	34 [9]	36 [9]	38 [8]	40 [8]	43 [7]
356x406x287	26 [7]	31 [8]	33 [8]	34 [7]	36 [7]	39 [6]
356x406x235	23 [6]	28 [7]	29 [7]	30 [6]	32 [6]	35 [6]
356x368x202	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]
356x368x177	20 [5]	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]
356x368x153	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
356x368x129	16 [4]	20 [5]	21 [5]	22 [4]	23 [4]	26 [4]
305x305x342	31 [8]	38 [10]	39 [10]	41 [9]	43 [9]	47 [8]
305x305x313	29 [8]	36 [10]	37 [9]	39 [9]	41 [8]	45 [8]
305x305x283	28 [7]	34 [9]	35 [9]	37 [8]	39 [8]	42 [7]
305x305x240	25 [6]	31 [8]	32 [8]	34 [7]	36 [7]	39 [6]
305x305x198	23 [6]	28 [7]	29 [7]	30 [6]	32 [6]	35 [6]
305x305x158	20 [5]	24 [6]	26 [6]	27 [6]	28 [5]	31 [5]
305x305x137	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
305x305x118	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
305x305x97	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
254x254x167	23 [6]	28 [7]	29 [7]	30 [6]	32 [6]	35 [6]
254x254x132	20 [5]	24 [6]	25 [6]	27 [6]	28 [5]	31 [5]
254x254x107	18 [4]	21 [5]	23 [5]	24 [5]	25 [4]	28 [4]
254x254x89	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
254x254x73	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	23 [3]
203x203x100	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
203x203x86	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
203x203x71	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
203x203x60	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	23 [3]
203x203x52	13 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
203x203x46	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.4.6.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**



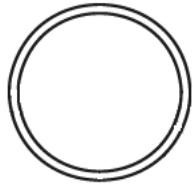
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	15 [3]	18 [4]	19 [4]	20 [4]	21 [4]	24 [3]
152x152x44	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
152x152x37	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
152x152x30	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
152x152x23	9 [2]	12 [3]	12 [2]	13 [2]	14 [2]	16 [1]

**Table A.2.4.6.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS						
60.3x8	11 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
76.1x6.3	10 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [2]
76.1x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
88.9x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
88.9x10	13 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]
101.6x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
101.6x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
101.6x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
114.3x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
114.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
114.3x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
139.7x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
139.7x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
139.7x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
139.7x12.5	15 [4]	19 [5]	19 [4]	21 [4]	22 [4]	24 [3]
168.3x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
168.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
168.3x10	13 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
168.3x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
193.7x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
193.7x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
193.7x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
193.7x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
193.7x16	18 [4]	22 [5]	23 [5]	24 [5]	25 [5]	28 [4]
219.1x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
219.1x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
219.1x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
219.1x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
219.1x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
219.1x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
244.5x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
244.5x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
244.5x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
244.5x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
244.5x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
244.5x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
273x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	20 [2]
273x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
273x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
273x14.2	17 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]

**Table A.2.4.6.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
273x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
323.9x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
323.9x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
323.9x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
323.9x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
323.9x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
355.6x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
355.6x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
355.6x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
355.6x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
406.4x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
406.4x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
406.4x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
406.4x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
457x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
457x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
457x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
508x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
508x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
508x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
508x20	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]

**Table A.2.4.6.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
50x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
50x50x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
60x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
60x60x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
70x70x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
70x70x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
70x70x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x80x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x80x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
80x80x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
80x80x12.5	15 [3]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
90x90x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x90x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x90x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
90x90x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
90x90x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
90x90x12.5	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
100x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x100x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x100x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x100x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
100x100x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
100x100x12.5	15 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
120x120x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x120x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x120x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x120x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x120x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x120x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
140x140x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
140x140x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
140x140x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
140x140x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
140x140x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
140x140x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
150x150x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]

**Table A.2.4.6.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
150x150x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
150x150x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
150x150x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
150x150x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
150x150x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
150x150x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
160x160x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
160x160x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
160x160x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
160x160x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
160x160x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x160x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
160x160x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
160x160x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
180x180x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x180x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x180x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
180x180x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
180x180x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x180x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
180x180x14.2	17 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
180x180x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
200x200x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x200x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x200x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
200x200x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
200x200x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
200x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
200x200x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
250x250x8	12 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
250x250x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
250x250x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
250x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x250x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
260x260x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
260x260x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x260x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x260x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]

**Table A.2.4.6.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
260x260x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x300x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
300x300x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x300x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x300x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x300x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
350x350x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x350x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x350x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
400x400x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x400x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x400x16	18 [5]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
400x400x20	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]

**Table A.2.4.6.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x40x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x40x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x40x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x50x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x50x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
100x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x60x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
100x60x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
120x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x60x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x60x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
120x60x12.5	15 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
120x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x80x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x80x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x80x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x80x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
120x80x12.5	15 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
150x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
150x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
150x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
150x100x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
150x100x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
150x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
160x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
160x80x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
160x80x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
160x80x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
160x80x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
160x80x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]

**Table A.2.4.6.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x60x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x60x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
180x60x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
180x60x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
180x60x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
180x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
180x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
180x100x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
180x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
200x100x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
200x100x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
200x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x100x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
200x100x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
200x120x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x120x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x120x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
200x120x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
200x120x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x120x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x120x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
200x120x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
200x150x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x150x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x150x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
200x150x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
200x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
200x150x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
220x120x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
220x120x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	20 [2]
220x120x8.8	13 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
220x120x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
220x120x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]

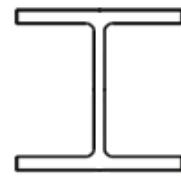
**Table A.2.4.6.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
220x120x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
250x100x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
250x100x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
250x100x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
250x100x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x100x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
250x150x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
250x150x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
250x150x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
250x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x150x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
260x140x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
260x140x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
260x140x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x140x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
260x140x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
300x100x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x100x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x100x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x100x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
300x150x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x150x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x200x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x200x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x250x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x250x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
350x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
350x150x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
350x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x250x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]

**Table A.2.4.6.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + UK National Annex)**

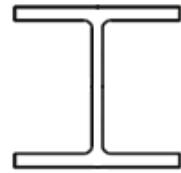
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
400x150x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
400x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x200x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
400x300x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x300x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x300x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
450x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
450x250x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x200x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x300x16	18 [5]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x300x20	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]

**Table A.2.4.7.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**



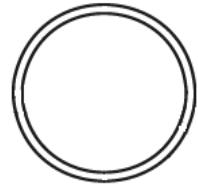
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	57 [16]	69 [20]	72 [19]	75 [19]	79 [18]	85 [17]
356x406x1202	55 [15]	67 [19]	69 [19]	73 [18]	76 [17]	82 [16]
356x406x1086	52 [15]	63 [18]	66 [18]	69 [17]	73 [16]	78 [15]
356x406x990	50 [14]	61 [17]	63 [17]	66 [16]	69 [16]	75 [15]
356x406x900	47 [13]	58 [16]	60 [16]	63 [15]	66 [15]	71 [14]
356x406x818	45 [12]	55 [15]	57 [15]	60 [14]	63 [14]	68 [13]
356x406x744	43 [12]	52 [15]	55 [14]	57 [14]	60 [13]	65 [12]
356x406x677	41 [11]	50 [14]	52 [13]	54 [13]	57 [12]	62 [12]
356x406x634	39 [11]	48 [13]	50 [13]	53 [12]	55 [12]	60 [11]
356x406x592	38 [10]	46 [13]	49 [12]	51 [12]	53 [11]	58 [11]
356x406x551	37 [10]	45 [12]	47 [12]	49 [11]	51 [11]	56 [10]
356x406x509	35 [9]	43 [12]	45 [11]	47 [11]	49 [10]	53 [10]
356x406x467	33 [9]	41 [11]	43 [11]	45 [10]	47 [10]	51 [9]
356x406x393	30 [8]	37 [10]	39 [10]	41 [9]	43 [9]	46 [8]
356x406x340	28 [7]	34 [9]	36 [9]	37 [8]	40 [8]	43 [7]
356x406x287	25 [6]	31 [8]	32 [8]	34 [7]	36 [7]	39 [6]
356x406x235	23 [6]	28 [7]	29 [7]	30 [7]	32 [6]	35 [6]
356x368x202	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]
356x368x177	19 [5]	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]
356x368x153	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
356x368x129	16 [4]	20 [5]	21 [5]	22 [4]	23 [4]	26 [4]
305x305x342	31 [8]	38 [10]	39 [10]	41 [9]	43 [9]	47 [8]
305x305x313	29 [8]	36 [10]	37 [9]	39 [9]	41 [8]	45 [8]
305x305x283	28 [7]	34 [9]	35 [9]	37 [8]	39 [8]	42 [7]
305x305x240	25 [6]	31 [8]	32 [8]	34 [7]	36 [7]	39 [6]
305x305x198	23 [6]	28 [7]	29 [7]	30 [7]	32 [6]	35 [6]
305x305x158	20 [5]	24 [6]	26 [6]	27 [6]	28 [5]	31 [5]
305x305x137	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
305x305x118	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
305x305x97	15 [3]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
254x254x167	22 [6]	28 [7]	29 [7]	30 [6]	32 [6]	35 [6]
254x254x132	20 [5]	24 [6]	25 [6]	27 [6]	28 [5]	31 [5]
254x254x107	17 [4]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
254x254x89	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
254x254x73	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	23 [3]
203x203x100	19 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
203x203x86	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
203x203x71	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
203x203x60	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	23 [3]
203x203x52	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
203x203x46	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.4.7.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**



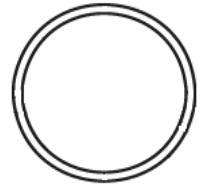
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	15 [3]	18 [4]	19 [4]	20 [4]	21 [4]	24 [3]
152x152x44	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
152x152x37	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
152x152x30	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
152x152x23	9 [2]	12 [3]	12 [2]	13 [2]	14 [2]	16 [2]

**Table A.2.4.7.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
76.1x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
76.1x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
88.9x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
88.9x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
88.9x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
101.6x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
101.6x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
101.6x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
114.3x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
114.3x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
114.3x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
139.7x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
139.7x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
139.7x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
139.7x12.5	15 [4]	19 [5]	19 [4]	21 [4]	22 [4]	24 [3]
168.3x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
168.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
168.3x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
168.3x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
193.7x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
193.7x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
193.7x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
193.7x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
193.7x16	18 [4]	22 [5]	23 [5]	24 [5]	25 [4]	28 [4]
219.1x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
219.1x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
219.1x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
219.1x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
219.1x14.2	16 [4]	20 [5]	21 [5]	23 [5]	24 [4]	26 [4]
219.1x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
244.5x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
244.5x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
244.5x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
244.5x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
244.5x14.2	17 [4]	20 [5]	21 [5]	23 [5]	24 [4]	26 [4]
244.5x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
273x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
273x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
273x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
273x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]

**Table A.2.4.7.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
273x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
323.9x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
323.9x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
323.9x12.5	15 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
323.9x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
323.9x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
355.6x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
355.6x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
355.6x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
355.6x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
406.4x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
406.4x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
406.4x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
406.4x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
457x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
457x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
457x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
508x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
508x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
508x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
508x20	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]

**Table A.2.4.7.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
50x50x7.1	10 [2]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
50x50x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
60x60x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
60x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
60x60x8	11 [2]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
70x70x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
70x70x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
70x70x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
70x70x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x80x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x80x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
80x80x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
80x80x12.5	15 [3]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
90x90x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x90x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x90x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
90x90x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
90x90x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
90x90x12.5	15 [3]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
100x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x100x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x100x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x100x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
100x100x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
100x100x12.5	15 [3]	19 [4]	19 [4]	21 [4]	22 [4]	24 [3]
120x120x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x120x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x120x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x120x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x120x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x120x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
140x140x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
140x140x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
140x140x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
140x140x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
140x140x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
140x140x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
150x150x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]

**Table A.2.4.7.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
150x150x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
150x150x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
150x150x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
150x150x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
150x150x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
150x150x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
160x160x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
160x160x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
160x160x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
160x160x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
160x160x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
160x160x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
160x160x14.2	17 [4]	20 [5]	21 [5]	23 [5]	24 [4]	26 [4]
160x160x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
180x180x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x180x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x180x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	20 [2]
180x180x8.8	12 [3]	16 [4]	16 [3]	17 [3]	18 [3]	20 [2]
180x180x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x180x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
180x180x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]
180x180x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
200x200x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x200x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x200x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
200x200x8.8	12 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
200x200x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x200x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
200x200x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
250x250x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
250x250x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
250x250x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x250x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
260x260x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
260x260x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
260x260x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x260x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]

**Table A.2.4.7.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS 260x260x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x300x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
300x300x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x300x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x300x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x300x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
350x350x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x350x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x350x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
400x400x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x400x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x400x16	18 [4]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
400x400x20	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]

**Table A.2.4.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x40x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
80x40x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x40x8	11 [2]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
90x50x6.3	10 [2]	12 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x50x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x50x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x50x8	11 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x8.8	12 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x50x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
100x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x60x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
100x60x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
120x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x60x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x60x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x60x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]
120x60x12.5	15 [3]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
120x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
120x80x7.1	11 [2]	13 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x80x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
120x80x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x80x10	13 [3]	16 [4]	17 [4]	18 [3]	19 [3]	22 [3]
120x80x12.5	15 [3]	19 [4]	19 [4]	21 [4]	22 [4]	24 [3]
150x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
150x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
150x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
150x100x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
150x100x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
150x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
160x80x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
160x80x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
160x80x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
160x80x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
160x80x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
160x80x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]

**Table A.2.4.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x60x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x60x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
180x60x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
180x60x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
180x60x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]
180x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
180x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
180x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
180x100x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
180x100x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
180x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x100x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x100x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
200x100x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
200x100x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
200x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x100x14.2	17 [4]	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]
200x100x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
200x120x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x120x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x120x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
200x120x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
200x120x10	13 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
200x120x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x120x14.2	17 [4]	20 [5]	21 [5]	23 [5]	24 [4]	26 [4]
200x120x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
200x150x6.3	10 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
200x150x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
200x150x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
200x150x8.8	12 [3]	16 [4]	16 [3]	17 [3]	18 [3]	20 [2]
200x150x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x150x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
200x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]
200x150x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
220x120x7.1	11 [2]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
220x120x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
220x120x8.8	12 [3]	15 [4]	16 [3]	17 [3]	18 [3]	20 [2]
220x120x10	13 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
220x120x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]

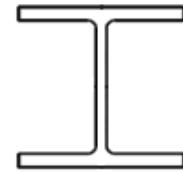
**Table A.2.4.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]
220x120x16	18 [4]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
250x100x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
250x100x8.8	12 [3]	16 [4]	16 [3]	17 [3]	18 [3]	20 [2]
250x100x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
250x100x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]
250x100x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
250x150x8	12 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
250x150x8.8	12 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
250x150x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x150x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
250x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
250x150x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
260x140x8.8	12 [3]	16 [4]	16 [3]	17 [3]	18 [3]	21 [2]
260x140x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x140x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
260x140x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
260x140x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
300x100x10	13 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x100x12.5	15 [4]	19 [5]	20 [4]	21 [4]	22 [4]	25 [3]
300x100x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x100x16	18 [4]	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]
300x150x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x150x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x200x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x200x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
300x250x10	14 [3]	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]
300x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
300x250x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
350x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
350x150x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
350x250x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
350x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
350x250x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]

**Table A.2.4.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + UK National Annex)**

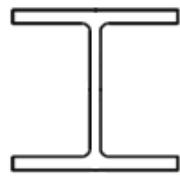
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x150x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
400x150x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
400x200x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x200x14.2	17 [4]	21 [5]	22 [5]	23 [5]	24 [4]	27 [4]
400x200x16	18 [4]	22 [6]	23 [5]	25 [5]	26 [5]	29 [4]
400x300x12.5	16 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
400x300x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x300x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
450x250x14.2	17 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
450x250x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x200x16	18 [4]	22 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x300x16	18 [4]	23 [6]	24 [5]	25 [5]	26 [5]	29 [4]
500x300x20	21 [5]	26 [7]	27 [6]	28 [6]	30 [6]	33 [5]

**Table A.2.5.1.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**



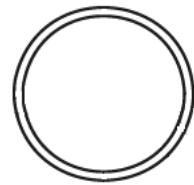
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	71 [20]	73 [19]	76 [19]	80 [18]	85 [17]	91 [16]
356x406x1202	68 [19]	71 [18]	74 [18]	77 [17]	82 [16]	88 [15]
356x406x1086	65 [18]	67 [17]	70 [17]	73 [16]	78 [15]	84 [15]
356x406x990	62 [17]	64 [16]	67 [16]	70 [15]	74 [15]	80 [14]
356x406x900	59 [16]	61 [16]	64 [15]	67 [15]	71 [14]	77 [13]
356x406x818	56 [15]	58 [15]	61 [14]	64 [14]	68 [13]	73 [12]
356x406x744	53 [14]	56 [14]	58 [13]	61 [13]	65 [12]	70 [11]
356x406x677	51 [14]	53 [13]	55 [13]	58 [12]	62 [12]	67 [11]
356x406x634	49 [13]	51 [13]	53 [12]	56 [12]	59 [11]	64 [10]
356x406x592	47 [13]	49 [12]	51 [12]	54 [11]	57 [11]	62 [10]
356x406x551	46 [12]	48 [12]	50 [11]	52 [11]	55 [10]	60 [9]
356x406x509	44 [11]	46 [11]	47 [11]	50 [10]	53 [10]	58 [9]
356x406x467	42 [11]	43 [11]	45 [10]	48 [10]	51 [9]	55 [8]
356x406x393	38 [10]	40 [9]	41 [9]	43 [9]	46 [8]	50 [7]
356x406x340	35 [9]	36 [9]	38 [8]	40 [8]	43 [7]	47 [7]
356x406x287	32 [8]	33 [8]	35 [7]	36 [7]	39 [7]	43 [6]
356x406x235	28 [7]	30 [7]	31 [6]	33 [6]	35 [6]	38 [5]
356x368x202	26 [6]	27 [6]	29 [6]	30 [6]	33 [5]	36 [4]
356x368x177	24 [6]	25 [6]	27 [5]	28 [5]	30 [5]	33 [4]
356x368x153	22 [5]	23 [5]	25 [5]	26 [4]	28 [4]	31 [4]
356x368x129	20 [5]	21 [4]	22 [4]	24 [4]	25 [4]	28 [3]
305x305x342	38 [10]	40 [10]	42 [9]	44 [9]	47 [8]	51 [8]
305x305x313	36 [9]	38 [9]	40 [9]	42 [8]	45 [8]	48 [7]
305x305x283	35 [9]	36 [8]	38 [8]	40 [8]	42 [7]	46 [7]
305x305x240	32 [8]	33 [8]	34 [7]	36 [7]	39 [6]	42 [6]
305x305x198	28 [7]	30 [7]	31 [6]	33 [6]	35 [6]	38 [5]
305x305x158	25 [6]	26 [6]	27 [6]	29 [5]	31 [5]	34 [4]
305x305x137	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
305x305x118	21 [5]	22 [5]	23 [4]	25 [4]	26 [4]	29 [3]
305x305x97	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
254x254x167	28 [7]	29 [7]	31 [6]	32 [6]	35 [6]	38 [5]
254x254x132	25 [6]	26 [6]	27 [5]	29 [5]	31 [5]	34 [4]
254x254x107	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
254x254x89	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
254x254x73	18 [4]	19 [4]	19 [4]	21 [3]	22 [3]	25 [2]
203x203x100	23 [6]	25 [5]	26 [5]	27 [5]	29 [4]	32 [4]
203x203x86	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
203x203x71	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]	27 [3]
203x203x60	18 [4]	19 [4]	20 [4]	21 [3]	22 [3]	25 [2]
203x203x52	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]
203x203x46	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]

**Table A.2.5.1.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**



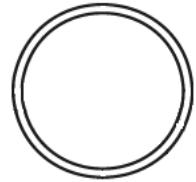
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	19 [4]	20 [4]	20 [4]	22 [4]	24 [3]	26 [3]
152x152x44	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
152x152x37	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
152x152x30	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]	21 [1]
152x152x23	12 [2]	13 [2]	13 [2]	14 [2]	16 [2]	19 [1]

**Table A.2.5.1.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS						
60.3x8	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
76.1x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
76.1x8	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
88.9x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
88.9x8	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
88.9x10	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	23 [2]
101.6x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
101.6x8	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
101.6x10	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]
114.3x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	19 [1]
114.3x8	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
114.3x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
139.7x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	19 [1]
139.7x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
139.7x10	17 [4]	18 [4]	18 [3]	20 [3]	21 [3]	24 [2]
139.7x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
168.3x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
168.3x8	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]
168.3x10	17 [4]	18 [4]	19 [3]	20 [3]	21 [3]	24 [2]
168.3x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
193.7x6.3	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]	20 [1]
193.7x8	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]
193.7x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
193.7x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
193.7x16	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	31 [4]
219.1x6.3	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]	20 [1]
219.1x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
219.1x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
219.1x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
219.1x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
219.1x16	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	31 [3]
244.5x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
244.5x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
244.5x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
244.5x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
244.5x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
244.5x16	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
273x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
273x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
273x12.5	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]	27 [3]
273x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]

**Table A.2.5.1.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
273x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
323.9x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
323.9x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
323.9x12.5	20 [4]	20 [4]	22 [4]	23 [4]	25 [3]	27 [3]
323.9x14.2	21 [5]	22 [5]	23 [4]	25 [4]	26 [4]	29 [3]
323.9x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
355.6x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
355.6x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
355.6x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	29 [3]
355.6x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
406.4x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
406.4x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
406.4x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
406.4x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
457x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
457x14.2	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]	30 [3]
457x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
508x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
508x14.2	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]	30 [3]
508x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
508x20	26 [6]	27 [6]	29 [6]	30 [6]	33 [5]	36 [5]

**Table A.2.5.1.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
50x50x7.1	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
50x50x8	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
60x60x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
60x60x7.1	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	20 [1]
60x60x8	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
70x70x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
70x70x7.1	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	20 [1]
70x70x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
70x70x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
80x80x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	19 [1]
80x80x7.1	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	20 [1]
80x80x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
80x80x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
80x80x10	17 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]
80x80x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
90x90x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
90x90x7.1	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
90x90x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
90x90x8.8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
90x90x10	17 [4]	17 [3]	18 [3]	20 [3]	21 [3]	24 [2]
90x90x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
100x100x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
100x100x7.1	14 [3]	15 [3]	15 [3]	16 [2]	18 [2]	21 [1]
100x100x8	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]
100x100x8.8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
100x100x10	17 [4]	18 [4]	18 [3]	20 [3]	21 [3]	24 [2]
100x100x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
120x120x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
120x120x7.1	14 [3]	15 [3]	15 [3]	16 [2]	18 [2]	21 [1]
120x120x8	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]
120x120x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
120x120x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
120x120x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
140x140x6.3	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]	20 [1]
140x140x7.1	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]	21 [1]
140x140x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
140x140x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
140x140x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
140x140x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
150x150x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]

**Table A.2.5.1.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes)					
	[Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
SHS	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
150x150x7.1	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]	21 [1]
150x150x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
150x150x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
150x150x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
150x150x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
150x150x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
150x150x16	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
160x160x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
160x160x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
160x160x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
160x160x8.8	16 [4]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
160x160x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
160x160x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
160x160x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
160x160x16	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
180x180x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
180x180x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
180x180x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
180x180x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
180x180x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
180x180x12.5	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]	27 [3]
180x180x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
180x180x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
200x200x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
200x200x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
200x200x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
200x200x8.8	16 [3]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]
200x200x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
200x200x12.5	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]	27 [3]
200x200x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
200x200x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
250x250x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
250x250x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
250x250x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
250x250x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
250x250x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
250x250x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
260x260x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]
260x260x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
260x260x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
260x260x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]

**Table A.2.5.1.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
260x260x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
300x300x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]
300x300x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
300x300x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
300x300x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
300x300x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
350x350x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
350x350x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
350x350x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
400x400x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
400x400x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
400x400x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
400x400x20	26 [6]	28 [6]	29 [6]	31 [6]	33 [5]	36 [5]

**Table A.2.5.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
80x40x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
80x40x7.1	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	20 [1]
80x40x8	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
90x50x6.3	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]	19 [1]
90x50x7.1	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	20 [1]
90x50x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
100x50x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	19 [1]
100x50x7.1	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
100x50x8	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [2]
100x50x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
100x50x10	17 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]
100x60x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	19 [1]
100x60x7.1	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	20 [1]
100x60x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
100x60x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
100x60x10	17 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]
120x60x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
120x60x7.1	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
120x60x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
120x60x8.8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
120x60x10	17 [4]	17 [3]	18 [3]	20 [3]	21 [3]	24 [2]
120x60x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
120x80x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
120x80x7.1	14 [3]	15 [3]	15 [3]	16 [2]	18 [2]	21 [1]
120x80x8	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]
120x80x8.8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
120x80x10	17 [4]	18 [4]	18 [3]	20 [3]	21 [3]	24 [2]
120x80x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
150x100x6.3	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]	20 [1]
150x100x7.1	14 [3]	15 [3]	15 [3]	16 [2]	18 [2]	21 [1]
150x100x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
150x100x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
150x100x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
150x100x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
160x80x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
160x80x7.1	14 [3]	15 [3]	15 [3]	16 [2]	18 [2]	21 [1]
160x80x8	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]
160x80x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
160x80x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
160x80x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]

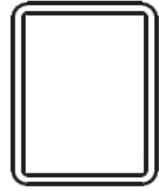
**Table A.2.5.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]	20 [1]
180x60x7.1	14 [3]	15 [3]	15 [3]	16 [2]	18 [2]	21 [1]
180x60x8	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]
180x60x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
180x60x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
180x60x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
180x100x6.3	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]	20 [1]
180x100x7.1	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]	21 [1]
180x100x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
180x100x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
180x100x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
180x100x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
200x100x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
200x100x7.1	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]	21 [1]
200x100x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
200x100x8.8	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
200x100x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
200x100x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
200x100x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
200x100x16	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
200x120x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
200x120x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
200x120x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
200x120x8.8	16 [4]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]
200x120x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
200x120x12.5	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
200x120x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
200x120x16	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
200x150x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
200x150x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
200x150x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
200x150x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
200x150x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
200x150x12.5	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]	27 [3]
200x150x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
200x150x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
220x120x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
220x120x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
220x120x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]
220x120x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
220x120x12.5	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]	27 [3]

**Table A.2.5.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**

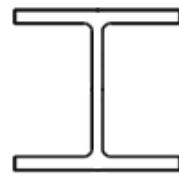
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
220x120x16	22 [5]	24 [5]	25 [5]	26 [4]	28 [4]	31 [4]
250x100x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
250x100x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
250x100x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
250x100x12.5	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]	27 [3]
250x100x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
250x100x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
250x150x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
250x150x8.8	16 [3]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]
250x150x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
250x150x12.5	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]	27 [3]
250x150x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
250x150x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
260x140x8.8	16 [3]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]
260x140x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
260x140x12.5	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]	27 [3]
260x140x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
260x140x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
300x100x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
300x100x12.5	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]	27 [3]
300x100x14.2	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
300x100x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
300x150x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
300x150x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
300x150x14.2	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]	29 [3]
300x150x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
300x200x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
300x200x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
300x200x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
300x200x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
300x250x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
300x250x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
300x250x14.2	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]	30 [3]
300x250x16	23 [5]	24 [5]	25 [5]	27 [5]	28 [4]	31 [4]
350x150x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
350x150x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
350x150x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
350x250x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
350x250x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
350x250x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]

**Table A.2.5.1.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.4$   
**(Eurocode + Irish National Annex)**



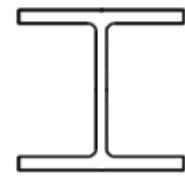
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
400x150x14.2	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]	30 [3]
400x150x16	23 [5]	24 [5]	25 [5]	27 [5]	28 [4]	31 [4]
400x200x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
400x200x14.2	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
400x200x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
400x300x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
400x300x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
400x300x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
450x250x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
450x250x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
500x200x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
500x300x16	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
500x300x20	26 [6]	28 [6]	29 [6]	31 [6]	33 [5]	36 [5]

**Table A.2.5.2.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**



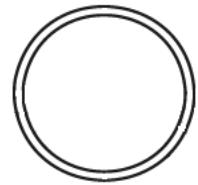
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	70 [20]	73 [19]	76 [19]	79 [18]	84 [17]	89 [16]
356x406x1202	67 [19]	70 [18]	73 [18]	76 [17]	81 [16]	86 [16]
356x406x1086	64 [18]	67 [17]	69 [17]	73 [16]	77 [16]	82 [15]
356x406x990	61 [17]	64 [17]	66 [16]	69 [16]	74 [15]	78 [14]
356x406x900	59 [16]	61 [16]	63 [15]	66 [15]	70 [14]	75 [13]
356x406x818	56 [15]	58 [15]	60 [14]	63 [14]	67 [13]	72 [12]
356x406x744	53 [14]	55 [14]	57 [14]	60 [13]	64 [12]	68 [12]
356x406x677	50 [14]	53 [13]	55 [13]	57 [12]	61 [12]	65 [11]
356x406x634	49 [13]	51 [13]	53 [12]	55 [12]	59 [11]	63 [11]
356x406x592	47 [13]	49 [12]	51 [12]	53 [11]	57 [11]	61 [10]
356x406x551	45 [12]	47 [12]	49 [11]	51 [11]	55 [10]	59 [10]
356x406x509	43 [12]	45 [11]	47 [11]	49 [10]	52 [10]	56 [9]
356x406x467	41 [11]	43 [11]	45 [10]	47 [10]	50 [9]	54 [9]
356x406x393	38 [10]	39 [9]	41 [9]	43 [9]	46 [8]	49 [8]
356x406x340	35 [9]	36 [9]	38 [8]	40 [8]	42 [7]	45 [7]
356x406x287	31 [8]	33 [8]	34 [7]	36 [7]	38 [7]	41 [6]
356x406x235	28 [7]	29 [7]	31 [7]	32 [6]	34 [6]	37 [5]
356x368x202	26 [6]	27 [6]	28 [6]	30 [6]	32 [5]	35 [5]
356x368x177	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	32 [4]
356x368x153	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
356x368x129	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	27 [3]
305x305x342	38 [10]	40 [10]	41 [9]	43 [9]	46 [8]	50 [8]
305x305x313	36 [9]	38 [9]	39 [9]	41 [8]	44 [8]	47 [7]
305x305x283	34 [9]	36 [9]	37 [8]	39 [8]	42 [7]	45 [7]
305x305x240	31 [8]	33 [8]	34 [7]	36 [7]	38 [7]	41 [6]
305x305x198	28 [7]	29 [7]	31 [7]	32 [6]	34 [6]	37 [5]
305x305x158	25 [6]	26 [6]	27 [6]	28 [5]	30 [5]	33 [4]
305x305x137	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
305x305x118	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	28 [3]
305x305x97	19 [4]	20 [4]	21 [4]	22 [4]	23 [3]	26 [3]
254x254x167	28 [7]	29 [7]	30 [6]	32 [6]	34 [6]	37 [5]
254x254x132	24 [6]	26 [6]	27 [5]	28 [5]	30 [5]	33 [4]
254x254x107	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	29 [4]
254x254x89	20 [5]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
254x254x73	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]	24 [3]
203x203x100	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]	31 [4]
203x203x86	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]	29 [3]
203x203x71	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
203x203x60	18 [4]	18 [4]	19 [4]	20 [3]	22 [3]	24 [3]
203x203x52	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	23 [2]
203x203x46	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]

**Table A.2.5.2.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**



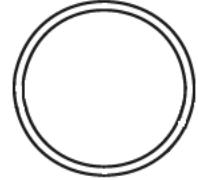
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
152x152x44	17 [4]	18 [4]	19 [3]	20 [3]	21 [3]	24 [2]
152x152x37	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
152x152x30	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [2]
152x152x23	12 [3]	13 [2]	13 [2]	14 [2]	16 [2]	18 [1]

**Table A.2.5.2.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60.3x8	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
76.1x8	14 (3)	15 (3)	16 (3)	17 (2)	18 (2)	20 (2)
88.9x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
88.9x10	16 (4)	17 (3)	18 (3)	19 (3)	20 (3)	23 (2)
101.6x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	21 (2)
101.6x10	16 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
114.3x8	14 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
114.3x10	16 (4)	17 (3)	18 (3)	19 (3)	21 (3)	23 (2)
139.7x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
139.7x10	17 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
139.7x12.5	19 (4)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
168.3x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
168.3x10	17 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
168.3x12.5	19 (4)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
193.7x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
193.7x10	17 (4)	18 (4)	18 (3)	20 (3)	21 (3)	23 (2)
193.7x12.5	19 (4)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
193.7x16	22 (5)	23 (5)	24 (5)	25 (5)	27 (4)	30 (4)
219.1x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
219.1x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	23 (2)
219.1x12.5	19 (4)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
219.1x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
219.1x16	22 (5)	23 (5)	24 (5)	26 (5)	27 (4)	30 (4)
244.5x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
244.5x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
244.5x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
244.5x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
244.5x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
273x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
273x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
273x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
273x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
273x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
323.9x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
323.9x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
323.9x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	27 (3)
323.9x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	28 (3)
323.9x16	22 (5)	23 (5)	25 (5)	26 (5)	28 (4)	30 (4)
355.6x10	17 (4)	18 (4)	19 (3)	20 (3)	22 (3)	24 (2)
355.6x12.5	19 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
355.6x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)

**Table A.2.5.2.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
355.6x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	30 (4)
406.4x10	17 (4)	18 (4)	19 (4)	20 (3)	22 (3)	24 (2)
406.4x12.5	19 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
406.4x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
406.4x16	23 (6)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
457x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
457x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
457x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
508x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
508x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
508x16	23 (6)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
508x20	26 (6)	27 (6)	28 (6)	30 (6)	32 (5)	35 (5)

**Table A.2.5.2.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x7.1	13 (3)	14 (3)	15 (2)	16 (2)	17 (2)	19 (1)
50x50x8	14 (3)	15 (3)	16 (3)	17 (2)	18 (2)	20 (2)
60x60x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (1)
60x60x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
70x70x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (1)
70x70x8	14 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
70x70x8.8	15 (3)	16 (3)	17 (3)	18 (3)	19 (2)	21 (2)
80x80x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
80x80x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
80x80x8.8	15 (3)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
80x80x10	16 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
80x80x12.5	19 (4)	19 (4)	20 (4)	22 (4)	23 (3)	26 (3)
90x90x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
90x90x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
90x90x8.8	15 (3)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
90x90x10	17 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
90x90x12.5	19 (4)	20 (4)	21 (4)	22 (4)	23 (3)	26 (3)
100x100x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
100x100x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
100x100x8.8	15 (3)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
100x100x10	17 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
100x100x12.5	19 (4)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
120x120x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
120x120x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
120x120x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
120x120x10	17 (4)	18 (4)	18 (3)	20 (3)	21 (3)	23 (2)
120x120x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
140x140x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
140x140x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
140x140x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
140x140x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	23 (2)
140x140x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
150x150x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
150x150x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
150x150x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
150x150x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	23 (2)
150x150x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
150x150x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
150x150x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
160x160x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
160x160x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)

**Table A.2.5.2.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
160x160x8.8	16 (3)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
160x160x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
160x160x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
160x160x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
160x160x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
180x180x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
180x180x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
180x180x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
180x180x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
180x180x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
180x180x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
180x180x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
200x200x6.3	13 (3)	14 (3)	14 (2)	15 (2)	17 (2)	19 (1)
200x200x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
200x200x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
200x200x8.8	16 (4)	17 (3)	17 (3)	18 (3)	20 (3)	22 (2)
200x200x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
200x200x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (4)	27 (3)
200x200x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	28 (3)
200x200x16	22 (5)	23 (5)	25 (5)	26 (5)	28 (4)	30 (4)
250x250x8	15 (3)	16 (3)	16 (3)	18 (3)	19 (2)	21 (2)
250x250x8.8	16 (4)	17 (3)	17 (3)	18 (3)	20 (3)	22 (2)
250x250x10	17 (4)	18 (4)	19 (4)	20 (3)	22 (3)	24 (2)
250x250x12.5	19 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
250x250x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
250x250x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	30 (4)
260x260x8.8	16 (4)	17 (3)	17 (3)	18 (3)	20 (3)	22 (2)
260x260x10	17 (4)	18 (4)	19 (3)	20 (3)	22 (3)	24 (2)
260x260x12.5	19 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
260x260x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
260x260x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	30 (4)
300x300x8.8	16 (4)	17 (3)	17 (3)	19 (3)	20 (3)	22 (2)
300x300x10	17 (4)	18 (4)	19 (4)	20 (3)	22 (3)	24 (2)
300x300x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
300x300x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
300x300x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
350x350x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
350x350x14.2	21 (5)	22 (5)	23 (5)	25 (4)	26 (4)	29 (3)
350x350x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
400x400x12.5	20 (5)	21 (4)	22 (4)	23 (4)	25 (4)	27 (3)
400x400x14.2	21 (5)	22 (5)	23 (5)	25 (4)	26 (4)	29 (4)

**Table A.2.5.2.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
400x400x16	23 (6)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
400x400x20	26 (7)	27 (6)	29 (6)	30 (6)	32 (5)	35 (5)

**Table A.2.5.2.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
80x40x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (1)
80x40x8	14 (3)	15 (3)	16 (3)	17 (3)	18 (2)	20 (2)
90x50x7.1	13 (3)	14 (3)	15 (3)	16 (2)	17 (2)	19 (1)
90x50x8	14 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
100x50x7.1	14 (3)	14 (3)	15 (3)	16 (2)	17 (2)	20 (2)
100x50x8	14 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
100x50x8.8	15 (3)	16 (3)	17 (3)	18 (3)	19 (2)	22 (2)
100x50x10	16 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
100x60x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
100x60x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
100x60x8.8	15 (3)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
100x60x10	16 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
120x60x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
120x60x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
120x60x8.8	15 (3)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
120x60x10	17 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
120x60x12.5	19 (4)	20 (4)	21 (4)	22 (4)	23 (3)	26 (3)
120x80x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
120x80x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
120x80x8.8	15 (3)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
120x80x10	17 (4)	17 (4)	18 (3)	19 (3)	21 (3)	23 (2)
120x80x12.5	19 (4)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
150x100x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
150x100x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
150x100x8.8	16 (3)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
150x100x10	17 (4)	18 (4)	18 (3)	20 (3)	21 (3)	23 (2)
150x100x12.5	19 (4)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
160x80x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
160x80x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
160x80x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
160x80x10	17 (4)	18 (4)	18 (3)	20 (3)	21 (3)	23 (2)
160x80x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
180x60x7.1	14 (3)	14 (3)	15 (3)	16 (2)	18 (2)	20 (2)
180x60x8	15 (3)	15 (3)	16 (3)	17 (3)	19 (2)	21 (2)
180x60x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
180x60x10	17 (4)	18 (4)	18 (3)	20 (3)	21 (3)	23 (2)
180x60x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
180x100x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
180x100x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
180x100x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (2)	22 (2)
180x100x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	23 (2)

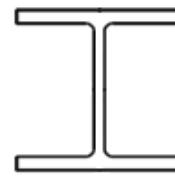
**Table A.2.5.2.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x100x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
200x100x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
200x100x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
200x100x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
200x100x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	23 (2)
200x100x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
200x100x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
200x100x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
200x120x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
200x120x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
200x120x8.8	16 (3)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
200x120x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
200x120x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
200x120x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
200x120x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
200x150x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
200x150x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
200x150x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
200x150x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
200x150x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
200x150x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
200x150x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
220x120x7.1	14 (3)	15 (3)	15 (3)	16 (2)	18 (2)	20 (2)
220x120x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
220x120x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
220x120x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
220x120x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
220x120x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	28 (3)
220x120x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
250x100x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
250x100x8.8	16 (4)	16 (3)	17 (3)	18 (3)	20 (3)	22 (2)
250x100x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
250x100x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (3)	26 (3)
250x100x14.2	21 (5)	22 (5)	23 (4)	24 (4)	26 (4)	28 (3)
250x100x16	22 (5)	23 (5)	24 (5)	26 (5)	28 (4)	30 (4)
250x150x8	15 (3)	16 (3)	16 (3)	17 (3)	19 (2)	21 (2)
250x150x8.8	16 (4)	17 (3)	17 (3)	18 (3)	20 (3)	22 (2)
250x150x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
250x150x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (4)	27 (3)
250x150x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	28 (3)
250x150x16	22 (5)	23 (5)	25 (5)	26 (5)	28 (4)	30 (4)

**Table A.2.5.2.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.6$   
**(Eurocode + Irish National Annex)**

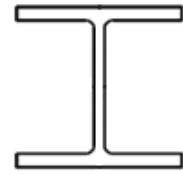
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
260x140x8.8	16 (4)	17 (3)	17 (3)	18 (3)	20 (3)	22 (2)
260x140x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
260x140x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (4)	27 (3)
260x140x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	28 (3)
260x140x16	22 (5)	23 (5)	25 (5)	26 (5)	28 (4)	30 (4)
300x100x10	17 (4)	18 (4)	19 (3)	20 (3)	21 (3)	24 (2)
300x100x12.5	19 (5)	20 (4)	21 (4)	22 (4)	24 (4)	27 (3)
300x100x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	28 (3)
300x100x16	22 (5)	23 (5)	25 (5)	26 (5)	28 (4)	30 (4)
300x150x10	17 (4)	18 (4)	19 (3)	20 (3)	22 (3)	24 (2)
300x150x12.5	19 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
300x150x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
300x150x16	22 (5)	24 (5)	25 (5)	26 (5)	28 (4)	30 (4)
300x200x10	17 (4)	18 (4)	19 (4)	20 (3)	22 (3)	24 (2)
300x200x12.5	19 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
300x200x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
300x200x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	30 (4)
300x250x10	17 (4)	18 (4)	19 (4)	20 (3)	22 (3)	24 (2)
300x250x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
300x250x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
300x250x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
350x150x12.5	19 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
350x150x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
350x150x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	30 (4)
350x250x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
350x250x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
350x250x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
400x150x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
400x150x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
400x150x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
400x200x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (4)	27 (3)
400x200x14.2	21 (5)	22 (5)	23 (5)	24 (4)	26 (4)	29 (3)
400x200x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
400x300x12.5	20 (5)	20 (4)	21 (4)	23 (4)	24 (3)	27 (3)
400x300x14.2	21 (5)	22 (5)	23 (5)	25 (4)	26 (4)	29 (3)
400x300x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
450x250x14.2	21 (5)	22 (5)	23 (5)	25 (4)	26 (4)	29 (3)
450x250x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
500x200x16	23 (5)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
500x300x16	23 (6)	24 (5)	25 (5)	26 (5)	28 (4)	31 (4)
500x300x20	26 (7)	27 (6)	29 (6)	30 (6)	32 (5)	35 (5)

**Table A.2.5.3.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	69 [20]	72 [19]	75 [19]	78 [18]	83 [17]	88 [17]
356x406x1202	67 [19]	69 [19]	72 [18]	75 [17]	80 [17]	85 [16]
356x406x1086	63 [18]	66 [18]	69 [17]	72 [17]	76 [16]	81 [15]
356x406x990	61 [17]	63 [17]	66 [16]	68 [16]	73 [15]	78 [14]
356x406x900	58 [16]	60 [16]	63 [15]	65 [15]	69 [14]	74 [13]
356x406x818	55 [15]	57 [15]	60 [14]	62 [14]	66 [13]	71 [13]
356x406x744	52 [15]	55 [14]	57 [14]	59 [13]	63 [13]	67 [12]
356x406x677	50 [14]	52 [13]	54 [13]	56 [13]	60 [12]	64 [11]
356x406x634	48 [13]	50 [13]	52 [12]	54 [12]	58 [11]	62 [11]
356x406x592	46 [13]	48 [12]	50 [12]	53 [12]	56 [11]	60 [10]
356x406x551	45 [12]	47 [12]	49 [11]	51 [11]	54 [10]	58 [10]
356x406x509	43 [12]	45 [11]	46 [11]	49 [11]	52 [10]	55 [9]
356x406x467	41 [11]	43 [11]	44 [10]	46 [10]	49 [9]	53 [9]
356x406x393	37 [10]	39 [10]	40 [9]	42 [9]	45 [8]	48 [8]
356x406x340	34 [9]	36 [9]	37 [8]	39 [8]	42 [8]	45 [7]
356x406x287	31 [8]	32 [8]	34 [8]	35 [7]	38 [7]	41 [6]
356x406x235	28 [7]	29 [7]	30 [7]	32 [6]	34 [6]	37 [5]
356x368x202	26 [7]	27 [6]	28 [6]	29 [6]	32 [5]	34 [5]
356x368x177	24 [6]	25 [6]	26 [5]	27 [5]	29 [5]	32 [4]
356x368x153	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
356x368x129	20 [5]	21 [5]	22 [4]	23 [4]	25 [4]	27 [3]
305x305x342	38 [10]	39 [10]	41 [9]	43 [9]	45 [8]	49 [8]
305x305x313	36 [9]	37 [9]	39 [9]	41 [9]	43 [8]	47 [7]
305x305x283	34 [9]	35 [9]	37 [8]	38 [8]	41 [7]	44 [7]
305x305x240	31 [8]	32 [8]	34 [7]	35 [7]	38 [7]	41 [6]
305x305x198	28 [7]	29 [7]	30 [7]	32 [6]	34 [6]	37 [5]
305x305x158	24 [6]	25 [6]	27 [6]	28 [5]	30 [5]	33 [4]
305x305x137	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
305x305x118	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
305x305x97	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
254x254x167	28 [7]	29 [7]	30 [7]	31 [6]	34 [6]	36 [5]
254x254x132	24 [6]	25 [6]	26 [6]	28 [5]	30 [5]	32 [4]
254x254x107	21 [5]	22 [5]	24 [5]	25 [5]	27 [4]	29 [4]
254x254x89	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
254x254x73	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]	24 [3]
203x203x100	23 [6]	24 [5]	25 [5]	26 [5]	28 [5]	31 [4]
203x203x86	21 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
203x203x71	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
203x203x60	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]	24 [3]
203x203x52	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]
203x203x46	15 [3]	16 [3]	16 [3]	17 [3]	19 [2]	21 [2]

**Table A.2.5.3.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
152x152x44	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [3]
152x152x37	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
152x152x30	14 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
152x152x23	12 [3]	12 [2]	13 [2]	14 [2]	15 [2]	17 [1]

**Table A.2.5.3.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x7.1	13 [3]	14 [3]	14 [3]	15 [2]	17 [2]	19 [2]
50x50x8	14 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
60x60x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
60x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
70x70x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
70x70x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
70x70x8.8	15 [3]	16 [3]	17 [3]	17 [3]	19 [2]	21 [2]
80x80x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
80x80x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
80x80x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
80x80x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
80x80x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
90x90x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
90x90x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
90x90x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
90x90x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
90x90x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
100x100x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
100x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x100x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
100x100x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
100x100x12.5	19 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
120x120x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x120x8	15 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
120x120x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
120x120x10	17 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
120x120x12.5	19 [5]	20 [4]	21 [4]	22 [4]	23 [3]	26 [3]
140x140x7.1	14 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
140x140x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
140x140x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
140x140x10	17 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
140x140x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
150x150x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
150x150x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
150x150x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
150x150x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
150x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
150x150x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [3]
150x150x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
160x160x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
160x160x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]

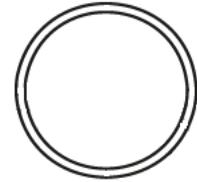
**Table A.2.5.3.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
160x160x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
160x160x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
160x160x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
160x160x14.2	20 [5]	21 [5]	22 [5]	24 [4]	25 [4]	28 [3]
160x160x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
180x180x7.1	14 [3]	14 [3]	15 [3]	16 [3]	17 [2]	20 [2]
180x180x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
180x180x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
180x180x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [2]
180x180x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
180x180x14.2	21 [5]	21 [5]	23 [5]	24 [4]	26 [4]	28 [3]
180x180x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
200x200x6.3	13 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [1]
200x200x7.1	14 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
200x200x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x200x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x200x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [3]
200x200x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
200x200x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
200x200x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
250x250x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
250x250x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
250x250x10	17 [4]	18 [4]	19 [4]	19 [3]	21 [3]	23 [3]
250x250x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
250x250x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
250x250x16	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
260x260x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
260x260x10	17 [4]	18 [4]	19 [4]	20 [3]	21 [3]	23 [2]
260x260x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
260x260x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
260x260x16	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
300x300x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
300x300x10	17 [4]	18 [4]	19 [4]	20 [3]	21 [3]	23 [3]
300x300x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x300x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
300x300x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
350x350x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
350x350x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
350x350x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
400x400x12.5	19 [5]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
400x400x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]

**Table A.2.5.3.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**

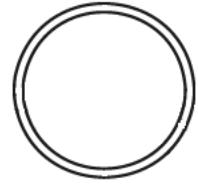
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
400x400x16	23 [6]	24 [5]	25 [5]	26 [5]	28 [4]	30 [4]
400x400x20	26 [7]	27 [6]	28 [6]	30 [6]	32 [5]	34 [5]

**Table A.2.5.3.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS						
60.3x8	14 [3]	14 [3]	15 [3]	16 [3]	18 [2]	20 [2]
76.1x8	14 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
88.9x8	14 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
88.9x10	16 [4]	17 [3]	18 [3]	18 [3]	20 [3]	22 [2]
101.6x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
101.6x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
114.3x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
114.3x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
139.7x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
139.7x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
139.7x12.5	19 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
168.3x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
168.3x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
168.3x12.5	19 [5]	20 [4]	21 [4]	22 [4]	23 [3]	26 [3]
193.7x8	15 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
193.7x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
193.7x12.5	19 [5]	20 [4]	21 [4]	22 [4]	23 [3]	26 [3]
193.7x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
219.1x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
219.1x10	17 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
219.1x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
219.1x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [3]
219.1x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
244.5x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
244.5x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
244.5x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
244.5x14.2	20 [5]	21 [5]	22 [5]	24 [4]	25 [4]	28 [3]
244.5x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
273x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
273x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [2]
273x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
273x14.2	21 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [3]
273x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
323.9x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
323.9x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [3]
323.9x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
323.9x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
323.9x16	22 [6]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
355.6x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [2]
355.6x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
355.6x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]

**Table A.2.5.3.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
355.6x16	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	30 [4]
406.4x10	17 [4]	18 [4]	19 [4]	19 [3]	21 [3]	23 [3]
406.4x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
406.4x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
406.4x16	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
457x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
457x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
457x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
508x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
508x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
508x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
508x20	26 [7]	27 [6]	28 [6]	29 [6]	32 [5]	34 [5]

**Table A.2.5.3.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
80x40x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
80x40x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
90x50x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
90x50x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x50x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
100x50x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x50x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]
100x50x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
100x60x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
100x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x60x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
100x60x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
120x60x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
120x60x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
120x60x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
120x60x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
120x80x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x80x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
120x80x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
120x80x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
120x80x12.5	19 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
150x100x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
150x100x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
150x100x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	22 [2]
150x100x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
150x100x12.5	19 [5]	20 [4]	21 [4]	22 [4]	23 [3]	26 [3]
160x80x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
160x80x8	15 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
160x80x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
160x80x10	17 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
160x80x12.5	19 [5]	20 [4]	21 [4]	22 [4]	23 [3]	26 [3]
180x60x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
180x60x8	15 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
180x60x8.8	15 [4]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
180x60x10	17 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
180x60x12.5	19 [5]	20 [4]	21 [4]	22 [4]	23 [3]	26 [3]
180x100x7.1	14 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x100x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
180x100x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
180x100x10	17 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]

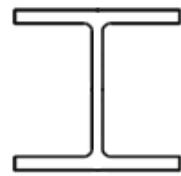
**Table A.2.5.3.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x100x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
200x100x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
200x100x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x100x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x100x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
200x100x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
200x100x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [3]
200x100x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
200x120x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
200x120x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x120x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x120x10	17 [4]	17 [4]	18 [3]	19 [3]	21 [3]	23 [2]
200x120x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]
200x120x14.2	20 [5]	21 [5]	22 [5]	24 [4]	25 [4]	28 [3]
200x120x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
200x150x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
200x150x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x150x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
200x150x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [2]
200x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
200x150x14.2	21 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [3]
200x150x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
220x120x7.1	14 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
220x120x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
220x120x8.8	15 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
220x120x10	17 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
220x120x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
220x120x14.2	21 [5]	21 [5]	22 [5]	24 [4]	25 [4]	28 [3]
220x120x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
250x100x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
250x100x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
250x100x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [2]
250x100x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
250x100x14.2	21 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [3]
250x100x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
250x150x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
250x150x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
250x150x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [3]
250x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
250x150x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
250x150x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]

**Table A.2.5.3.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 0.8$   
**(Eurocode + Irish National Annex)**

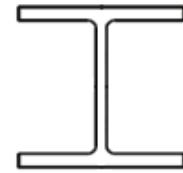
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
260x140x8.8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	22 [2]
260x140x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [3]
260x140x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
260x140x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
260x140x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
300x100x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x100x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x100x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
300x100x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
300x150x10	17 [4]	18 [4]	18 [4]	19 [3]	21 [3]	23 [2]
300x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x150x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [3]
300x150x16	22 [6]	23 [5]	24 [5]	26 [5]	27 [4]	30 [4]
300x200x10	17 [4]	18 [4]	19 [4]	19 [3]	21 [3]	23 [3]
300x200x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x200x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
300x200x16	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
300x250x10	17 [4]	18 [4]	19 [4]	20 [3]	21 [3]	23 [3]
300x250x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x250x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
300x250x16	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
350x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
350x150x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
350x150x16	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
350x250x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
350x250x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
350x250x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
400x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
400x150x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
400x150x16	22 [6]	23 [5]	24 [5]	26 [5]	28 [4]	30 [4]
400x200x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
400x200x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
400x200x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
400x300x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
400x300x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
400x300x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
450x250x14.2	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]
450x250x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
500x200x16	22 [6]	23 [5]	25 [5]	26 [5]	28 [4]	30 [4]
500x300x16	23 [6]	24 [5]	25 [5]	26 [5]	28 [4]	30 [4]
500x300x20	26 [7]	27 [6]	28 [6]	30 [6]	32 [5]	34 [5]

**Table A.2.5.4.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**



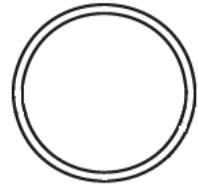
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	67 [19]	71 [20]	74 [19]	77 [18]	82 [18]	87 [17]
356x406x1202	64 [18]	69 [19]	71 [18]	74 [18]	79 [17]	84 [16]
356x406x1086	61 [17]	65 [18]	68 [17]	71 [17]	75 [16]	80 [15]
356x406x990	59 [17]	62 [17]	65 [16]	68 [16]	72 [15]	77 [14]
356x406x900	56 [16]	60 [16]	62 [16]	65 [15]	69 [14]	73 [13]
356x406x818	53 [15]	57 [15]	59 [15]	62 [14]	65 [14]	70 [13]
356x406x744	51 [14]	54 [14]	56 [14]	59 [13]	62 [13]	67 [12]
356x406x677	48 [13]	51 [14]	54 [13]	56 [13]	59 [12]	64 [11]
356x406x634	47 [13]	50 [13]	52 [13]	54 [12]	57 [12]	61 [11]
356x406x592	45 [12]	48 [13]	50 [12]	52 [12]	55 [11]	59 [10]
356x406x551	43 [12]	46 [12]	48 [12]	50 [11]	53 [11]	57 [10]
356x406x509	41 [11]	44 [11]	46 [11]	48 [11]	51 [10]	55 [9]
356x406x467	39 [11]	42 [11]	44 [10]	46 [10]	49 [9]	52 [9]
356x406x393	36 [10]	38 [10]	40 [9]	42 [9]	44 [8]	48 [8]
356x406x340	33 [9]	35 [9]	37 [9]	39 [8]	41 [8]	44 [7]
356x406x287	30 [8]	32 [8]	33 [8]	35 [7]	37 [7]	40 [6]
356x406x235	27 [7]	29 [7]	30 [7]	31 [6]	33 [6]	36 [5]
356x368x202	25 [6]	27 [6]	28 [6]	29 [6]	31 [5]	34 [5]
356x368x177	23 [6]	25 [6]	26 [6]	27 [5]	29 [5]	31 [4]
356x368x153	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
356x368x129	19 [5]	20 [5]	21 [4]	23 [4]	24 [4]	27 [3]
305x305x342	36 [10]	39 [10]	40 [9]	42 [9]	45 [9]	48 [8]
305x305x313	34 [9]	37 [9]	38 [9]	40 [9]	43 [8]	46 [7]
305x305x283	33 [9]	35 [9]	36 [8]	38 [8]	41 [8]	44 [7]
305x305x240	30 [8]	32 [8]	33 [8]	35 [7]	37 [7]	40 [6]
305x305x198	27 [7]	29 [7]	30 [7]	31 [6]	33 [6]	36 [5]
305x305x158	23 [6]	25 [6]	26 [6]	28 [5]	30 [5]	32 [5]
305x305x137	22 [5]	23 [5]	24 [5]	26 [5]	27 [5]	30 [4]
305x305x118	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [4]
305x305x97	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
254x254x167	27 [7]	28 [7]	30 [7]	31 [6]	33 [6]	36 [5]
254x254x132	23 [6]	25 [6]	26 [6]	27 [5]	29 [5]	32 [4]
254x254x107	21 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
254x254x89	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
254x254x73	17 [4]	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]
203x203x100	22 [6]	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]
203x203x86	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
203x203x71	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
203x203x60	17 [4]	18 [4]	19 [4]	20 [3]	21 [3]	23 [3]
203x203x52	15 [4]	17 [4]	17 [3]	18 [3]	20 [3]	22 [2]
203x203x46	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]

**Table A.2.5.4.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**



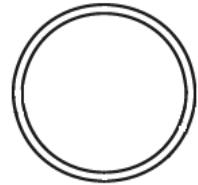
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	18 [4]	19 [4]	20 [4]	21 [4]	22 [3]	25 [3]
152x152x44	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
152x152x37	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
152x152x30	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
152x152x23	11 [2]	12 [2]	13 [2]	14 [2]	15 [2]	17 [1]

**Table A.2.5.4.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
76.1x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x8	14 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
88.9x10	15 [4]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
101.6x8	14 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
101.6x10	15 [4]	17 [4]	17 [3]	18 [3]	20 [3]	22 [2]
114.3x8	14 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
114.3x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
139.7x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
139.7x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
139.7x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
168.3x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
168.3x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
168.3x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
193.7x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	23 [2]
193.7x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x16	21 [5]	22 [5]	24 [5]	25 [5]	26 [4]	29 [4]
219.1x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
219.1x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
219.1x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]
219.1x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [3]
219.1x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
244.5x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
244.5x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
244.5x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
244.5x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [3]
244.5x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
273x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
273x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
273x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
273x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
273x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
323.9x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
323.9x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
323.9x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
323.9x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	28 [4]
323.9x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
355.6x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
355.6x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
355.6x14.2	20 [5]	21 [5]	22 [5]	24 [4]	25 [4]	28 [4]

**Table A.2.5.4.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
355.6x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
406.4x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
406.4x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
406.4x14.2	20 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [4]
406.4x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [5]	30 [4]
457x12.5	19 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
457x14.2	20 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]
457x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [5]	30 [4]
508x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
508x14.2	20 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]
508x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
508x20	25 [6]	27 [6]	28 [6]	29 [6]	31 [5]	34 [5]

**Table A.2.5.4.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x7.1	13 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
50x50x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x7.1	13 [3]	14 [3]	14 [3]	15 [2]	17 [2]	19 [2]
60x60x8	14 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
70x70x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
70x70x8	14 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
70x70x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
80x80x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
80x80x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
80x80x8.8	15 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
80x80x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
80x80x12.5	18 [4]	19 [4]	20 [4]	21 [4]	22 [3]	25 [3]
90x90x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
90x90x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
90x90x8.8	15 [3]	16 [3]	17 [3]	17 [3]	19 [3]	21 [2]
90x90x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
90x90x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
100x100x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
100x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
100x100x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
100x100x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
120x120x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x120x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
120x120x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
120x120x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
120x120x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
140x140x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
140x140x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
140x140x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
140x140x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
140x140x12.5	18 [4]	20 [4]	20 [4]	22 [4]	23 [4]	25 [3]
150x150x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
150x150x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
150x150x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
150x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
150x150x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]
150x150x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
150x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
160x160x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
160x160x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]

**Table A.2.5.4.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
160x160x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
160x160x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
160x160x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
160x160x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [3]
160x160x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
180x180x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x180x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
180x180x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
180x180x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
180x180x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
180x180x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
180x180x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
200x200x6.3	12 [3]	13 [3]	14 [2]	15 [2]	16 [2]	18 [2]
200x200x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x200x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x200x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
200x200x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
200x200x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
200x200x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x200x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
250x250x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
250x250x8.8	15 [4]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x250x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
250x250x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
250x250x14.2	20 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [4]
250x250x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
260x260x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
260x260x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
260x260x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
260x260x14.2	20 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [4]
260x260x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
300x300x8.8	15 [4]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
300x300x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x300x12.5	19 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
300x300x14.2	20 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]
300x300x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
350x350x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
350x350x14.2	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
350x350x16	22 [5]	23 [5]	24 [5]	26 [5]	27 [5]	30 [4]
400x400x12.5	19 [5]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
400x400x14.2	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]

**Table A.2.5.4.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
400x400x16	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	30 [4]
400x400x20	25 [6]	27 [6]	28 [6]	29 [6]	31 [5]	34 [5]

**Table A.2.5.4.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
80x40x7.1	13 [3]	14 [3]	14 [3]	15 [2]	17 [2]	19 [2]
80x40x8	14 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
90x50x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
90x50x8	14 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
100x50x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
100x50x8	14 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
100x50x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
100x50x10	16 [4]	17 [4]	18 [3]	18 [3]	20 [3]	22 [2]
100x60x7.1	13 [3]	14 [3]	15 [3]	15 [2]	17 [2]	19 [2]
100x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x60x8.8	15 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
100x60x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
120x60x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
120x60x8.8	15 [3]	16 [3]	17 [3]	17 [3]	19 [3]	21 [2]
120x60x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
120x60x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
120x80x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
120x80x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
120x80x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
120x80x10	16 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]
120x80x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [3]	25 [3]
150x100x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
150x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
150x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
150x100x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
150x100x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
160x80x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
160x80x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
160x80x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
160x80x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
160x80x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
180x60x7.1	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]
180x60x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
180x60x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
180x60x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
180x60x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
180x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
180x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
180x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]

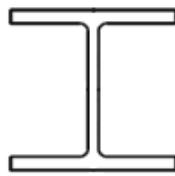
**Table A.2.5.4.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x100x12.5	18 [4]	20 [4]	20 [4]	22 [4]	23 [4]	25 [3]
200x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
200x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
200x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [2]
200x100x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]
200x100x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x100x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
200x120x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x120x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
200x120x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
200x120x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
200x120x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
200x120x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [3]
200x120x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
200x150x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x150x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
200x150x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
200x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
200x150x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
200x150x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
220x120x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
220x120x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
220x120x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
220x120x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
220x120x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
220x120x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
220x120x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
250x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
250x100x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
250x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
250x100x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
250x100x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x100x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
250x150x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x150x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
250x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
250x150x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
250x150x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]

**Table A.2.5.4.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.0$   
**(Eurocode + Irish National Annex)**

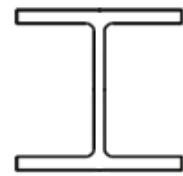
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
260x140x8.8	15 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
260x140x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
260x140x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
260x140x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
260x140x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x100x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x100x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	26 [3]
300x100x14.2	20 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x100x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x150x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x150x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x150x14.2	20 [5]	21 [5]	22 [5]	24 [4]	25 [4]	28 [4]
300x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x200x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x200x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
300x200x14.2	20 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [4]
300x200x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
300x250x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x250x12.5	19 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
300x250x14.2	20 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]
300x250x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
350x150x12.5	18 [4]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
350x150x14.2	20 [5]	21 [5]	23 [5]	24 [4]	25 [4]	28 [4]
350x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
350x250x12.5	19 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
350x250x14.2	20 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]
350x250x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
400x150x12.5	19 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
400x150x14.2	20 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]
400x150x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
400x200x12.5	19 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
400x200x14.2	20 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]
400x200x16	22 [5]	23 [5]	24 [5]	25 [5]	27 [4]	30 [4]
400x300x12.5	19 [5]	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]
400x300x14.2	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
400x300x16	22 [5]	23 [5]	24 [5]	26 [5]	27 [5]	30 [4]
450x250x14.2	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
450x250x16	22 [5]	23 [5]	24 [5]	26 [5]	27 [5]	30 [4]
500x200x16	22 [5]	23 [5]	24 [5]	26 [5]	27 [5]	30 [4]
500x300x16	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	30 [4]
500x300x20	25 [6]	27 [6]	28 [6]	29 [6]	31 [5]	34 [5]

**Table A.2.5.5.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**



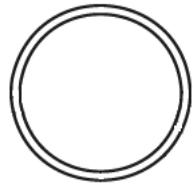
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	65 [19]	71 [20]	74 [19]	77 [18]	81 [18]	87 [17]
356x406x1202	62 [18]	68 [19]	71 [18]	74 [18]	78 [17]	83 [16]
356x406x1086	59 [17]	65 [18]	68 [17]	70 [17]	74 [16]	80 [15]
356x406x990	57 [16]	62 [17]	65 [16]	67 [16]	71 [15]	76 [14]
356x406x900	54 [15]	59 [16]	62 [16]	64 [15]	68 [14]	73 [14]
356x406x818	51 [14]	56 [15]	59 [15]	61 [14]	65 [14]	69 [13]
356x406x744	49 [14]	54 [14]	56 [14]	58 [13]	62 [13]	66 [12]
356x406x677	47 [13]	51 [14]	53 [13]	55 [13]	59 [12]	63 [11]
356x406x634	45 [12]	49 [13]	51 [13]	54 [12]	57 [12]	61 [11]
356x406x592	43 [12]	48 [13]	50 [12]	52 [12]	55 [11]	59 [10]
356x406x551	42 [11]	46 [12]	48 [12]	50 [11]	53 [11]	57 [10]
356x406x509	40 [11]	44 [11]	46 [11]	48 [11]	51 [10]	54 [9]
356x406x467	38 [10]	42 [11]	44 [11]	46 [10]	48 [10]	52 [9]
356x406x393	35 [9]	38 [10]	40 [9]	41 [9]	44 [9]	47 [8]
356x406x340	32 [8]	35 [9]	37 [9]	38 [8]	41 [8]	44 [7]
356x406x287	29 [7]	32 [8]	33 [8]	35 [7]	37 [7]	40 [6]
356x406x235	26 [7]	28 [7]	30 [7]	31 [6]	33 [6]	36 [5]
356x368x202	24 [6]	26 [6]	28 [6]	29 [6]	31 [5]	33 [5]
356x368x177	22 [6]	24 [6]	26 [6]	27 [5]	29 [5]	31 [4]
356x368x153	20 [5]	22 [5]	24 [5]	25 [5]	26 [4]	29 [4]
356x368x129	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	26 [3]
305x305x342	35 [9]	38 [10]	40 [10]	42 [9]	44 [9]	48 [8]
305x305x313	33 [9]	37 [9]	38 [9]	40 [9]	42 [8]	46 [8]
305x305x283	31 [8]	35 [9]	36 [8]	38 [8]	40 [8]	43 [7]
305x305x240	29 [7]	32 [8]	33 [8]	35 [7]	37 [7]	40 [6]
305x305x198	26 [7]	28 [7]	30 [7]	31 [6]	33 [6]	36 [5]
305x305x158	23 [6]	25 [6]	26 [6]	27 [5]	29 [5]	32 [5]
305x305x137	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
305x305x118	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
305x305x97	17 [4]	19 [4]	20 [4]	21 [4]	22 [3]	25 [3]
254x254x167	26 [7]	28 [7]	29 [7]	31 [6]	33 [6]	36 [5]
254x254x132	22 [6]	25 [6]	26 [6]	27 [5]	29 [5]	32 [5]
254x254x107	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
254x254x89	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
254x254x73	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]
203x203x100	21 [5]	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]
203x203x86	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
203x203x71	18 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
203x203x60	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]
203x203x52	15 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
203x203x46	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.5.5.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**



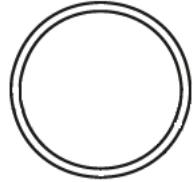
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	17 [4]	19 [4]	20 [4]	21 [4]	22 [3]	24 [3]
152x152x44	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
152x152x37	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
152x152x30	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
152x152x23	11 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [1]

**Table A.2.5.5.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
76.1x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x10	15 [3]	16 [4]	17 [3]	18 [3]	19 [3]	22 [2]
101.6x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
101.6x10	15 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
114.3x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
114.3x10	15 [3]	17 [4]	17 [3]	18 [3]	20 [3]	22 [2]
139.7x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
139.7x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
139.7x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
168.3x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
168.3x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
168.3x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
193.7x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
193.7x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x16	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
219.1x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
219.1x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
219.1x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
219.1x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
219.1x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
244.5x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
244.5x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
244.5x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
244.5x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
244.5x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [4]	29 [4]
273x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
273x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
273x12.5	18 [4]	20 [4]	20 [4]	22 [4]	23 [4]	25 [3]
273x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
273x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
323.9x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
323.9x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
323.9x12.5	18 [4]	20 [4]	21 [4]	22 [4]	23 [4]	25 [3]
323.9x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
323.9x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
355.6x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
355.6x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
355.6x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]

**Table A.2.5.5.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
355.6x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
406.4x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
406.4x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
406.4x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
406.4x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
457x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
457x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
457x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
508x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
508x14.2	19 [5]	21 [5]	22 [5]	24 [4]	25 [4]	28 [4]
508x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
508x20	24 [6]	26 [6]	28 [6]	29 [6]	31 [5]	33 [5]

**Table A.2.5.5.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
50x50x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
60x60x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
70x70x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
70x70x8.8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
80x80x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
80x80x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
80x80x10	15 [3]	17 [4]	17 [3]	18 [3]	20 [3]	22 [2]
80x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [3]	24 [3]
90x90x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
90x90x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
90x90x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
90x90x10	15 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [3]
90x90x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
100x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
100x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
100x100x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
100x100x10	15 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [3]
100x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
120x120x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
120x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
120x120x8.8	14 [3]	16 [3]	17 [3]	17 [3]	19 [3]	21 [2]
120x120x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
120x120x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
140x140x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
140x140x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
140x140x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
140x140x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
140x140x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
150x150x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
150x150x8.8	14 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
150x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x150x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
150x150x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
160x160x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
160x160x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.5.5.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
160x160x8.8	14 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
160x160x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x160x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
160x160x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
160x160x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [4]	29 [4]
180x180x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x180x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x180x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
180x180x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
180x180x12.5	18 [4]	20 [4]	20 [4]	22 [4]	23 [4]	25 [3]
180x180x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
180x180x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
200x200x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
200x200x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x200x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x200x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x200x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
200x200x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
200x200x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x200x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
250x250x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x250x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x250x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
250x250x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
250x250x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x250x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
260x260x8.8	14 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
260x260x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
260x260x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
260x260x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
260x260x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x300x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
300x300x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x300x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
300x300x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
300x300x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x350x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
350x350x14.2	19 [5]	21 [5]	23 [5]	24 [5]	25 [4]	28 [4]
350x350x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x400x14.2	19 [5]	22 [5]	23 [5]	24 [4]	25 [4]	28 [4]

**Table A.2.5.5.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
400x400x16	21 [5]	23 [6]	24 [5]	25 [5]	27 [5]	30 [4]
400x400x20	24 [6]	27 [6]	28 [6]	29 [6]	31 [5]	34 [5]

**Table A.2.5.5.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
80x40x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
80x40x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x50x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
90x50x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
100x50x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
100x50x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	20 [2]
100x50x8.8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
100x50x10	15 [4]	17 [4]	17 [3]	18 [3]	20 [3]	22 [2]
100x60x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
100x60x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
100x60x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
100x60x10	15 [3]	17 [4]	17 [3]	18 [3]	20 [3]	22 [2]
120x60x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
120x60x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
120x60x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
120x60x10	15 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [3]
120x60x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
120x80x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
120x80x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
120x80x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
120x80x10	15 [4]	17 [4]	18 [3]	19 [3]	20 [3]	22 [3]
120x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
150x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
150x100x8.8	14 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
150x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
160x80x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
160x80x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
160x80x8.8	14 [3]	16 [3]	17 [3]	17 [3]	19 [3]	21 [2]
160x80x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
180x60x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x60x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x60x8.8	14 [3]	16 [3]	17 [3]	17 [3]	19 [3]	21 [2]
180x60x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x60x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
180x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]
180x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
180x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]

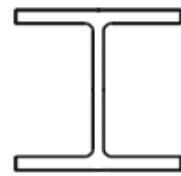
**Table A.2.5.5.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x100x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x100x8.8	14 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
200x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x100x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x100x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
200x120x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x120x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x120x8.8	14 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
200x120x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x120x12.5	18 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x120x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x120x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [4]	29 [4]
200x150x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x150x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x150x12.5	18 [4]	20 [4]	20 [4]	22 [4]	23 [4]	25 [3]
200x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
220x120x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
220x120x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
220x120x8.8	14 [3]	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]
220x120x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
220x120x12.5	18 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
220x120x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
220x120x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [4]	29 [4]
250x100x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x100x12.5	18 [4]	20 [4]	20 [4]	22 [4]	23 [4]	25 [3]
250x100x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x100x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
250x150x8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x150x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
250x150x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
250x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]

**Table A.2.5.5.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.2$   
**(Eurocode + Irish National Annex)**

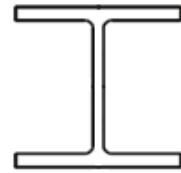
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
260x140x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
260x140x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
260x140x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
260x140x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
260x140x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x100x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
300x100x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
300x100x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x100x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x150x10	16 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
300x150x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
300x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [4]	29 [4]
300x200x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x200x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
300x200x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x200x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
300x250x10	16 [4]	17 [4]	18 [4]	19 [3]	21 [3]	23 [3]
300x250x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
300x250x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
300x250x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x150x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
350x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
350x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x250x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
350x250x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
350x250x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x150x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x150x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
400x150x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x200x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x200x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	28 [4]
400x200x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x300x12.5	18 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x300x14.2	19 [5]	21 [5]	23 [5]	24 [5]	25 [4]	28 [4]
400x300x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
450x250x14.2	19 [5]	21 [5]	23 [5]	24 [5]	25 [4]	28 [4]
450x250x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x200x16	21 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x16	21 [5]	23 [6]	24 [5]	25 [5]	27 [5]	30 [4]
500x300x20	24 [6]	27 [6]	28 [6]	29 [6]	31 [5]	34 [5]

**Table A.2.5.6.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**



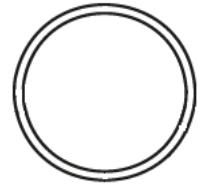
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	63 [18]	70 [20]	73 [19]	76 [19]	80 [18]	86 [17]
356x406x1202	61 [17]	68 [19]	71 [18]	74 [18]	78 [17]	83 [16]
356x406x1086	58 [16]	65 [18]	67 [17]	70 [17]	74 [16]	79 [15]
356x406x990	55 [15]	62 [17]	64 [16]	67 [16]	71 [15]	76 [14]
356x406x900	53 [15]	59 [16]	61 [16]	64 [15]	67 [14]	72 [14]
356x406x818	50 [14]	56 [15]	58 [15]	61 [14]	64 [14]	69 [13]
356x406x744	48 [13]	53 [14]	56 [14]	58 [13]	61 [13]	66 [12]
356x406x677	45 [12]	51 [14]	53 [13]	55 [13]	58 [12]	63 [11]
356x406x634	44 [12]	49 [13]	51 [13]	53 [12]	56 [12]	61 [11]
356x406x592	42 [11]	47 [13]	49 [12]	51 [12]	54 [11]	59 [11]
356x406x551	41 [11]	46 [12]	47 [12]	50 [11]	52 [11]	56 [10]
356x406x509	39 [10]	44 [11]	45 [11]	47 [11]	50 [10]	54 [9]
356x406x467	37 [10]	42 [11]	43 [11]	45 [10]	48 [10]	52 [9]
356x406x393	34 [9]	38 [10]	39 [9]	41 [9]	44 [9]	47 [8]
356x406x340	31 [8]	35 [9]	36 [9]	38 [8]	40 [8]	44 [7]
356x406x287	28 [7]	32 [8]	33 [8]	35 [7]	37 [7]	40 [6]
356x406x235	25 [6]	28 [7]	30 [7]	31 [6]	33 [6]	36 [5]
356x368x202	23 [6]	26 [6]	27 [6]	29 [6]	31 [5]	33 [5]
356x368x177	21 [5]	24 [6]	25 [6]	27 [5]	28 [5]	31 [5]
356x368x153	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
356x368x129	18 [4]	20 [5]	21 [5]	22 [4]	24 [4]	26 [3]
305x305x342	34 [9]	38 [10]	40 [10]	42 [9]	44 [9]	48 [8]
305x305x313	32 [8]	36 [9]	38 [9]	40 [9]	42 [8]	45 [8]
305x305x283	31 [8]	34 [9]	36 [8]	38 [8]	40 [8]	43 [7]
305x305x240	28 [7]	31 [8]	33 [8]	34 [7]	36 [7]	39 [6]
305x305x198	25 [6]	28 [7]	30 [7]	31 [6]	33 [6]	36 [5]
305x305x158	22 [6]	25 [6]	26 [6]	27 [6]	29 [5]	32 [5]
305x305x137	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
305x305x118	19 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
305x305x97	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
254x254x167	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	35 [5]
254x254x132	22 [5]	25 [6]	26 [6]	27 [5]	29 [5]	31 [5]
254x254x107	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
254x254x89	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
254x254x73	16 [4]	18 [4]	19 [4]	19 [4]	21 [3]	23 [3]
203x203x100	21 [5]	23 [6]	24 [5]	26 [5]	27 [5]	30 [4]
203x203x86	19 [5]	22 [5]	23 [5]	24 [5]	25 [4]	28 [4]
203x203x71	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
203x203x60	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]
203x203x52	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
203x203x46	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.5.6.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**



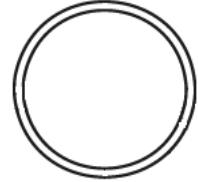
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	16 [4]	19 [4]	19 [4]	20 [4]	22 [4]	24 [3]
152x152x44	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
152x152x37	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
152x152x30	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
152x152x23	10 [2]	12 [3]	13 [2]	13 [2]	15 [2]	16 [1]

**Table A.2.5.6.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
76.1x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
101.6x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
101.6x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	22 [2]
114.3x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
114.3x10	15 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [2]
139.7x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
139.7x10	15 [3]	17 [4]	17 [3]	18 [3]	20 [3]	22 [3]
139.7x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
168.3x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
168.3x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
168.3x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
193.7x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
193.7x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x16	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
219.1x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
219.1x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
219.1x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
219.1x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
219.1x16	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
244.5x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
244.5x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
244.5x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
244.5x14.2	18 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
244.5x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
273x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
273x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
273x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
273x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
273x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [5]	29 [4]
323.9x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
323.9x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
323.9x12.5	17 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
323.9x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
323.9x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
355.6x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
355.6x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
355.6x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]

**Table A.2.5.6.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
355.6x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
406.4x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
406.4x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
406.4x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
406.4x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
457x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
457x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
457x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
508x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
508x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
508x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
508x20	23 [6]	26 [6]	27 [6]	29 [6]	31 [5]	33 [5]

**Table A.2.5.6.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
50x50x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
60x60x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
70x70x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
80x80x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
80x80x8.8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x10	15 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
80x80x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
90x90x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
90x90x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
90x90x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
90x90x10	15 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
90x90x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
100x100x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
100x100x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
100x100x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
100x100x10	15 [3]	17 [4]	18 [4]	18 [3]	20 [3]	22 [3]
100x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
120x120x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
120x120x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
120x120x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
120x120x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
120x120x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
140x140x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
140x140x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
140x140x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
140x140x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
140x140x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
150x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
150x150x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
150x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x150x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
150x150x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
160x160x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
160x160x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.5.6.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
160x160x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
160x160x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x160x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
160x160x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
160x160x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
180x180x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
180x180x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x180x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
180x180x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x180x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
180x180x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
180x180x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [4]	29 [4]
200x200x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
200x200x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x200x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x200x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x200x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x200x12.5	17 [4]	19 [4]	20 [4]	22 [4]	23 [4]	25 [3]
200x200x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x200x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
250x250x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x250x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x250x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x250x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
250x250x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
260x260x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
260x260x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
260x260x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
260x260x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
260x260x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
300x300x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
300x300x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
300x300x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
300x300x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x300x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x350x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
350x350x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]
350x350x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	26 [3]
400x400x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]

**Table A.2.5.6.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
400x400x16	20 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x20	23 [6]	26 [6]	28 [6]	29 [6]	31 [6]	33 [5]

**Table A.2.5.6.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
80x40x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
80x40x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x50x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
90x50x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
100x50x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x50x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
100x50x8.8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x50x10	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	22 [3]
100x60x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
100x60x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
100x60x8.8	14 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x60x10	15 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x60x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
120x60x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
120x60x8.8	14 [3]	16 [3]	16 [3]	17 [3]	19 [3]	21 [2]
120x60x10	15 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x60x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
120x80x7.1	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	18 [2]
120x80x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [2]	20 [2]
120x80x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
120x80x10	15 [3]	17 [4]	18 [4]	18 [3]	20 [3]	22 [3]
120x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
150x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
150x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
150x100x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
150x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
160x80x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
160x80x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
160x80x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
160x80x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
180x60x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
180x60x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
180x60x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
180x60x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x60x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
180x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
180x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x100x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
180x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]

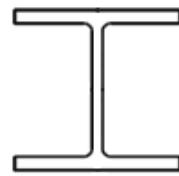
**Table A.2.5.6.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
200x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x100x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
200x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
200x100x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
200x120x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x120x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
200x120x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x120x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x120x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	29 [4]
200x150x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x150x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x150x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [4]	29 [4]
220x120x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
220x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
220x120x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
220x120x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
220x120x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
220x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
220x120x16	20 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
250x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x100x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x100x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x100x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [4]	29 [4]
250x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x150x12.5	17 [4]	19 [4]	20 [4]	22 [4]	23 [4]	25 [3]
250x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x150x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]

**Table A.2.5.6.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.4$   
**(Eurocode + Irish National Annex)**

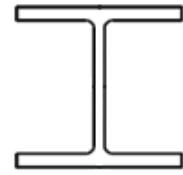
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
260x140x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
260x140x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x140x12.5	17 [4]	19 [4]	20 [4]	22 [4]	23 [4]	25 [3]
260x140x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
260x140x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x100x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x100x12.5	17 [4]	19 [4]	20 [4]	22 [4]	23 [4]	25 [3]
300x100x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x100x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x150x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x150x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
300x150x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
300x200x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x200x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
300x200x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
300x250x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	23 [3]
300x250x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
300x250x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x150x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
350x150x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
350x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x250x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
350x250x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
350x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x150x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
400x150x14.2	19 [5]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x200x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
400x200x14.2	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
400x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x300x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
400x300x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]
400x300x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
450x250x14.2	19 [5]	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]
450x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x16	20 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x20	23 [6]	26 [6]	28 [6]	29 [6]	31 [6]	33 [5]

**Table A.2.5.7.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**



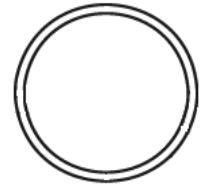
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UC	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$
356x406x1299	62 [17]	70 [20]	73 [19]	76 [19]	80 [18]	86 [17]
356x406x1202	59 [17]	68 [19]	70 [18]	73 [18]	77 [17]	83 [16]
356x406x1086	56 [16]	64 [18]	67 [17]	70 [17]	74 [16]	79 [15]
356x406x990	54 [15]	61 [17]	64 [17]	67 [16]	70 [15]	75 [14]
356x406x900	51 [14]	59 [16]	61 [16]	64 [15]	67 [15]	72 [14]
356x406x818	49 [14]	56 [15]	58 [15]	61 [14]	64 [14]	69 [13]
356x406x744	47 [13]	53 [14]	55 [14]	58 [14]	61 [13]	65 [12]
356x406x677	44 [12]	51 [14]	53 [13]	55 [13]	58 [12]	62 [11]
356x406x634	43 [12]	49 [13]	51 [13]	53 [12]	56 [12]	60 [11]
356x406x592	41 [11]	47 [13]	49 [12]	51 [12]	54 [11]	58 [11]
356x406x551	40 [11]	45 [12]	47 [12]	49 [11]	52 [11]	56 [10]
356x406x509	38 [10]	43 [12]	45 [11]	47 [11]	50 [10]	54 [10]
356x406x467	36 [10]	41 [11]	43 [11]	45 [10]	48 [10]	51 [9]
356x406x393	33 [9]	38 [10]	39 [9]	41 [9]	43 [9]	47 [8]
356x406x340	30 [8]	35 [9]	36 [9]	38 [8]	40 [8]	43 [7]
356x406x287	27 [7]	32 [8]	33 [8]	34 [7]	37 [7]	40 [6]
356x406x235	24 [6]	28 [7]	29 [7]	31 [6]	33 [6]	35 [5]
356x368x202	23 [6]	26 [6]	27 [6]	29 [6]	30 [5]	33 [5]
356x368x177	21 [5]	24 [6]	25 [6]	27 [5]	28 [5]	31 [5]
356x368x153	19 [5]	22 [5]	23 [5]	24 [5]	26 [5]	28 [4]
356x368x129	17 [4]	20 [5]	21 [5]	22 [4]	24 [4]	26 [3]
305x305x342	33 [9]	38 [10]	40 [10]	42 [9]	44 [9]	47 [8]
305x305x313	32 [8]	36 [9]	38 [9]	40 [9]	42 [8]	45 [8]
305x305x283	30 [8]	34 [9]	36 [8]	37 [8]	40 [8]	43 [7]
305x305x240	27 [7]	31 [8]	33 [8]	34 [7]	36 [7]	39 [6]
305x305x198	24 [6]	28 [7]	29 [7]	31 [6]	33 [6]	36 [6]
305x305x158	22 [5]	25 [6]	26 [6]	27 [6]	29 [5]	31 [5]
305x305x137	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
305x305x118	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
305x305x97	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
254x254x167	24 [6]	28 [7]	29 [7]	31 [6]	32 [6]	35 [5]
254x254x132	21 [5]	25 [6]	26 [6]	27 [5]	29 [5]	31 [5]
254x254x107	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
254x254x89	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
254x254x73	15 [4]	18 [4]	18 [4]	19 [4]	21 [3]	23 [3]
203x203x100	20 [5]	23 [6]	24 [5]	26 [5]	27 [5]	30 [4]
203x203x86	19 [5]	21 [5]	23 [5]	24 [5]	25 [4]	28 [4]
203x203x71	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
203x203x60	15 [4]	18 [4]	18 [4]	19 [4]	21 [3]	23 [3]
203x203x52	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]
203x203x46	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.5.7.1**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**



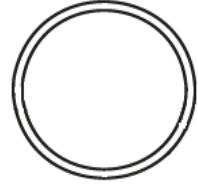
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
152x152x51	16 [4]	18 [4]	19 [4]	20 [4]	22 [4]	24 [3]
152x152x44	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
152x152x37	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
152x152x30	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
152x152x23	10 [2]	12 [3]	13 [2]	13 [2]	15 [2]	16 [1]

**Table A.2.5.7.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
CHS 60.3x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
76.1x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
88.9x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
101.6x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]
101.6x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
114.3x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
114.3x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	22 [3]
139.7x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
139.7x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
139.7x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
168.3x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
168.3x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
168.3x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
193.7x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
193.7x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
193.7x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
193.7x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
219.1x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
219.1x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
219.1x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
219.1x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
219.1x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
244.5x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
244.5x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
244.5x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
244.5x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
244.5x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
273x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
273x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
273x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
273x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
273x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
323.9x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
323.9x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
323.9x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
323.9x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
323.9x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
355.6x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
355.6x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
355.6x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]

**Table A.2.5.7.2**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
355.6x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
406.4x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
406.4x12.5	17 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
406.4x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
406.4x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
457x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
457x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
457x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
508x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
508x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
508x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
508x20	23 [6]	26 [6]	27 [6]	29 [6]	30 [6]	33 [5]

**Table A.2.5.7.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
50x50x7.1	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
50x50x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
60x60x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
60x60x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
70x70x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
70x70x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
80x80x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
80x80x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
80x80x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
80x80x12.5	16 [4]	19 [4]	19 [4]	20 [4]	22 [4]	24 [3]
90x90x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
90x90x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x90x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
90x90x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
90x90x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
100x100x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x100x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
100x100x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	20 [2]
100x100x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
100x100x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
120x120x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]
120x120x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
120x120x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
120x120x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
120x120x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
140x140x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
140x140x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
140x140x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
140x140x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
140x140x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
150x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
150x150x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
150x150x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x150x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
150x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
150x150x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
160x160x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
160x160x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]

**Table A.2.5.7.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
160x160x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
160x160x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x160x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
160x160x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
160x160x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
180x180x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
180x180x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
180x180x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
180x180x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x180x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
180x180x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
180x180x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
200x200x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
200x200x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
200x200x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x200x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
200x200x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x200x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x200x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
200x200x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [5]	29 [4]
250x250x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x250x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x250x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x250x12.5	17 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
250x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
250x250x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
260x260x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
260x260x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x260x12.5	17 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
260x260x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
260x260x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x300x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
300x300x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x300x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
300x300x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x300x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x350x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
350x350x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x350x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
400x400x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]

**Table A.2.5.7.3**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
SHS						
400x400x16	20 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
400x400x20	23 [6]	26 [7]	27 [6]	29 [6]	31 [6]	33 [5]

**Table A.2.5.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
60x40x6.3	11 [2]	12 [3]	13 [2]	14 [2]	15 [2]	17 [2]
80x40x6.3	11 [2]	13 [3]	13 [2]	14 [2]	15 [2]	17 [2]
80x40x7.1	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	18 [2]
80x40x8	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]
90x50x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
90x50x7.1	12 [3]	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]
90x50x8	12 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
100x50x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x50x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x50x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x50x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x50x10	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	22 [3]
100x60x6.3	11 [2]	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]
100x60x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
100x60x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]
100x60x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
100x60x10	14 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x60x6.3	11 [2]	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]
120x60x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x60x8	13 [3]	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]
120x60x8.8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
120x60x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x60x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
120x80x6.3	11 [2]	13 [3]	14 [3]	14 [2]	15 [2]	17 [2]
120x80x7.1	12 [3]	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]
120x80x8	13 [3]	15 [3]	15 [3]	16 [3]	18 [3]	20 [2]
120x80x8.8	13 [3]	16 [4]	16 [3]	17 [3]	18 [3]	20 [2]
120x80x10	14 [3]	17 [4]	17 [4]	18 [3]	20 [3]	22 [3]
120x80x12.5	16 [4]	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]
150x100x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
150x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]
150x100x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
150x100x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
150x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
150x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
160x80x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
160x80x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]
160x80x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
160x80x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
160x80x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
160x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]

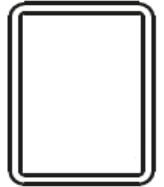
**Table A.2.5.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
180x60x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
180x60x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	18 [2]
180x60x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
180x60x8.8	13 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
180x60x10	14 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x60x12.5	17 [4]	19 [4]	20 [4]	21 [4]	22 [4]	25 [3]
180x100x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
180x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
180x100x8	13 [3]	15 [3]	16 [3]	16 [3]	18 [3]	20 [2]
180x100x8.8	14 [3]	16 [4]	16 [3]	17 [3]	19 [3]	21 [2]
180x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
180x100x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	17 [2]
200x100x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
200x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x100x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
200x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]
200x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
200x100x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]
200x120x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
200x120x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
200x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x120x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
200x120x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x120x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
200x120x16	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	29 [4]
200x150x6.3	11 [2]	13 [3]	14 [3]	14 [2]	16 [2]	18 [2]
200x150x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
200x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
200x150x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
200x150x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
200x150x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
200x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
200x150x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
220x120x7.1	12 [3]	14 [3]	15 [3]	15 [3]	17 [2]	19 [2]
220x120x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
220x120x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
220x120x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
220x120x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	25 [3]

**Table A.2.5.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
220x120x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
220x120x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
250x100x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x100x8.8	14 [3]	16 [4]	17 [3]	17 [3]	19 [3]	21 [2]
250x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x100x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	24 [4]	27 [4]
250x100x16	19 [5]	22 [5]	23 [5]	25 [5]	26 [5]	29 [4]
250x150x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]
250x150x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
250x150x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
250x150x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
250x150x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
250x150x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [5]	29 [4]
260x140x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	21 [2]
260x140x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
260x140x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
260x140x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
260x140x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x100x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x100x12.5	17 [4]	19 [5]	20 [4]	21 [4]	23 [4]	25 [3]
300x100x14.2	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]
300x100x16	20 [5]	22 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x150x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x150x12.5	17 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
300x150x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x150x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x200x10	15 [3]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x200x12.5	17 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
300x200x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x200x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
300x250x10	15 [4]	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]
300x250x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
300x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
300x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
350x150x12.5	17 [4]	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]
350x150x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x150x16	20 [5]	23 [5]	24 [5]	25 [5]	26 [5]	29 [4]
350x250x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
350x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
350x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]

**Table A.2.5.7.4**  
**Galvanized steel columns with non-dimensional slenderness**  
 $\bar{\lambda} = 1.6$   
**(Eurocode + Irish National Annex)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	$\mu_{0,G} = 0.7$	$\mu_{0,G} = 0.6$	$\mu_{0,G} = 0.5$	$\mu_{0,G} = 0.4$	$\mu_{0,G} = 0.3$	$\mu_{0,G} = 0.2$
400x150x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
400x150x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x200x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
400x200x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
400x300x12.5	17 [4]	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]
400x300x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
400x300x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
450x250x14.2	18 [4]	21 [5]	22 [5]	23 [5]	25 [4]	27 [4]
450x250x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x200x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x16	20 [5]	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]
500x300x20	23 [6]	26 [7]	27 [6]	29 [6]	31 [6]	33 [5]



# APPENDIX B

## BS 5950 TABLES

Two sets of tables are given for the design of galvanized steel members in the fire situation according to BS 5950-8. The first set of tables (Tables B.1.1 to B.1.4) can be used to determine the fire resistance of a galvanized steel member at a fire exposure of 15 minutes or 30 minutes. The second set of tables (Tables B.2.1 to B.2.4) give the maximum fire exposure of a galvanized steel member based on the load ratio.

Tables are provided for:

- Galvanized steel beams not supporting a concrete slab
- Galvanized steel beams supporting a concrete slab or composite slab
- Galvanized steel composite beams with 40 % degree of shear connection
- Galvanized steel composite beams with 100 % degree of shear connection
- Galvanized steel tension plates
- Galvanized steel columns with slenderness  $\lambda \leq 0.7$
- Galvanized steel columns with slenderness  $\lambda > 0.7$

All the tables were developed using the standard temperature-time curve.

The tables are intended to be used for steel grades S275 and S355, which are the most popular grades used in the UK. However, in principle, the tables can also be used for S460 steel.

The BS 5950-8 tables are very similar to those given in Appendix A for the fire design of members according to the Eurocode. The main difference is that the BS 5950-8 tables are based on the load ratio as opposed to the degree of utilization, and the critical temperature is referred to as the limiting temperature. The relationship between the load ratio and the limiting temperature is given in BS 5950-8, Table 8 for different types of members.

The load ratio is defined as the ratio between the load carried during the fire to the load capacity at 20 °C. For laterally restrained beams and tension plates, the load ratio coincides with the degree of utilization given in EN 1993-1-2. However, for columns they are slightly different because although for this type of member the degree of utilization is based on the buckling resistance at 20 °C, this resistance is calculated using the buckling curve prescribed for the fire situation (see Equation (5.17)).

The cross sections included in the BS 5950-8 tables are the same as those used in the tables given in Appendix A.

## Introduction to fire resistance tables according to BS 5950-8

Tables B.1.1 to B.1.4 give the limiting load ratios (LR) of galvanized steel members subject to a fire exposure of 15 minutes and 30 minutes. The tables also give the limiting temperatures which correspond to the temperature reached by the member at the respective fire periods. The limiting temperatures were determined following the iterative procedure described in Section 4, where Equation (4.1) is incrementally solved for time intervals of 5 seconds, using the material properties for galvanized steel given in Section 4.4, and the appropriate correction factor of the cross-section and type of fire exposure, as given in Section 4.2. The load ratios were determined based on the limiting temperatures by interpolating the tabulated values given in BS 5950-8, Table 8.

The resistance of a galvanized steel member can be easily determined from these tables by multiplying the load ratio (LR) by the resistance of the member at room temperature calculated according to BS 5950-1.

The tables also provide (between square brackets “[ ]”) the increase in fire resistance achieved by using galvanized steel compared to non-galvanized steel, which results from the slower increase in temperature exhibited by the galvanized steel. In the tables, wherever “>0.7” appears, it means that the member has a load carrying capacity in fire which is larger than 0.7 times that at room temperature. Since any member subject to  $LR > 0.7$  is likely to fail at room temperature, when calculating the benefit of galvanized over non-galvanized steel, the largest load ratio was taken as 0.7.

## Introduction to fire exposure tables according to BS 5950-8

Tables B.2.1 to B.2.4 give the maximum fire exposure of galvanized steel members based on the load ratio. The maximum fire exposures given in the tables are determined by first calculating the limiting temperature from the load ratio using the relationship given in BS 5950-8, Table 8. Once the limiting temperature of the member is determined, the time it takes the member to reach the limiting temperature is determined following the iterative procedure described in Section 4.

The tables also provide (between square brackets “[ ]”) the increase in fire exposure achieved by using galvanized steel compared to non-galvanized steel, as a result of the slower increase in temperature exhibited by the galvanized steel.

# B.1 Fire resistance tables according to BS 5950-8

## B.1.1 Beams

Table B.1.1.1	Galvanized steel beams not supporting concrete slab
Table B.1.1.2	Galvanized steel beams supporting concrete slab or composite slab

## B.1.2 Composite beams

Table B.1.2.1	Galvanized steel composite beams with 40 % degree of shear connection
Table B.1.2.2	Galvanized steel composite beams with 100 % degree of shear connection

## B.1.3 Plates in tension

Table B.1.3	Galvanized steel tension plates
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## B.1.4 Compression members

Universal columns	
Table B.1.4.1.1	Galvanized steel columns with slenderness $\leq 0.70$
Table B.1.4.1.2	Galvanized steel columns with slenderness $> 0.70$
Circular hollow sections	
Table B.1.4.2.1	Galvanized steel columns with slenderness $\leq 0.70$
Table B.1.4.2.2	Galvanized steel columns with slenderness $> 0.70$
Square hollow sections	
Table B.1.4.3.1	Galvanized steel columns with slenderness $\leq 0.70$
Table B.1.4.3.2	Galvanized steel columns with slenderness $> 0.70$
Rectangular hollow sections	
Table B.1.4.4.1	Galvanized steel columns with slenderness $\leq 0.70$
Table B.1.4.4.2	Galvanized steel columns with slenderness $> 0.70$

## B.2 Fire exposure tables according to BS 5950-8

### B.2.1 Beams

Table B.2.1.1	Galvanized steel beams not supporting concrete slab
Table B.2.1.2	Galvanized steel beams supporting concrete slab or composite slab

### B.2.2 Composite beams

Table B.2.2.1	Galvanized steel composite beams with 40 % degree of shear connection
Table B.2.2.2	Galvanized steel composite beams with 100 % degree of shear connection

### B.2.3 Plates in tension

Table B.2.3	Galvanized steel tension plates
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## B.2.4 Compression members

Universal columns	
Table B.2.4.1.1	Galvanized steel columns with slenderness $\lambda \leq 0.70$
Table B.2.4.1.2	Galvanized steel columns with slenderness $\lambda > 0.70$
Circular hollow sections	
Table B.2.4.2.1	Galvanized steel columns with slenderness $\lambda \leq 0.70$
Table B.2.4.2.2	Galvanized steel columns with slenderness $\lambda > 0.70$
Square hollow sections	
Table B.2.4.3.1	Galvanized steel columns with slenderness $\lambda \leq 0.70$
Table B.2.4.3.2	Galvanized steel columns with slenderness $\lambda > 0.70$
Rectangular hollow sections	
Table B.2.4.4.1	Galvanized steel columns with slenderness $\lambda \leq 0.70$
Table B.2.4.4.2	Galvanized steel columns with slenderness $\lambda > 0.70$

**Table B.1.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
1100x400x607		223	>0.70	0	463	>0.70	59
1100x400x548		239	>0.70	0	490	>0.70	89
1100x400x499		255	>0.70	0	527	0.680	116
1100x400x433		281	>0.70	0	588	0.492	94
1100x400x390		301	>0.70	0	627	0.381	74
1100x400x343		328	>0.70	0	672	0.278	45
1016x305x584		210	>0.70	0	441	>0.70	39
1016x305x494		235	>0.70	0	484	>0.70	81
1016x305x438		255	>0.70	0	529	0.673	116
1016x305x415		264	>0.70	0	551	0.611	112
1016x305x393		274	>0.70	0	575	0.535	101
1016x305x350		297	>0.70	0	621	0.397	77
1016x305x314		319	>0.70	0	658	0.304	54
1016x305x272		350	>0.70	0	700	0.228	25
1016x305x249		370	>0.70	0	718	0.197	10
1016x305x222		396	>0.70	0	732	0.182	6
1000x400x976		155	>0.70	0	334	>0.70	0
1000x400x883		165	>0.70	0	356	>0.70	0
1000x400x748		185	>0.70	0	394	>0.70	6
1000x400x642		205	>0.70	0	432	>0.70	31
1000x400x591		217	>0.70	0	453	>0.70	50
1000x400x554		227	>0.70	0	470	>0.70	66
1000x400x539		231	>0.70	0	477	>0.70	74
1000x400x483		249	>0.70	0	513	>0.70	110
1000x400x443		265	>0.70	0	551	0.610	113
1000x400x412		278	>0.70	0	583	0.507	96
1000x400x371		298	>0.70	0	623	0.392	76
1000x400x321		329	>0.70	0	674	0.275	44
1000x400x296		346	>0.70	0	696	0.235	28
920x420x1377		121	>0.70	0	262	>0.70	0
920x420x1269		128	>0.70	0	277	>0.70	0
920x420x1194		133	>0.70	0	287	>0.70	0
920x420x1077		142	>0.70	0	307	>0.70	0
920x420x970		152	>0.70	0	327	>0.70	0
920x420x787		174	>0.70	0	373	>0.70	0
920x420x725		184	>0.70	0	392	>0.70	5
920x420x656		197	>0.70	0	417	>0.70	19
920x420x588		212	>0.70	0	445	>0.70	42

**Table B.1.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
920x420x537		226	>0.70	0	469	>0.70	65
920x420x491		240	>0.70	0	493	>0.70	92
920x420x449		255	>0.70	0	528	0.677	117
920x420x420		267	>0.70	0	558	0.590	110
920x420x390		281	>0.70	0	590	0.486	93
920x420x368		293	>0.70	0	613	0.420	82
920x420x344		306	>0.70	0	637	0.358	69
914x305x576		206	>0.70	0	433	>0.70	32
914x305x521		220	>0.70	0	458	>0.70	54
914x305x474		234	>0.70	0	483	>0.70	80
914x305x425		252	>0.70	0	520	0.699	116
914x305x381		271	>0.70	0	567	0.561	106
914x305x345		290	>0.70	0	607	0.438	85
914x305x313		309	>0.70	0	643	0.343	66
914x305x289		326	>0.70	0	669	0.284	47
914x305x271		339	>0.70	0	687	0.250	34
914x305x253		354	>0.70	0	704	0.220	21
914x305x238		368	>0.70	0	717	0.198	11
914x305x224		382	>0.70	0	726	0.189	7
914x305x201		408	>0.70	2	735	0.179	7
840x400x576		207	>0.70	0	435	>0.70	33
840x400x527		219	>0.70	0	457	>0.70	53
840x400x473		236	>0.70	0	486	>0.70	84
840x400x433		251	>0.70	0	517	>0.70	114
840x400x392		268	>0.70	0	560	0.582	109
840x400x359		285	>0.70	0	596	0.468	90
840x400x329		302	>0.70	0	629	0.377	73
840x400x299		321	>0.70	0	662	0.296	51
838x292x251		342	>0.70	0	691	0.244	32
838x292x226		365	>0.70	0	714	0.202	13
838x292x194		401	>0.70	0	733	0.181	6
838x292x176		424	>0.70	9	738	0.175	10
760x380x582		195	>0.70	0	413	>0.70	16
760x380x531		207	>0.70	0	436	>0.70	34
760x380x484		220	>0.70	0	459	>0.70	55
760x380x434		237	>0.70	0	488	>0.70	86
760x380x389		256	>0.70	0	530	0.672	117
760x380x350		274	>0.70	0	575	0.534	101



**Table B.1.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
760x380x314	295	>0.70	0	617	0.409	79	
760x380x284	315	>0.70	0	653	0.317	59	
760x380x257	336	>0.70	0	683	0.258	37	
762x267x220	349	>0.70	0	699	0.229	25	
762x267x197	375	>0.70	0	721	0.193	9	
762x267x173	404	>0.70	0	734	0.180	7	
762x267x147	443	>0.70	19	746	0.167	12	
762x267x134	466	>0.70	34	760	0.153	13	
690x360x802	150	>0.70	0	324	>0.70	0	
690x360x548	192	>0.70	0	408	>0.70	13	
690x360x500	204	>0.70	0	430	>0.70	29	
690x360x457	216	>0.70	0	452	>0.70	49	
690x360x419	230	>0.70	0	475	>0.70	72	
690x360x384	243	>0.70	0	498	>0.70	98	
690x360x350	259	>0.70	0	537	0.652	117	
690x360x323	273	>0.70	0	571	0.547	103	
690x360x289	294	>0.70	0	616	0.411	80	
690x360x265	311	>0.70	0	647	0.333	63	
690x360x240	332	>0.70	0	678	0.268	41	
690x360x217	353	>0.70	0	703	0.222	22	
686x254x192	361	>0.70	0	711	0.208	15	
686x254x170	388	>0.70	0	729	0.186	6	
686x254x152	414	>0.70	4	736	0.178	8	
686x254x140	434	>0.70	13	742	0.172	11	
686x254x125	460	>0.70	30	756	0.157	13	
610x325x551	180	>0.70	0	384	>0.70	1	
610x325x498	192	>0.70	0	408	>0.70	13	
610x325x455	204	>0.70	0	430	>0.70	29	
610x325x415	216	>0.70	0	452	>0.70	48	
610x325x372	232	>0.70	0	480	>0.70	77	
610x325x341	247	>0.70	0	506	>0.70	105	
610x325x307	264	>0.70	0	549	0.616	113	
610x325x285	277	>0.70	0	580	0.515	98	
610x325x262	293	>0.70	0	614	0.416	81	
610x325x241	309	>0.70	0	643	0.343	66	
610x325x217	330	>0.70	0	676	0.272	43	
610x325x195	353	>0.70	0	704	0.221	21	
610x325x174	379	>0.70	0	724	0.190	8	

**Table B.1.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**



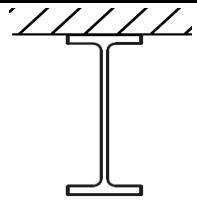
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)		(°C)	(-)
610x325x155	407	>0.70	1	735	0.179	7	
610x305x238	309	>0.70	0	643	0.343	66	
610x305x179	370	>0.70	0	718	0.197	10	
610x305x149	413	>0.70	4	736	0.178	8	
610x229x153	386	>0.70	0	728	0.187	7	
610x229x140	407	>0.70	1	735	0.179	7	
610x229x125	434	>0.70	14	742	0.172	11	
610x229x113	458	>0.70	28	754	0.158	13	
610x229x101	484	>0.70	48	772	0.140	12	
610x178x92	496	>0.70	57	780	0.131	11	
610x178x82	540	0.643	67	797	0.113	7	
533x210x138	387	>0.70	0	728	0.186	7	
533x210x122	416	>0.70	5	736	0.178	8	
533x210x109	443	>0.70	19	746	0.167	12	
533x210x101	461	>0.70	31	757	0.156	13	
533x210x92	483	>0.70	47	771	0.141	12	
533x210x82	518	>0.70	69	789	0.122	9	
533x165x85	490	>0.70	52	776	0.136	11	
533x165x74	532	0.665	68	795	0.116	8	
533x165x66	576	0.530	55	809	0.101	1	
457x191x106	419	>0.70	7	737	0.177	9	
457x191x98	437	>0.70	15	743	0.170	11	
457x191x89	459	>0.70	30	756	0.157	13	
457x191x82	480	>0.70	45	769	0.143	12	
457x191x74	506	>0.70	63	785	0.126	10	
457x191x67	544	0.632	66	799	0.112	7	
457x152x82	467	>0.70	35	761	0.152	13	
457x152x74	491	>0.70	53	777	0.135	11	
457x152x67	525	0.687	70	792	0.119	9	
457x152x60	565	0.566	59	806	0.104	4	
457x152x52	604	0.445	45	817	<0.10	0	
406x178x85	449	>0.70	22	749	0.164	12	
406x178x74	481	>0.70	46	770	0.142	12	
406x178x67	507	>0.70	64	786	0.126	10	
406x178x60	549	0.618	65	801	0.110	7	
406x178x54	583	0.506	52	811	<0.10	0	
406x140x53	570	0.551	58	807	0.103	3	
406x140x46	613	0.421	41	819	<0.10	0	

**Table B.1.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
406x140x39		650	0.324	22	827	<0.10	0
356x171x67		481	>0.70	46	770	0.142	12
356x171x57		533	0.663	68	795	0.116	8
356x171x51		570	0.549	58	808	0.102	2
356x171x45		607	0.437	44	818	<0.10	0
356x127x39		622	0.395	36	821	<0.10	0
356x127x33		657	0.307	19	828	<0.10	0
305x165x54		511	>0.70	66	787	0.124	10
305x165x46		567	0.560	59	807	0.104	4
305x165x40		607	0.437	44	818	<0.10	0
305x127x48		522	0.694	70	791	0.120	9
305x127x42		569	0.553	58	807	0.103	3
305x127x37		606	0.441	44	817	<0.10	0
305x102x33		629	0.378	33	823	<0.10	0
305x102x28		660	0.300	17	828	<0.10	0
305x102x25		678	0.267	12	831	<0.10	0
254x146x43		538	0.649	68	797	0.114	8
254x146x37		587	0.495	50	812	<0.10	0
254x146x31		631	0.371	32	823	<0.10	0
254x102x28		632	0.370	32	824	<0.10	0
254x102x25		656	0.311	20	828	<0.10	0
254x102x22		677	0.270	12	831	<0.10	0
203x133x30		600	0.457	46	816	<0.10	0
203x133x25		643	0.343	26	826	<0.10	0
203x102x23		640	0.351	28	825	<0.10	0
178x102x19		660	0.299	17	829	<0.10	0
152x89x16		666	0.289	15	829	<0.10	0
127x76x13		671	0.279	14	830	<0.10	0

**Table B.1.1.2**  
**Galvanized steel beams supporting concrete slab or composite slab**  
**(BS 5950-8)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
1100x400x607		200	>0.70	0	423	>0.70	0
1100x400x548		215	>0.70	0	449	>0.70	1
1100x400x499		229	>0.70	0	474	>0.70	14
1100x400x433		253	>0.70	0	521	>0.70	41
1100x400x390		271	>0.70	0	567	>0.70	68
1100x400x343		296	>0.70	0	619	0.604	70
1016x305x584		191	>0.70	0	407	>0.70	0
1016x305x494		214	>0.70	0	449	>0.70	1
1016x305x438		233	>0.70	0	481	>0.70	19
1016x305x415		241	>0.70	0	494	>0.70	28
1016x305x393		251	>0.70	0	517	>0.70	39
1016x305x350		272	>0.70	0	569	>0.70	69
1016x305x314		292	>0.70	0	611	0.630	74
1016x305x272		321	>0.70	0	663	0.458	46
1016x305x249		340	>0.70	0	688	0.382	30
1016x305x222		365	>0.70	0	714	0.324	15
1000x400x976		138	>0.70	0	299	>0.70	0
1000x400x883		147	>0.70	0	319	>0.70	0
1000x400x748		165	>0.70	0	354	>0.70	0
1000x400x642		183	>0.70	0	390	>0.70	0
1000x400x591		193	>0.70	0	410	>0.70	0
1000x400x554		202	>0.70	0	426	>0.70	0
1000x400x539		206	>0.70	0	433	>0.70	0
1000x400x483		222	>0.70	0	463	>0.70	8
1000x400x443		236	>0.70	0	486	>0.70	22
1000x400x412		248	>0.70	0	510	>0.70	36
1000x400x371		267	>0.70	0	557	>0.70	61
1000x400x321		295	>0.70	0	617	0.611	71
1000x400x296		310	>0.70	0	645	0.517	57
920x420x1377		107	>0.70	0	231	>0.70	0
920x420x1269		113	>0.70	0	245	>0.70	0
920x420x1194		117	>0.70	0	254	>0.70	0
920x420x1077		125	>0.70	0	272	>0.70	0
920x420x970		134	>0.70	0	290	>0.70	0
920x420x787		154	>0.70	0	332	>0.70	0
920x420x725		162	>0.70	0	349	>0.70	0
920x420x656		174	>0.70	0	372	>0.70	0
920x420x588		187	>0.70	0	399	>0.70	0

**Table B.1.1.2**  
**Galvanized steel beams supporting concrete slab or**  
**composite slab**  
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
920x420x537		199	>0.70	0	421	>0.70	0
920x420x491		212	>0.70	0	445	>0.70	0
920x420x449		225	>0.70	0	468	>0.70	11
920x420x420		236	>0.70	0	486	>0.70	22
920x420x390		249	>0.70	0	511	>0.70	36
920x420x368		259	>0.70	0	538	>0.70	50
920x420x344		270	>0.70	0	566	>0.70	67
914x305x576		186	>0.70	0	397	>0.70	0
914x305x521		199	>0.70	0	421	>0.70	0
914x305x474		212	>0.70	0	445	>0.70	0
914x305x425		228	>0.70	0	473	>0.70	14
914x305x381		246	>0.70	0	504	>0.70	33
914x305x345		263	>0.70	0	549	>0.70	56
914x305x313		281	>0.70	0	589	>0.70	81
914x305x289		296	>0.70	0	619	0.602	70
914x305x271		309	>0.70	0	643	0.525	59
914x305x253		323	>0.70	0	665	0.450	45
914x305x238		336	>0.70	0	684	0.391	32
914x305x224		350	>0.70	0	699	0.357	24
914x305x201		374	>0.70	0	721	0.308	10
840x400x576		182	>0.70	0	388	>0.70	0
840x400x527		193	>0.70	0	409	>0.70	0
840x400x473		208	>0.70	0	437	>0.70	0
840x400x433		221	>0.70	0	460	>0.70	6
840x400x392		236	>0.70	0	486	>0.70	22
840x400x359		251	>0.70	0	517	>0.70	39
840x400x329		266	>0.70	0	555	>0.70	60
840x400x299		284	>0.70	0	595	0.682	80
838x292x251		311	>0.70	0	647	0.512	56
838x292x226		332	>0.70	0	679	0.405	35
838x292x194		367	>0.70	0	716	0.321	14
838x292x176		389	>0.70	0	729	0.293	7
760x380x582		171	>0.70	0	366	>0.70	0
760x380x531		181	>0.70	0	387	>0.70	0
760x380x484		193	>0.70	0	409	>0.70	0
760x380x434		208	>0.70	0	437	>0.70	0
760x380x389		224	>0.70	0	466	>0.70	9
760x380x350		241	>0.70	0	494	>0.70	27

**Table B.1.1.2**  
**Galvanized steel beams supporting concrete slab or composite slab**  
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
760x380x314	259	>0.70	0	538	>0.70	50	
760x380x284	277	>0.70	0	581	>0.70	77	
760x380x257	296	>0.70	0	619	0.605	70	
762x267x220	318	>0.70	0	657	0.476	50	
762x267x197	342	>0.70	0	690	0.378	29	
762x267x173	370	>0.70	0	718	0.315	12	
762x267x147	408	>0.70	0	735	0.282	8	
762x267x134	430	>0.70	0	740	0.272	12	
690x360x802	131	>0.70	0	285	>0.70	0	
690x360x548	168	>0.70	0	360	>0.70	0	
690x360x500	178	>0.70	0	381	>0.70	0	
690x360x457	189	>0.70	0	402	>0.70	0	
690x360x419	201	>0.70	0	424	>0.70	0	
690x360x384	212	>0.70	0	445	>0.70	0	
690x360x350	226	>0.70	0	469	>0.70	11	
690x360x323	238	>0.70	0	490	>0.70	24	
690x360x289	258	>0.70	0	535	>0.70	48	
690x360x265	273	>0.70	0	571	>0.70	71	
690x360x240	291	>0.70	0	610	0.633	74	
690x360x217	310	>0.70	0	645	0.517	57	
686x254x192	328	>0.70	0	672	0.427	40	
686x254x170	352	>0.70	0	702	0.350	22	
686x254x152	377	>0.70	0	723	0.305	9	
686x254x140	397	>0.70	0	732	0.287	7	
686x254x125	423	>0.70	0	738	0.276	11	
610x325x551	157	>0.70	0	338	>0.70	0	
610x325x498	167	>0.70	0	359	>0.70	0	
610x325x455	178	>0.70	0	380	>0.70	0	
610x325x415	188	>0.70	0	401	>0.70	0	
610x325x372	202	>0.70	0	427	>0.70	0	
610x325x341	215	>0.70	0	450	>0.70	1	
610x325x307	230	>0.70	0	476	>0.70	15	
610x325x285	242	>0.70	0	495	>0.70	28	
610x325x262	256	>0.70	0	531	>0.70	46	
610x325x241	270	>0.70	0	564	>0.70	66	
610x325x217	289	>0.70	0	606	0.648	76	
610x325x195	310	>0.70	0	645	0.518	57	
610x325x174	334	>0.70	0	681	0.398	33	

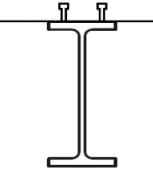
**Table B.1.1.2**  
**Galvanized steel beams supporting concrete slab or**  
**composite slab**  
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure				
	UB	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	UB	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
610x325x155		360	>0.70	0		710	0.334	18
610x305x238		272	>0.70	0		568	>0.70	69
610x305x179		327	>0.70	0		672	0.428	40
610x305x149		367	>0.70	0		716	0.320	14
610x229x153		351	>0.70	0		701	0.354	23
610x229x140		371	>0.70	0		719	0.313	12
610x229x125		397	>0.70	0		732	0.287	7
610x229x113		420	>0.70	0		737	0.278	10
610x229x101		446	>0.70	0		748	0.259	14
610x178x92		465	>0.70	0		759	0.238	14
610x178x82		494	>0.70	6		779	0.202	7
533x210x138		350	>0.70	0		700	0.356	24
533x210x122		378	>0.70	0		724	0.303	9
533x210x109		404	>0.70	0		734	0.284	7
533x210x101		422	>0.70	0		738	0.276	11
533x210x92		444	>0.70	0		747	0.260	14
533x210x82		472	>0.70	0		763	0.230	14
533x165x85		458	>0.70	0		755	0.246	14
533x165x74		487	>0.70	3		774	0.211	9
533x165x66		529	>0.70	17		794	0.186	5
457x191x106		379	>0.70	0		724	0.302	9
457x191x98		396	>0.70	0		732	0.288	7
457x191x89		419	>0.70	0		737	0.278	10
457x191x82		439	>0.70	0		744	0.265	13
457x191x74		463	>0.70	0		758	0.240	14
457x191x67		487	>0.70	3		774	0.211	10
457x152x82		433	>0.70	0		742	0.270	12
457x152x74		457	>0.70	0		754	0.247	14
457x152x67		480	>0.70	1		770	0.219	12
457x152x60		514	>0.70	12		788	0.192	5
457x152x52		562	>0.70	28		805	0.175	3
406x178x85		407	>0.70	0		734	0.283	8
406x178x74		439	>0.70	0		744	0.265	13
406x178x67		463	>0.70	0		757	0.241	14
406x178x60		489	>0.70	4		776	0.208	9
406x178x54		522	>0.70	15		791	0.189	5
406x140x53		518	>0.70	14		789	0.191	5
406x140x46		570	>0.70	31		807	0.173	3

**Table B.1.1.2**  
**Galvanized steel beams supporting concrete slab or**  
**composite slab**  
**(BS 5950-8)**

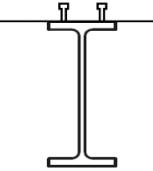
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
406x140x39	617	0.611	34	820	0.160	1	
356x171x67	436	>0.70	0	743	0.267	13	
356x171x57	475	>0.70	0	766	0.226	14	
356x171x51	503	>0.70	10	784	0.196	6	
356x171x45	548	>0.70	24	800	0.180	4	
356x127x39	581	>0.70	36	811	0.169	2	
356x127x33	626	0.581	31	822	0.158	1	
305x165x54	458	>0.70	0	755	0.246	14	
305x165x46	495	>0.70	7	779	0.201	7	
305x165x40	544	>0.70	22	799	0.181	4	
305x127x48	474	>0.70	0	765	0.227	14	
305x127x42	510	>0.70	12	786	0.194	6	
305x127x37	555	>0.70	26	803	0.177	4	
305x102x33	593	0.690	39	814	0.166	2	
305x102x28	631	0.562	30	823	0.157	1	
305x102x25	657	0.477	21	828	0.152	0	
254x146x43	473	>0.70	0	764	0.228	14	
254x146x37	514	>0.70	13	788	0.192	5	
254x146x31	573	>0.70	33	808	0.172	3	
254x102x28	590	0.699	40	813	0.167	2	
254x102x25	621	0.595	32	821	0.159	1	
254x102x22	650	0.500	24	827	0.153	0	
203x133x30	525	>0.70	16	792	0.188	5	
203x133x25	583	>0.70	37	811	0.169	2	
203x102x23	590	0.698	40	814	0.166	2	
178x102x19	616	0.615	34	820	0.160	1	
152x89x16	623	0.592	32	821	0.159	1	
127x76x13	631	0.565	30	823	0.157	1	

**Table B.1.2.1**  
**Galvanized steel composite beams with 40 % degree of**  
**shear connection**  
**(BS 5950-8)**



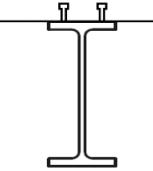
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
1100x400x607		200	>0.70	0	423	>0.70	0
1100x400x548		215	>0.70	0	449	>0.70	11
1100x400x499		229	>0.70	0	474	>0.70	26
1100x400x433		253	>0.70	0	521	>0.70	57
1100x400x390		271	>0.70	0	567	>0.70	88
1100x400x343		296	>0.70	0	619	0.546	83
1016x305x584		191	>0.70	0	407	>0.70	0
1016x305x494		214	>0.70	0	449	>0.70	10
1016x305x438		233	>0.70	0	481	>0.70	31
1016x305x415		241	>0.70	0	494	>0.70	40
1016x305x393		251	>0.70	0	517	>0.70	54
1016x305x350		272	>0.70	0	569	>0.70	90
1016x305x314		292	>0.70	0	611	0.569	84
1016x305x272		321	>0.70	0	663	0.408	52
1016x305x249		340	>0.70	0	688	0.334	32
1016x305x222		365	>0.70	0	714	0.276	14
1000x400x976		138	>0.70	0	299	>0.70	0
1000x400x883		147	>0.70	0	319	>0.70	0
1000x400x748		165	>0.70	0	354	>0.70	0
1000x400x642		183	>0.70	0	390	>0.70	0
1000x400x591		193	>0.70	0	410	>0.70	0
1000x400x554		202	>0.70	0	426	>0.70	0
1000x400x539		206	>0.70	0	433	>0.70	1
1000x400x483		222	>0.70	0	463	>0.70	20
1000x400x443		236	>0.70	0	486	>0.70	34
1000x400x412		248	>0.70	0	510	>0.70	51
1000x400x371		267	>0.70	0	557	>0.70	81
1000x400x321		295	>0.70	0	617	0.552	83
1000x400x296		310	>0.70	0	645	0.467	67
920x420x1377		107	>0.70	0	231	>0.70	0
920x420x1269		113	>0.70	0	245	>0.70	0
920x420x1194		117	>0.70	0	254	>0.70	0
920x420x1077		125	>0.70	0	272	>0.70	0
920x420x970		134	>0.70	0	290	>0.70	0
920x420x787		154	>0.70	0	332	>0.70	0
920x420x725		162	>0.70	0	349	>0.70	0
920x420x656		174	>0.70	0	372	>0.70	0
920x420x588		187	>0.70	0	399	>0.70	0
920x420x537		199	>0.70	0	421	>0.70	0

**Table B.1.2.1**  
**Galvanized steel composite beams with 40 % degree of**  
**shear connection**  
**(BS 5950-8)**



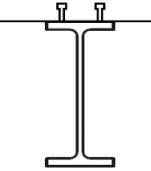
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
920x420x491		212	>0.70	0	445	>0.70	8
920x420x449		225	>0.70	0	468	>0.70	23
920x420x420		236	>0.70	0	486	>0.70	34
920x420x390		249	>0.70	0	511	>0.70	51
920x420x368		259	>0.70	0	538	>0.70	68
920x420x344		270	>0.70	0	566	>0.70	87
914x305x576		186	>0.70	0	397	>0.70	0
914x305x521		199	>0.70	0	421	>0.70	0
914x305x474		212	>0.70	0	445	>0.70	8
914x305x425		228	>0.70	0	473	>0.70	26
914x305x381		246	>0.70	0	504	>0.70	47
914x305x345		263	>0.70	0	549	>0.70	76
914x305x313		281	>0.70	0	589	0.643	89
914x305x289		296	>0.70	0	619	0.545	82
914x305x271		309	>0.70	0	643	0.475	69
914x305x253		323	>0.70	0	665	0.400	50
914x305x238		336	>0.70	0	684	0.346	35
914x305x224		350	>0.70	0	699	0.302	22
914x305x201		374	>0.70	0	721	0.265	10
840x400x576		182	>0.70	0	388	>0.70	0
840x400x527		193	>0.70	0	409	>0.70	0
840x400x473		208	>0.70	0	437	>0.70	3
840x400x433		221	>0.70	0	460	>0.70	18
840x400x392		236	>0.70	0	486	>0.70	35
840x400x359		251	>0.70	0	517	>0.70	54
840x400x329		266	>0.70	0	555	>0.70	80
840x400x299		284	>0.70	0	595	0.619	87
838x292x251		311	>0.70	0	647	0.462	66
838x292x226		332	>0.70	0	679	0.361	40
838x292x194		367	>0.70	0	716	0.274	13
838x292x176		389	>0.70	0	729	0.252	8
760x380x582		171	>0.70	0	366	>0.70	0
760x380x531		181	>0.70	0	387	>0.70	0
760x380x484		193	>0.70	0	409	>0.70	0
760x380x434		208	>0.70	0	437	>0.70	3
760x380x389		224	>0.70	0	466	>0.70	21
760x380x350		241	>0.70	0	494	>0.70	40
760x380x314		259	>0.70	0	538	>0.70	68
760x380x284		277	>0.70	0	581	0.676	92

**Table B.1.2.1**  
**Galvanized steel composite beams with 40 % degree of**  
**shear connection**  
**(BS 5950-8)**



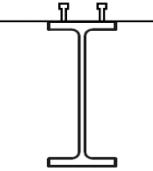
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
760x380x257		296	>0.70	0	619	0.547	83
762x267x220		318	>0.70	0	657	0.426	57
762x267x197		342	>0.70	0	690	0.328	30
762x267x173		370	>0.70	0	718	0.270	12
762x267x147		408	>0.70	0	735	0.242	8
762x267x134		430	>0.70	0	740	0.233	13
690x360x802		131	>0.70	0	285	>0.70	0
690x360x548		168	>0.70	0	360	>0.70	0
690x360x500		178	>0.70	0	381	>0.70	0
690x360x457		189	>0.70	0	402	>0.70	0
690x360x419		201	>0.70	0	424	>0.70	0
690x360x384		212	>0.70	0	445	>0.70	8
690x360x350		226	>0.70	0	469	>0.70	23
690x360x323		238	>0.70	0	490	>0.70	37
690x360x289		258	>0.70	0	535	>0.70	66
690x360x265		273	>0.70	0	571	>0.70	91
690x360x240		291	>0.70	0	610	0.571	84
690x360x217		310	>0.70	0	645	0.467	67
686x254x192		328	>0.70	0	672	0.381	45
686x254x170		352	>0.70	0	702	0.296	20
686x254x152		377	>0.70	0	723	0.262	10
686x254x140		397	>0.70	0	732	0.247	7
686x254x125		423	>0.70	0	738	0.236	11
610x325x551		157	>0.70	0	338	>0.70	0
610x325x498		167	>0.70	0	359	>0.70	0
610x325x455		178	>0.70	0	380	>0.70	0
610x325x415		188	>0.70	0	401	>0.70	0
610x325x372		202	>0.70	0	427	>0.70	0
610x325x341		215	>0.70	0	450	>0.70	11
610x325x307		230	>0.70	0	476	>0.70	28
610x325x285		242	>0.70	0	495	>0.70	41
610x325x262		256	>0.70	0	531	>0.70	64
610x325x241		270	>0.70	0	564	>0.70	87
610x325x217		289	>0.70	0	606	0.584	84
610x325x195		310	>0.70	0	645	0.468	67
610x325x174		334	>0.70	0	681	0.355	38
610x325x155		360	>0.70	0	710	0.284	16
610x305x238		272	>0.70	0	568	>0.70	89
610x305x179		327	>0.70	0	672	0.381	45

**Table B.1.2.1**  
**Galvanized steel composite beams with 40 % degree of**  
**shear connection**  
**(BS 5950-8)**



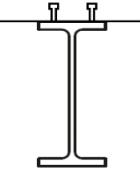
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
610x305x149		367	>0.70	0	716	0.273	13
610x229x153		351	>0.70	0	701	0.299	21
610x229x140		371	>0.70	0	719	0.268	11
610x229x125		397	>0.70	0	732	0.247	7
610x229x113		420	>0.70	0	737	0.238	11
610x229x101		446	>0.70	0	748	0.220	13
610x178x92		465	>0.70	2	759	0.201	9
610x178x82		494	>0.70	18	779	0.182	7
533x210x138		350	>0.70	0	700	0.301	21
533x210x122		378	>0.70	0	724	0.261	9
533x210x109		404	>0.70	0	734	0.243	8
533x210x101		422	>0.70	0	738	0.237	11
533x210x92		444	>0.70	0	747	0.222	13
533x210x82		472	>0.70	5	763	0.197	8
533x165x85		458	>0.70	0	755	0.209	11
533x165x74		487	>0.70	14	774	0.186	7
533x165x66		529	>0.70	30	794	0.168	5
457x191x106		379	>0.70	0	724	0.259	9
457x191x98		396	>0.70	0	732	0.247	7
457x191x89		419	>0.70	0	737	0.238	11
457x191x82		439	>0.70	0	744	0.226	14
457x191x74		463	>0.70	1	758	0.204	9
457x191x67		487	>0.70	14	774	0.187	7
457x152x82		433	>0.70	0	742	0.230	13
457x152x74		457	>0.70	0	754	0.210	11
457x152x67		480	>0.70	10	770	0.191	8
457x152x60		514	>0.70	25	788	0.174	6
457x152x52		562	>0.70	41	805	0.157	3
406x178x85		407	>0.70	0	734	0.243	8
406x178x74		439	>0.70	0	744	0.226	14
406x178x67		463	>0.70	0	757	0.204	10
406x178x60		489	>0.70	15	776	0.185	7
406x178x54		522	>0.70	27	791	0.170	5
406x140x53		518	>0.70	26	789	0.172	6
406x140x46		570	>0.70	45	807	0.155	3
406x140x39		617	0.552	36	820	0.143	1
356x171x67		436	>0.70	0	743	0.228	14
356x171x57		475	>0.70	7	766	0.195	8
356x171x51		503	>0.70	21	784	0.178	6

**Table B.1.2.1**  
**Galvanized steel composite beams with 40 % degree of**  
**shear connection**  
**(BS 5950-8)**



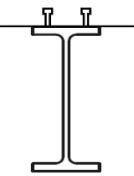
Section Designation UB	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
356x171x45	548	>0.70	36	800	0.161	4
356x127x39	581	0.677	46	811	0.152	3
356x127x33	626	0.527	34	822	0.141	1
305x165x54	458	>0.70	0	755	0.209	11
305x165x46	495	>0.70	18	779	0.181	7
305x165x40	544	>0.70	34	799	0.163	4
305x127x48	474	>0.70	7	765	0.195	8
305x127x42	510	>0.70	24	786	0.175	6
305x127x37	555	>0.70	38	803	0.159	4
305x102x33	593	0.628	41	814	0.148	2
305x102x28	631	0.510	32	823	0.140	1
305x102x25	657	0.427	22	828	0.135	0
254x146x43	473	>0.70	6	764	0.196	8
254x146x37	514	>0.70	25	788	0.174	6
254x146x31	573	>0.70	47	808	0.154	3
254x102x28	590	0.639	42	813	0.149	2
254x102x25	621	0.539	35	821	0.142	1
254x102x22	650	0.450	25	827	0.136	0
203x133x30	525	>0.70	28	792	0.170	5
203x133x25	583	0.667	45	811	0.151	2
203x102x23	590	0.638	42	814	0.149	2
178x102x19	616	0.556	36	820	0.143	1
152x89x16	623	0.536	35	821	0.141	1
127x76x13	631	0.513	32	823	0.140	1

**Table B.1.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



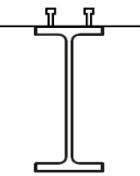
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
1100x400x607		200	>0.70	0	423	>0.70	8
1100x400x548		215	>0.70	0	449	>0.70	25
1100x400x499		229	>0.70	0	474	>0.70	45
1100x400x433		253	>0.70	0	521	>0.70	82
1100x400x390		271	>0.70	0	567	0.644	98
1100x400x343		296	>0.70	0	619	0.475	75
1016x305x584		191	>0.70	0	407	>0.70	0
1016x305x494		214	>0.70	0	449	>0.70	25
1016x305x438		233	>0.70	0	481	>0.70	51
1016x305x415		241	>0.70	0	494	>0.70	64
1016x305x393		251	>0.70	0	517	>0.70	80
1016x305x350		272	>0.70	0	569	0.638	98
1016x305x314		292	>0.70	0	611	0.497	79
1016x305x272		321	>0.70	0	663	0.356	50
1016x305x249		340	>0.70	0	688	0.294	33
1016x305x222		365	>0.70	0	714	0.247	18
1000x400x976		138	>0.70	0	299	>0.70	0
1000x400x883		147	>0.70	0	319	>0.70	0
1000x400x748		165	>0.70	0	354	>0.70	0
1000x400x642		183	>0.70	0	390	>0.70	0
1000x400x591		193	>0.70	0	410	>0.70	1
1000x400x554		202	>0.70	0	426	>0.70	10
1000x400x539		206	>0.70	0	433	>0.70	14
1000x400x483		222	>0.70	0	463	>0.70	36
1000x400x443		236	>0.70	0	486	>0.70	56
1000x400x412		248	>0.70	0	510	>0.70	76
1000x400x371		267	>0.70	0	557	0.676	100
1000x400x321		295	>0.70	0	617	0.481	76
1000x400x296		310	>0.70	0	645	0.400	60
920x420x1377		107	>0.70	0	231	>0.70	0
920x420x1269		113	>0.70	0	245	>0.70	0
920x420x1194		117	>0.70	0	254	>0.70	0
920x420x1077		125	>0.70	0	272	>0.70	0
920x420x970		134	>0.70	0	290	>0.70	0
920x420x787		154	>0.70	0	332	>0.70	0
920x420x725		162	>0.70	0	349	>0.70	0
920x420x656		174	>0.70	0	372	>0.70	0
920x420x588		187	>0.70	0	399	>0.70	0
920x420x537		199	>0.70	0	421	>0.70	7

**Table B.1.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



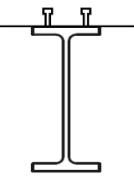
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
920x420x491		212	>0.70	0	445	>0.70	22
920x420x449		225	>0.70	0	468	>0.70	40
920x420x420		236	>0.70	0	486	>0.70	55
920x420x390		249	>0.70	0	511	>0.70	76
920x420x368		259	>0.70	0	538	>0.70	93
920x420x344		270	>0.70	0	566	0.647	98
914x305x576		186	>0.70	0	397	>0.70	0
914x305x521		199	>0.70	0	421	>0.70	7
914x305x474		212	>0.70	0	445	>0.70	22
914x305x425		228	>0.70	0	473	>0.70	45
914x305x381		246	>0.70	0	504	>0.70	72
914x305x345		263	>0.70	0	549	>0.70	101
914x305x313		281	>0.70	0	589	0.569	91
914x305x289		296	>0.70	0	619	0.473	75
914x305x271		309	>0.70	0	643	0.407	61
914x305x253		323	>0.70	0	665	0.350	48
914x305x238		336	>0.70	0	684	0.302	35
914x305x224		350	>0.70	0	699	0.274	27
914x305x201		374	>0.70	0	721	0.234	13
840x400x576		182	>0.70	0	388	>0.70	0
840x400x527		193	>0.70	0	409	>0.70	0
840x400x473		208	>0.70	0	437	>0.70	16
840x400x433		221	>0.70	0	460	>0.70	33
840x400x392		236	>0.70	0	486	>0.70	56
840x400x359		251	>0.70	0	517	>0.70	79
840x400x329		266	>0.70	0	555	0.682	101
840x400x299		284	>0.70	0	595	0.549	88
838x292x251		311	>0.70	0	647	0.396	59
838x292x226		332	>0.70	0	679	0.316	39
838x292x194		367	>0.70	0	716	0.245	17
838x292x176		389	>0.70	0	729	0.220	10
760x380x582		171	>0.70	0	366	>0.70	0
760x380x531		181	>0.70	0	387	>0.70	0
760x380x484		193	>0.70	0	409	>0.70	0
760x380x434		208	>0.70	0	437	>0.70	17
760x380x389		224	>0.70	0	466	>0.70	38
760x380x350		241	>0.70	0	494	>0.70	63
760x380x314		259	>0.70	0	538	>0.70	93
760x380x284		277	>0.70	0	581	0.597	94

**Table B.1.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



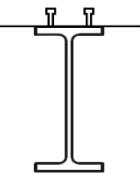
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
760x380x257		296	>0.70	0	619	0.475	75
762x267x220		318	>0.70	0	657	0.370	53
762x267x197		342	>0.70	0	690	0.291	32
762x267x173		370	>0.70	0	718	0.240	15
762x267x147		408	>0.70	0	735	0.210	8
762x267x134		430	>0.70	0	740	0.200	9
690x360x802		131	>0.70	0	285	>0.70	0
690x360x548		168	>0.70	0	360	>0.70	0
690x360x500		178	>0.70	0	381	>0.70	0
690x360x457		189	>0.70	0	402	>0.70	0
690x360x419		201	>0.70	0	424	>0.70	8
690x360x384		212	>0.70	0	445	>0.70	22
690x360x350		226	>0.70	0	469	>0.70	41
690x360x323		238	>0.70	0	490	>0.70	59
690x360x289		258	>0.70	0	535	>0.70	91
690x360x265		273	>0.70	0	571	0.631	97
690x360x240		291	>0.70	0	610	0.500	79
690x360x217		310	>0.70	0	645	0.400	60
686x254x192		328	>0.70	0	672	0.333	44
686x254x170		352	>0.70	0	702	0.268	25
686x254x152		377	>0.70	0	723	0.231	12
686x254x140		397	>0.70	0	732	0.215	8
686x254x125		423	>0.70	0	738	0.203	9
610x325x551		157	>0.70	0	338	>0.70	0
610x325x498		167	>0.70	0	359	>0.70	0
610x325x455		178	>0.70	0	380	>0.70	0
610x325x415		188	>0.70	0	401	>0.70	0
610x325x372		202	>0.70	0	427	>0.70	10
610x325x341		215	>0.70	0	450	>0.70	25
610x325x307		230	>0.70	0	476	>0.70	47
610x325x285		242	>0.70	0	495	>0.70	64
610x325x262		256	>0.70	0	531	>0.70	89
610x325x241		270	>0.70	0	564	0.652	99
610x325x217		289	>0.70	0	606	0.514	81
610x325x195		310	>0.70	0	645	0.401	60
610x325x174		334	>0.70	0	681	0.311	38
610x325x155		360	>0.70	0	710	0.255	21
610x305x238		272	>0.70	0	568	0.639	98
610x305x179		327	>0.70	0	672	0.334	44

**Table B.1.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
610x305x149		367	>0.70	0	716	0.244	16
610x229x153		351	>0.70	0	701	0.272	26
610x229x140		371	>0.70	0	719	0.238	14
610x229x125		397	>0.70	0	732	0.215	8
610x229x113		420	>0.70	0	737	0.205	9
610x229x101		446	>0.70	5	748	0.192	10
610x178x92		465	>0.70	15	759	0.181	10
610x178x82		494	>0.70	33	779	0.161	8
533x210x138		350	>0.70	0	700	0.273	27
533x210x122		378	>0.70	0	724	0.230	12
533x210x109		404	>0.70	0	734	0.211	8
533x210x101		422	>0.70	0	738	0.204	9
533x210x92		444	>0.70	5	747	0.193	10
533x210x82		472	>0.70	19	763	0.177	10
533x165x85		458	>0.70	11	755	0.185	10
533x165x74		487	>0.70	29	774	0.166	9
533x165x66		529	>0.70	49	794	0.146	6
457x191x106		379	>0.70	0	724	0.229	11
457x191x98		396	>0.70	0	732	0.215	8
457x191x89		419	>0.70	0	737	0.205	9
457x191x82		439	>0.70	2	744	0.196	9
457x191x74		463	>0.70	14	758	0.182	10
457x191x67		487	>0.70	28	774	0.166	9
457x152x82		433	>0.70	0	742	0.198	9
457x152x74		457	>0.70	11	754	0.186	10
457x152x67		480	>0.70	24	770	0.170	9
457x152x60		514	>0.70	43	788	0.152	7
457x152x52		562	0.661	55	805	0.135	4
406x178x85		407	>0.70	0	734	0.210	8
406x178x74		439	>0.70	2	744	0.196	9
406x178x67		463	>0.70	14	757	0.183	10
406x178x60		489	>0.70	30	776	0.164	9
406x178x54		522	>0.70	46	791	0.149	7
406x140x53		518	>0.70	44	789	0.151	7
406x140x46		570	0.634	53	807	0.133	4
406x140x39		617	0.481	36	820	0.120	1
356x171x67		436	>0.70	1	743	0.197	9
356x171x57		475	>0.70	21	766	0.174	10
356x171x51		503	>0.70	38	784	0.156	8

**Table B.1.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**

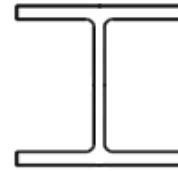


Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UB	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
356x171x45		548	>0.70	58	800	0.140	5
356x127x39		581	0.598	50	811	0.129	3
356x127x33		626	0.455	32	822	0.118	1
305x165x54		458	>0.70	11	755	0.185	10
305x165x46		495	>0.70	34	779	0.161	8
305x165x40		544	>0.70	56	799	0.141	5
305x127x48		474	>0.70	20	765	0.175	10
305x127x42		510	>0.70	41	786	0.154	7
305x127x37		555	0.683	57	803	0.137	5
305x102x33		593	0.557	45	814	0.126	3
305x102x28		631	0.439	30	823	0.117	1
305x102x25		657	0.370	21	828	0.112	0
254x146x43		473	>0.70	20	764	0.176	10
254x146x37		514	>0.70	43	788	0.152	7
254x146x31		573	0.624	52	808	0.132	4
254x102x28		590	0.566	46	813	0.127	3
254x102x25		621	0.467	34	821	0.119	1
254x102x22		650	0.388	23	827	0.113	1
203x133x30		525	>0.70	47	792	0.148	6
203x133x25		583	0.589	49	811	0.129	3
203x102x23		590	0.565	46	814	0.126	3
178x102x19		616	0.484	36	820	0.120	2
152x89x16		623	0.464	33	821	0.119	1
127x76x13		631	0.441	30	823	0.117	1

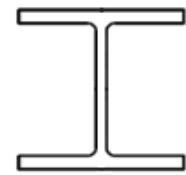
**Table B.1.3**  
**Galvanized steel tension plates**  
**(BS 5950-8)**

Thickness (mm)	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
5	715	0.168	1	837	<0.10	0
8	688	0.204	8	833	<0.10	0
10	655	0.264	22	828	<0.10	0
12	612	0.352	38	819	<0.10	0
14	563	0.460	55	805	<0.10	0
16	511	0.596	70	787	<0.10	0
18	477	0.666	65	767	0.104	4
20	450	>0.70	53	750	0.125	21
22	426	>0.70	37	739	0.139	16
24	404	>0.70	22	734	0.145	10
26	384	>0.70	12	726	0.154	10
28	365	>0.70	6	715	0.169	18
30	349	>0.70	0	699	0.189	27
32	334	>0.70	0	681	0.217	40
34	320	>0.70	0	661	0.254	54
36	307	>0.70	0	640	0.292	67
38	296	>0.70	0	619	0.336	80
40	285	>0.70	0	597	0.383	92
42	275	>0.70	0	576	0.430	97
44	266	>0.70	0	555	0.478	100
46	257	>0.70	0	534	0.532	106
48	249	>0.70	0	513	0.593	113
50	242	>0.70	0	495	0.630	111

**Table B.1.4.1.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**



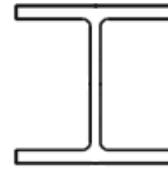
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UC	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
356x406x1299		95	>0.70	0	205	>0.70	0
356x406x1202		99	>0.70	0	214	>0.70	0
356x406x1086		105	>0.70	0	226	>0.70	0
356x406x990		110	>0.70	0	238	>0.70	0
356x406x900		116	>0.70	0	251	>0.70	0
356x406x818		123	>0.70	0	266	>0.70	0
356x406x744		130	>0.70	0	281	>0.70	0
356x406x677		137	>0.70	0	297	>0.70	0
356x406x634		143	>0.70	0	309	>0.70	0
356x406x592		149	>0.70	0	321	>0.70	0
356x406x551		155	>0.70	0	336	>0.70	0
356x406x509		163	>0.70	0	352	>0.70	0
356x406x467		172	>0.70	0	370	>0.70	0
356x406x393		193	>0.70	0	409	>0.70	22
356x406x340		212	>0.70	0	444	>0.70	46
356x406x287		237	>0.70	0	487	>0.70	91
356x406x235		270	>0.70	0	564	0.539	103
356x368x202		294	>0.70	0	615	0.401	82
356x368x177		320	>0.70	0	660	0.290	52
356x368x153		351	>0.70	0	701	0.217	23
356x368x129		389	>0.70	0	729	0.179	7
305x305x342		190	>0.70	0	404	>0.70	19
305x305x313		201	>0.70	0	425	>0.70	32
305x305x283		215	>0.70	0	450	>0.70	51
305x305x240		239	>0.70	0	490	>0.70	95
305x305x198		270	>0.70	0	564	0.540	103
305x305x158		312	>0.70	0	647	0.320	63
305x305x137		341	>0.70	0	689	0.237	32
305x305x118		373	>0.70	0	720	0.188	10
305x305x97		418	>0.70	13	737	0.170	10
254x254x167		272	>0.70	0	569	0.528	102
254x254x132		315	>0.70	0	653	0.306	57
254x254x107		358	>0.70	0	708	0.203	17
254x254x89		400	>0.70	3	733	0.175	7
254x254x73		446	>0.70	27	748	0.158	14
203x203x100		333	>0.70	0	680	0.255	40
203x203x86		363	>0.70	0	713	0.197	14
203x203x71		406	>0.70	6	734	0.173	8
203x203x60		445	>0.70	27	747	0.159	14



**Table B.1.4.1.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

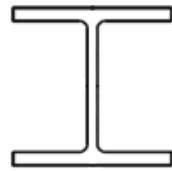
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UC	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
203x203x52		478	>0.70	48	768	0.136	14
203x203x46		511	0.697	71	787	0.115	11
152x152x51		424	>0.70	17	739	0.168	11
152x152x44		458	>0.70	34	755	0.150	14
152x152x37		498	>0.70	64	781	0.121	12
152x152x30		570	0.525	56	808	<0.10	0
152x152x23		640	0.337	27	825	<0.10	0

**Table B.1.4.1.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**



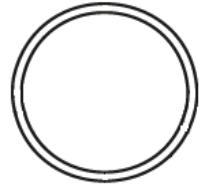
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UC	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
356x406x1299		95	>0.70	0	205	>0.70	0
356x406x1202		99	>0.70	0	214	>0.70	0
356x406x1086		105	>0.70	0	226	>0.70	0
356x406x990		110	>0.70	0	238	>0.70	0
356x406x900		116	>0.70	0	251	>0.70	0
356x406x818		123	>0.70	0	266	>0.70	0
356x406x744		130	>0.70	0	281	>0.70	0
356x406x677		137	>0.70	0	297	>0.70	0
356x406x634		143	>0.70	0	309	>0.70	0
356x406x592		149	>0.70	0	321	>0.70	0
356x406x551		155	>0.70	0	336	>0.70	1
356x406x509		163	>0.70	0	352	>0.70	7
356x406x467		172	>0.70	0	370	>0.70	15
356x406x393		193	>0.70	0	409	>0.70	43
356x406x340		212	>0.70	0	444	>0.70	72
356x406x287		237	>0.70	0	487	0.647	105
356x406x235		270	>0.70	0	564	0.457	357
356x368x202		294	>0.70	0	615	0.345	245
356x368x177		320	>0.70	0	660	<0.10	0
356x368x153		351	>0.70	1	701	<0.10	0
356x368x129		389	>0.70	15	729	<0.10	0
305x305x342		190	>0.70	0	404	>0.70	40
305x305x313		201	>0.70	0	425	>0.70	56
305x305x283		215	>0.70	0	450	>0.70	77
305x305x240		239	>0.70	0	490	0.640	108
305x305x198		270	>0.70	0	564	0.457	357
305x305x158		312	>0.70	0	647	<0.10	0
305x305x137		341	>0.70	0	689	<0.10	0
305x305x118		373	>0.70	9	720	<0.10	0
305x305x97		418	>0.70	32	737	<0.10	0
254x254x167		272	>0.70	0	569	0.448	348
254x254x132		315	>0.70	0	653	<0.10	0
254x254x107		358	>0.70	3	708	<0.10	0
254x254x89		400	>0.70	20	733	<0.10	0
254x254x73		446	>0.70	50	748	<0.10	0
203x203x100		333	>0.70	0	680	<0.10	0
203x203x86		363	>0.70	5	713	<0.10	0
203x203x71		406	>0.70	24	734	<0.10	0
203x203x60		445	>0.70	50	747	<0.10	0

**Table B.1.4.1.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**



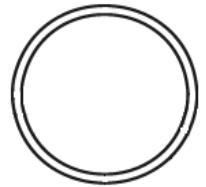
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	UC	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
203x203x52		478	0.664	65	768	<0.10	0
203x203x46		511	0.598	70	787	<0.10	0
152x152x51		424	>0.70	36	739	<0.10	0
152x152x44		458	>0.70	59	755	<0.10	0
152x152x37		498	0.624	71	781	<0.10	0
152x152x30		570	0.445	345	808	<0.10	0
152x152x23		640	<0.10	0	825	<0.10	0

**Table B.1.4.2.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**



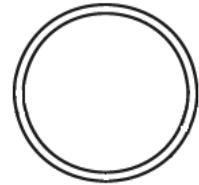
Section Designation	15 minutes fire exposure			30 minutes fire exposure		
	CHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$
		(°C)	(-)	(%)	(°C)	(-)
60.3x8	401	>0.70	4	733	0.174	7
76.1x6.3	448	>0.70	29	749	0.157	14
76.1x8	393	>0.70	0	731	0.177	7
88.9x6.3	445	>0.70	27	747	0.159	14
88.9x8	389	>0.70	0	729	0.179	7
88.9x10	341	>0.70	0	690	0.237	32
101.6x6.3	442	>0.70	26	746	0.160	13
101.6x8	386	>0.70	0	728	0.180	7
101.6x10	338	>0.70	0	686	0.244	35
114.3x6.3	440	>0.70	25	745	0.161	13
114.3x8	384	>0.70	0	727	0.182	8
114.3x10	335	>0.70	0	682	0.252	38
139.7x6.3	438	>0.70	23	744	0.163	13
139.7x8	380	>0.70	0	725	0.184	8
139.7x10	331	>0.70	0	676	0.261	42
139.7x12.5	286	>0.70	0	600	0.443	89
168.3x6.3	436	>0.70	22	743	0.164	13
168.3x8	378	>0.70	0	723	0.185	9
168.3x10	328	>0.70	0	672	0.269	45
168.3x12.5	283	>0.70	0	593	0.462	93
193.7x6.3	434	>0.70	22	742	0.164	12
193.7x8	376	>0.70	0	722	0.186	9
193.7x10	326	>0.70	0	670	0.273	46
193.7x12.5	281	>0.70	0	589	0.475	95
193.7x16	237	>0.70	0	488	>0.70	93
219.1x6.3	433	>0.70	21	742	0.165	12
219.1x8	375	>0.70	0	722	0.187	10
219.1x10	325	>0.70	0	668	0.277	48
219.1x12.5	279	>0.70	0	585	0.485	96
219.1x14.2	256	>0.70	0	530	0.634	112
219.1x16	236	>0.70	0	485	>0.70	89
244.5x6.3	432	>0.70	21	741	0.165	12
244.5x8	374	>0.70	0	721	0.188	10
244.5x10	323	>0.70	0	666	0.280	49
244.5x12.5	278	>0.70	0	583	0.492	97
244.5x14.2	254	>0.70	0	527	0.644	113
244.5x16	234	>0.70	0	483	>0.70	86
273x8	373	>0.70	0	720	0.188	10
273x10	322	>0.70	0	664	0.283	50

**Table B.1.4.2.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**



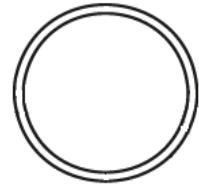
Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	CHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
273x12.5	277	>0.70	0	0	580	0.501	99
273x14.2	253	>0.70	0	0	523	0.656	114
273x16	233	>0.70	0	0	481	>0.70	84
323.9x8	372	>0.70	0	0	720	0.189	11
323.9x10	321	>0.70	0	0	662	0.287	51
323.9x12.5	275	>0.70	0	0	577	0.508	99
323.9x14.2	252	>0.70	0	0	519	0.670	115
323.9x16	231	>0.70	0	0	478	>0.70	80
355.6x10	320	>0.70	0	0	661	0.289	52
355.6x12.5	275	>0.70	0	0	575	0.513	100
355.6x14.2	251	>0.70	0	0	517	0.677	115
355.6x16	230	>0.70	0	0	476	>0.70	79
406.4x10	320	>0.70	0	0	660	0.291	52
406.4x12.5	274	>0.70	0	0	573	0.518	101
406.4x14.2	250	>0.70	0	0	514	0.685	115
406.4x16	229	>0.70	0	0	475	>0.70	77
457x12.5	273	>0.70	0	0	571	0.522	101
457x14.2	249	>0.70	0	0	512	0.692	116
457x16	229	>0.70	0	0	473	>0.70	76
508x12.5	272	>0.70	0	0	570	0.525	101
508x14.2	249	>0.70	0	0	511	0.698	116
508x16	228	>0.70	0	0	472	>0.70	75
508x20	194	>0.70	0	0	411	>0.70	23

**Table B.1.4.2.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**



Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	CHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
60.3x8	401	>0.70	21		733	<0.10	0
76.1x6.3	448	>0.70	52		749	<0.10	0
76.1x8	393	>0.70	16		731	<0.10	0
88.9x6.3	445	>0.70	50		747	<0.10	0
88.9x8	389	>0.70	15		729	<0.10	0
88.9x10	341	>0.70	0		690	<0.10	0
101.6x6.3	442	>0.70	48		746	<0.10	0
101.6x8	386	>0.70	13		728	<0.10	0
101.6x10	338	>0.70	0		686	<0.10	0
114.3x6.3	440	>0.70	47		745	<0.10	0
114.3x8	384	>0.70	13		727	<0.10	0
114.3x10	335	>0.70	0		682	<0.10	0
139.7x6.3	438	>0.70	45		744	<0.10	0
139.7x8	380	>0.70	11		725	<0.10	0
139.7x10	331	>0.70	0		676	<0.10	0
139.7x12.5	286	>0.70	0		600	0.378	278
168.3x6.3	436	>0.70	44		743	<0.10	0
168.3x8	378	>0.70	10		723	<0.10	0
168.3x10	328	>0.70	0		672	<0.10	0
168.3x12.5	283	>0.70	0		593	0.393	293
193.7x6.3	434	>0.70	43		742	<0.10	0
193.7x8	376	>0.70	10		722	<0.10	0
193.7x10	326	>0.70	0		670	<0.10	0
193.7x12.5	281	>0.70	0		589	0.402	302
193.7x16	237	>0.70	0		488	0.644	106
219.1x6.3	433	>0.70	42		742	<0.10	0
219.1x8	375	>0.70	9		722	<0.10	0
219.1x10	325	>0.70	0		668	<0.10	0
219.1x12.5	279	>0.70	0		585	0.411	311
219.1x14.2	256	>0.70	0		530	0.543	443
219.1x16	236	>0.70	0		485	0.650	104
244.5x6.3	432	>0.70	42		741	<0.10	0
244.5x8	374	>0.70	9		721	<0.10	0
244.5x10	323	>0.70	0		666	<0.10	0
244.5x12.5	278	>0.70	0		583	0.416	316
244.5x14.2	254	>0.70	0		527	0.552	452
244.5x16	234	>0.70	0		483	0.655	102
273x8	373	>0.70	9		720	<0.10	0
273x10	322	>0.70	0		664	<0.10	0

**Table B.1.4.2.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**



Section Designation CHS	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
273x12.5	277	>0.70	0	580	0.423	323
273x14.2	253	>0.70	0	523	0.562	462
273x16	233	>0.70	0	481	0.659	101
323.9x8	372	>0.70	8	720	<0.10	0
323.9x10	321	>0.70	0	662	<0.10	0
323.9x12.5	275	>0.70	0	577	0.430	330
323.9x14.2	252	>0.70	0	519	0.574	474
323.9x16	231	>0.70	0	478	0.665	99
355.6x10	320	>0.70	0	661	<0.10	0
355.6x12.5	275	>0.70	0	575	0.434	334
355.6x14.2	251	>0.70	0	517	0.580	480
355.6x16	230	>0.70	0	476	0.667	98
406.4x10	320	>0.70	0	660	<0.10	0
406.4x12.5	274	>0.70	0	573	0.438	338
406.4x14.2	250	>0.70	0	514	0.587	487
406.4x16	229	>0.70	0	475	0.671	97
457x12.5	273	>0.70	0	571	0.442	342
457x14.2	249	>0.70	0	512	0.593	493
457x16	229	>0.70	0	473	0.673	96
508x12.5	272	>0.70	0	570	0.444	344
508x14.2	249	>0.70	0	511	0.598	498
508x16	228	>0.70	0	472	0.676	96
508x20	194	>0.70	0	411	>0.70	45

**Table B.1.4.3.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	SHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
50x50x6.3	616	0.397	39	820	<0.10	0	
50x50x7.1	590	0.471	51	813	<0.10	0	
50x50x8	558	0.555	58	804	<0.10	0	
60x60x6.3	609	0.418	43	818	<0.10	0	
60x60x7.1	577	0.507	55	810	<0.10	0	
60x60x8	543	0.592	60	798	0.102	2	
70x70x6.3	603	0.435	46	817	<0.10	0	
70x70x7.1	570	0.526	56	807	<0.10	0	
70x70x8	532	0.626	64	795	0.106	6	
70x70x8.8	502	>0.70	66	783	0.119	12	
80x80x6.3	598	0.450	48	816	<0.10	0	
80x80x7.1	562	0.544	57	805	<0.10	0	
80x80x8	523	0.657	67	791	0.110	10	
80x80x8.8	494	>0.70	61	779	0.123	12	
80x80x10	468	>0.70	40	761	0.143	14	
80x80x12.5	422	>0.70	16	738	0.169	11	
90x90x6.3	593	0.462	50	814	<0.10	0	
90x90x7.1	558	0.554	58	804	<0.10	0	
90x90x8	517	0.675	69	789	0.112	11	
90x90x8.8	489	>0.70	56	776	0.127	13	
90x90x10	462	>0.70	37	757	0.147	14	
90x90x12.5	415	>0.70	11	736	0.171	9	
100x100x6.3	590	0.471	51	813	<0.10	0	
100x100x7.1	555	0.563	58	803	<0.10	0	
100x100x8	511	0.695	71	787	0.114	11	
100x100x8.8	486	>0.70	54	773	0.130	13	
100x100x10	458	>0.70	34	755	0.150	14	
100x100x12.5	410	>0.70	8	735	0.172	8	
120x120x6.3	586	0.481	52	812	<0.10	0	
120x120x7.1	548	0.580	60	800	<0.10	0	
120x120x8	504	>0.70	68	784	0.118	12	
120x120x8.8	481	>0.70	50	770	0.133	14	
120x120x10	452	>0.70	31	751	0.155	14	
120x120x12.5	402	>0.70	4	733	0.174	7	
140x140x6.3	583	0.492	53	811	<0.10	0	
140x140x7.1	544	0.590	60	799	0.101	1	
140x140x8	499	>0.70	65	782	0.120	12	
140x140x8.8	477	>0.70	47	767	0.137	14	
140x140x10	448	>0.70	29	749	0.157	14	

**Table B.1.4.3.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation SHS	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
140x140x12.5	397	>0.70	1	732	0.176	7
150x150x6.3	581	0.497	54	811	<0.10	0
150x150x7.1	543	0.592	60	798	0.102	2
150x150x8	498	>0.70	64	781	0.121	12
150x150x8.8	476	>0.70	46	766	0.138	14
150x150x10	446	>0.70	28	748	0.158	14
150x150x12.5	395	>0.70	0	731	0.176	7
150x150x14.2	367	>0.70	0	716	0.193	12
150x150x16	343	>0.70	0	692	0.232	30
160x160x6.3	580	0.499	54	811	<0.10	0
160x160x7.1	540	0.599	61	798	0.103	3
160x160x8	497	>0.70	63	780	0.122	12
160x160x8.8	474	>0.70	45	765	0.138	14
160x160x10	444	>0.70	27	747	0.159	14
160x160x12.5	393	>0.70	0	731	0.177	7
160x160x14.2	365	>0.70	0	714	0.195	13
160x160x16	341	>0.70	0	689	0.237	32
180x180x6.3	579	0.502	54	810	<0.10	0
180x180x7.1	537	0.609	62	797	0.104	4
180x180x8	495	>0.70	61	779	0.123	12
180x180x8.8	472	>0.70	43	764	0.140	14
180x180x10	442	>0.70	26	746	0.160	13
180x180x12.5	390	>0.70	0	729	0.178	7
180x180x14.2	362	>0.70	0	712	0.198	14
180x180x16	338	>0.70	0	685	0.245	36
200x200x6.3	577	0.508	55	810	<0.10	0
200x200x7.1	536	0.612	62	796	0.104	4
200x200x8	493	>0.70	60	778	0.124	12
200x200x8.8	470	>0.70	42	763	0.141	14
200x200x10	440	>0.70	25	745	0.161	13
200x200x12.5	388	>0.70	0	728	0.179	7
200x200x14.2	360	>0.70	0	710	0.200	15
200x200x16	334	>0.70	0	681	0.253	39
250x250x8	491	>0.70	58	776	0.126	13
250x250x8.8	467	>0.70	40	761	0.144	14
250x250x10	436	>0.70	23	743	0.163	13
250x250x12.5	384	>0.70	0	726	0.182	8
250x250x14.2	354	>0.70	0	704	0.211	20
250x250x16	329	>0.70	0	674	0.266	44

**Table B.1.4.3.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	SHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
260x260x8.8	467	>0.70	40	761	0.144	14	
260x260x10	436	>0.70	22	743	0.164	13	
260x260x12.5	383	>0.70	0	726	0.182	8	
260x260x14.2	355	>0.70	0	705	0.209	20	
260x260x16	329	>0.70	0	674	0.266	44	
300x300x8.8	438	>0.70	23	744	0.163	13	
300x300x10	407	>0.70	7	735	0.173	8	
300x300x12.5	355	>0.70	0	705	0.209	19	
300x300x14.2	327	>0.70	0	672	0.270	45	
300x300x16	302	>0.70	0	631	0.360	74	
350x350x12.5	379	>0.70	0	724	0.185	9	
350x350x14.2	349	>0.70	0	699	0.220	25	
350x350x16	323	>0.70	0	666	0.280	49	
400x400x12.5	377	>0.70	0	723	0.186	9	
400x400x14.2	348	>0.70	0	698	0.223	26	
400x400x16	322	>0.70	0	663	0.286	51	
400x400x20	277	>0.70	0	579	0.502	99	

**Table B.1.4.3.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation SHS	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
50x50x6.3	616	0.341	241	820	<0.10	0
50x50x7.1	590	0.399	299	813	<0.10	0
50x50x8	558	0.471	56	804	<0.10	0
60x60x6.3	609	0.358	258	818	<0.10	0
60x60x7.1	577	0.429	329	810	<0.10	0
60x60x8	543	0.506	59	798	<0.10	0
70x70x6.3	603	0.372	272	817	<0.10	0
70x70x7.1	570	0.445	345	807	<0.10	0
70x70x8	532	0.537	63	795	<0.10	0
70x70x8.8	502	0.617	71	783	<0.10	0
80x80x6.3	598	0.383	283	816	<0.10	0
80x80x7.1	562	0.461	361	805	<0.10	0
80x80x8	523	0.563	67	791	<0.10	0
80x80x8.8	494	0.631	70	779	<0.10	0
80x80x10	468	0.685	62	761	<0.10	0
80x80x12.5	422	>0.70	35	738	<0.10	0
90x90x6.3	593	0.393	293	814	<0.10	0
90x90x7.1	558	0.470	56	804	<0.10	0
90x90x8	517	0.579	68	789	<0.10	0
90x90x8.8	489	0.642	68	776	<0.10	0
90x90x10	462	0.695	61	757	<0.10	0
90x90x12.5	415	>0.70	30	736	<0.10	0
100x100x6.3	590	0.399	299	813	<0.10	0
100x100x7.1	555	0.478	57	803	<0.10	0
100x100x8	511	0.596	70	787	<0.10	0
100x100x8.8	486	0.648	67	773	<0.10	0
100x100x10	458	>0.70	59	755	<0.10	0
100x100x12.5	410	>0.70	26	735	<0.10	0
120x120x6.3	586	0.408	308	812	<0.10	0
120x120x7.1	548	0.493	58	800	<0.10	0
120x120x8	504	0.613	71	784	<0.10	0
120x120x8.8	481	0.658	66	770	<0.10	0
120x120x10	452	>0.70	54	751	<0.10	0
120x120x12.5	402	>0.70	21	733	<0.10	0
140x140x6.3	583	0.416	316	811	<0.10	0
140x140x7.1	544	0.503	59	799	<0.10	0
140x140x8	499	0.622	71	782	<0.10	0
140x140x8.8	477	0.666	65	767	<0.10	0
140x140x10	448	>0.70	52	749	<0.10	0

**Table B.1.4.3.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	SHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
140x140x12.5		397	>0.70	18	732	<0.10	0
150x150x6.3		581	0.420	320	811	<0.10	0
150x150x7.1		543	0.506	59	798	<0.10	0
150x150x8		498	0.625	71	781	<0.10	0
150x150x8.8		476	0.669	64	766	<0.10	0
150x150x10		446	>0.70	50	748	<0.10	0
150x150x12.5		395	>0.70	17	731	<0.10	0
150x150x14.2		367	>0.70	6	716	<0.10	0
150x150x16		343	>0.70	0	692	<0.10	0
160x160x6.3		580	0.422	322	811	<0.10	0
160x160x7.1		540	0.513	60	798	<0.10	0
160x160x8		497	0.627	70	780	<0.10	0
160x160x8.8		474	0.671	64	765	<0.10	0
160x160x10		444	>0.70	49	747	<0.10	0
160x160x12.5		393	>0.70	16	731	<0.10	0
160x160x14.2		365	>0.70	6	714	<0.10	0
160x160x16		341	>0.70	0	689	<0.10	0
180x180x6.3		579	0.424	324	810	<0.10	0
180x180x7.1		537	0.522	62	797	<0.10	0
180x180x8		495	0.631	70	779	<0.10	0
180x180x8.8		472	0.675	64	764	<0.10	0
180x180x10		442	>0.70	48	746	<0.10	0
180x180x12.5		390	>0.70	15	729	<0.10	0
180x180x14.2		362	>0.70	5	712	<0.10	0
180x180x16		338	>0.70	0	685	<0.10	0
200x200x6.3		577	0.430	330	810	<0.10	0
200x200x7.1		536	0.524	62	796	<0.10	0
200x200x8		493	0.634	69	778	<0.10	0
200x200x8.8		470	0.679	63	763	<0.10	0
200x200x10		440	>0.70	47	745	<0.10	0
200x200x12.5		388	>0.70	14	728	<0.10	0
200x200x14.2		360	>0.70	4	710	<0.10	0
200x200x16		334	>0.70	0	681	<0.10	0
250x250x8		491	0.639	69	776	<0.10	0
250x250x8.8		467	0.685	62	761	<0.10	0
250x250x10		436	>0.70	44	743	<0.10	0
250x250x12.5		384	>0.70	12	726	<0.10	0
250x250x14.2		354	>0.70	2	704	<0.10	0
250x250x16		329	>0.70	0	674	<0.10	0

**Table B.1.4.3.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation SHS	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
260x260x8.8	467	0.686	62	761	<0.10	0
260x260x10	436	>0.70	44	743	<0.10	0
260x260x12.5	383	>0.70	12	726	<0.10	0
260x260x14.2	355	>0.70	2	705	<0.10	0
260x260x16	329	>0.70	0	674	<0.10	0
300x300x8.8	438	>0.70	45	744	<0.10	0
300x300x10	407	>0.70	24	735	<0.10	0
300x300x12.5	355	>0.70	2	705	<0.10	0
300x300x14.2	327	>0.70	0	672	<0.10	0
300x300x16	302	>0.70	0	631	0.309	209
350x350x12.5	379	>0.70	11	724	<0.10	0
350x350x14.2	349	>0.70	0	699	<0.10	0
350x350x16	323	>0.70	0	666	<0.10	0
400x400x12.5	377	>0.70	10	723	<0.10	0
400x400x14.2	348	>0.70	0	698	<0.10	0
400x400x16	322	>0.70	0	663	<0.10	0
400x400x20	277	>0.70	0	579	0.424	324

**Table B.1.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	RHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
60x40x6.3	616	0.397	39	820	<0.10	0	
80x40x6.3	609	0.418	43	818	<0.10	0	
80x40x7.1	577	0.507	55	810	<0.10	0	
80x40x8	543	0.592	60	798	0.102	2	
90x50x6.3	603	0.435	46	817	<0.10	0	
90x50x7.1	570	0.526	56	807	<0.10	0	
90x50x8	532	0.626	64	795	0.106	6	
100x50x6.3	599	0.444	47	816	<0.10	0	
100x50x7.1	566	0.534	57	806	<0.10	0	
100x50x8	527	0.645	66	793	0.108	8	
100x50x8.8	497	>0.70	63	780	0.122	12	
100x50x10	471	>0.70	42	763	0.141	14	
100x60x6.3	598	0.450	48	816	<0.10	0	
100x60x7.1	562	0.544	57	805	<0.10	0	
100x60x8	523	0.657	67	791	0.110	10	
100x60x8.8	494	>0.70	61	779	0.123	12	
100x60x10	468	>0.70	40	761	0.143	14	
120x60x6.3	593	0.462	50	814	<0.10	0	
120x60x7.1	558	0.554	58	804	<0.10	0	
120x60x8	517	0.675	69	789	0.112	11	
120x60x8.8	489	>0.70	56	776	0.127	13	
120x60x10	462	>0.70	37	757	0.147	14	
120x60x12.5	415	>0.70	11	736	0.171	9	
120x80x6.3	590	0.471	51	813	<0.10	0	
120x80x7.1	555	0.563	58	803	<0.10	0	
120x80x8	511	0.695	71	787	0.114	11	
120x80x8.8	486	>0.70	54	773	0.130	13	
120x80x10	458	>0.70	34	755	0.150	14	
120x80x12.5	410	>0.70	8	735	0.172	8	
150x100x6.3	584	0.487	53	812	<0.10	0	
150x100x7.1	548	0.581	60	800	<0.10	0	
150x100x8	503	>0.70	67	784	0.118	12	
150x100x8.8	480	>0.70	49	769	0.135	14	
150x100x10	451	>0.70	30	750	0.155	14	
150x100x12.5	401	>0.70	3	733	0.174	7	
160x80x6.3	586	0.481	52	812	<0.10	0	
160x80x7.1	548	0.580	60	800	<0.10	0	
160x80x8	504	>0.70	68	784	0.118	12	
160x80x8.8	481	>0.70	50	770	0.133	14	

**Table B.1.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	RHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
160x80x10	452	>0.70	31	751	0.155	14	
160x80x12.5	402	>0.70	4	733	0.174	7	
180x60x6.3	586	0.481	52	812	<0.10	0	
180x60x7.1	548	0.580	60	800	<0.10	0	
180x60x8	504	>0.70	68	784	0.118	12	
180x60x8.8	481	>0.70	50	770	0.133	14	
180x60x10	452	>0.70	31	751	0.155	14	
180x60x12.5	402	>0.70	4	733	0.174	7	
180x100x6.3	583	0.492	53	811	<0.10	0	
180x100x7.1	544	0.590	60	799	0.101	1	
180x100x8	499	>0.70	65	782	0.120	12	
180x100x8.8	477	>0.70	47	767	0.137	14	
180x100x10	448	>0.70	29	749	0.157	14	
180x100x12.5	397	>0.70	1	732	0.176	7	
200x100x6.3	581	0.497	54	811	<0.10	0	
200x100x7.1	543	0.592	60	798	0.102	2	
200x100x8	498	>0.70	64	781	0.121	12	
200x100x8.8	476	>0.70	46	766	0.138	14	
200x100x10	446	>0.70	28	748	0.158	14	
200x100x12.5	395	>0.70	0	731	0.176	7	
200x100x14.2	367	>0.70	0	716	0.193	12	
200x100x16	343	>0.70	0	692	0.232	30	
200x120x6.3	580	0.499	54	811	<0.10	0	
200x120x7.1	540	0.599	61	798	0.103	3	
200x120x8	497	>0.70	63	780	0.122	12	
200x120x8.8	474	>0.70	45	765	0.138	14	
200x120x10	444	>0.70	27	747	0.159	14	
200x120x12.5	393	>0.70	0	731	0.177	7	
200x120x14.2	365	>0.70	0	714	0.195	13	
200x120x16	341	>0.70	0	689	0.237	32	
200x150x6.3	579	0.502	54	810	<0.10	0	
200x150x7.1	539	0.602	61	797	0.103	3	
200x150x8	495	>0.70	61	779	0.123	12	
200x150x8.8	473	>0.70	44	764	0.140	14	
200x150x10	442	>0.70	26	746	0.160	13	
200x150x12.5	391	>0.70	0	730	0.178	7	
200x150x14.2	363	>0.70	0	712	0.198	14	
200x150x16	338	>0.70	0	686	0.244	35	
220x120x7.1	540	0.601	61	797	0.103	3	

**Table B.1.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	RHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
220x120x8	496	>0.70	62	780	0.122	12	
220x120x8.8	473	>0.70	44	765	0.139	14	
220x120x10	443	>0.70	26	746	0.160	13	
220x120x12.5	391	>0.70	0	730	0.178	7	
220x120x14.2	364	>0.70	0	713	0.197	14	
220x120x16	339	>0.70	0	687	0.242	34	
250x100x8	495	>0.70	61	779	0.123	12	
250x100x8.8	473	>0.70	44	764	0.140	14	
250x100x10	442	>0.70	26	746	0.160	13	
250x100x12.5	391	>0.70	0	730	0.178	7	
250x100x14.2	363	>0.70	0	712	0.198	14	
250x100x16	338	>0.70	0	686	0.244	35	
250x150x8	493	>0.70	60	778	0.124	12	
250x150x8.8	470	>0.70	42	763	0.141	14	
250x150x10	440	>0.70	25	745	0.161	13	
250x150x12.5	388	>0.70	0	728	0.179	7	
250x150x14.2	360	>0.70	0	710	0.200	15	
250x150x16	334	>0.70	0	681	0.253	39	
260x140x8.8	470	>0.70	42	763	0.141	14	
260x140x10	440	>0.70	25	745	0.161	13	
260x140x12.5	388	>0.70	0	728	0.179	7	
260x140x14.2	360	>0.70	0	710	0.200	15	
260x140x16	334	>0.70	0	681	0.253	39	
300x100x10	440	>0.70	25	745	0.161	13	
300x100x12.5	388	>0.70	0	728	0.179	7	
300x100x14.2	360	>0.70	0	710	0.200	15	
300x100x16	334	>0.70	0	681	0.253	39	
300x150x10	438	>0.70	24	744	0.162	13	
300x150x12.5	384	>0.70	0	727	0.181	7	
300x150x14.2	356	>0.70	0	706	0.208	19	
300x150x16	331	>0.70	0	677	0.260	41	
300x200x10	436	>0.70	23	743	0.163	13	
300x200x12.5	384	>0.70	0	726	0.182	8	
300x200x14.2	354	>0.70	0	704	0.211	20	
300x200x16	329	>0.70	0	674	0.266	44	
300x250x10	435	>0.70	22	743	0.164	12	
300x250x12.5	381	>0.70	0	725	0.183	8	
300x250x14.2	353	>0.70	0	703	0.213	22	
300x250x16	327	>0.70	0	671	0.270	45	

**Table B.1.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation RHS	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
350x150x12.5	384	>0.70	0	726	0.182	8
350x150x14.2	354	>0.70	0	704	0.211	20
350x150x16	329	>0.70	0	674	0.266	44
350x250x12.5	381	>0.70	0	725	0.183	8
350x250x14.2	352	>0.70	0	702	0.215	22
350x250x16	326	>0.70	0	669	0.275	47
400x150x12.5	381	>0.70	0	725	0.183	8
400x150x14.2	353	>0.70	0	703	0.213	22
400x150x16	327	>0.70	0	671	0.270	45
400x200x12.5	381	>0.70	0	725	0.183	8
400x200x14.2	352	>0.70	0	702	0.215	22
400x200x16	326	>0.70	0	669	0.275	47
400x300x12.5	379	>0.70	0	724	0.185	9
400x300x14.2	349	>0.70	0	699	0.220	25
400x300x16	323	>0.70	0	666	0.280	49
450x250x14.2	349	>0.70	0	699	0.220	25
450x250x16	323	>0.70	0	666	0.280	49
500x200x16	323	>0.70	0	666	0.280	49
500x300x16	322	>0.70	0	663	0.286	51
500x300x20	277	>0.70	0	579	0.502	99

**Table B.1.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	RHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
60x40x6.3	616	0.341	241		820	<0.10	0
80x40x6.3	609	0.358	258		818	<0.10	0
80x40x7.1	577	0.429	329		810	<0.10	0
80x40x8	543	0.506	59		798	<0.10	0
90x50x6.3	603	0.372	272		817	<0.10	0
90x50x7.1	570	0.445	345		807	<0.10	0
90x50x8	532	0.537	63		795	<0.10	0
100x50x6.3	599	0.379	279		816	<0.10	0
100x50x7.1	566	0.452	352		806	<0.10	0
100x50x8	527	0.553	66		793	<0.10	0
100x50x8.8	497	0.627	70		780	<0.10	0
100x50x10	471	0.678	63		763	<0.10	0
100x60x6.3	598	0.383	283		816	<0.10	0
100x60x7.1	562	0.461	361		805	<0.10	0
100x60x8	523	0.563	67		791	<0.10	0
100x60x8.8	494	0.631	70		779	<0.10	0
100x60x10	468	0.685	62		761	<0.10	0
120x60x6.3	593	0.393	293		814	<0.10	0
120x60x7.1	558	0.470	56		804	<0.10	0
120x60x8	517	0.579	68		789	<0.10	0
120x60x8.8	489	0.642	68		776	<0.10	0
120x60x10	462	0.695	61		757	<0.10	0
120x60x12.5	415	>0.70	30		736	<0.10	0
120x80x6.3	590	0.399	299		813	<0.10	0
120x80x7.1	555	0.478	57		803	<0.10	0
120x80x8	511	0.596	70		787	<0.10	0
120x80x8.8	486	0.648	67		773	<0.10	0
120x80x10	458	>0.70	59		755	<0.10	0
120x80x12.5	410	>0.70	26		735	<0.10	0
150x100x6.3	584	0.412	312		812	<0.10	0
150x100x7.1	548	0.494	58		800	<0.10	0
150x100x8	503	0.614	71		784	<0.10	0
150x100x8.8	480	0.661	66		769	<0.10	0
150x100x10	451	>0.70	54		750	<0.10	0
150x100x12.5	401	>0.70	20		733	<0.10	0
160x80x6.3	586	0.408	308		812	<0.10	0
160x80x7.1	548	0.493	58		800	<0.10	0
160x80x8	504	0.613	71		784	<0.10	0
160x80x8.8	481	0.658	66		770	<0.10	0

**Table B.1.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	RHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
160x80x10	452	>0.70	54	751	<0.10	0	
160x80x12.5	402	>0.70	21	733	<0.10	0	
180x60x6.3	586	0.408	308	812	<0.10	0	
180x60x7.1	548	0.493	58	800	<0.10	0	
180x60x8	504	0.613	71	784	<0.10	0	
180x60x8.8	481	0.658	66	770	<0.10	0	
180x60x10	452	>0.70	54	751	<0.10	0	
180x60x12.5	402	>0.70	21	733	<0.10	0	
180x100x6.3	583	0.416	316	811	<0.10	0	
180x100x7.1	544	0.503	59	799	<0.10	0	
180x100x8	499	0.622	71	782	<0.10	0	
180x100x8.8	477	0.666	65	767	<0.10	0	
180x100x10	448	>0.70	52	749	<0.10	0	
180x100x12.5	397	>0.70	18	732	<0.10	0	
200x100x6.3	581	0.420	320	811	<0.10	0	
200x100x7.1	543	0.506	59	798	<0.10	0	
200x100x8	498	0.625	71	781	<0.10	0	
200x100x8.8	476	0.669	64	766	<0.10	0	
200x100x10	446	>0.70	50	748	<0.10	0	
200x100x12.5	395	>0.70	17	731	<0.10	0	
200x100x14.2	367	>0.70	6	716	<0.10	0	
200x100x16	343	>0.70	0	692	<0.10	0	
200x120x6.3	580	0.422	322	811	<0.10	0	
200x120x7.1	540	0.513	60	798	<0.10	0	
200x120x8	497	0.627	70	780	<0.10	0	
200x120x8.8	474	0.671	64	765	<0.10	0	
200x120x10	444	>0.70	49	747	<0.10	0	
200x120x12.5	393	>0.70	16	731	<0.10	0	
200x120x14.2	365	>0.70	6	714	<0.10	0	
200x120x16	341	>0.70	0	689	<0.10	0	
200x150x6.3	579	0.424	324	810	<0.10	0	
200x150x7.1	539	0.516	60	797	<0.10	0	
200x150x8	495	0.630	70	779	<0.10	0	
200x150x8.8	473	0.675	64	764	<0.10	0	
200x150x10	442	>0.70	48	746	<0.10	0	
200x150x12.5	391	>0.70	15	730	<0.10	0	
200x150x14.2	363	>0.70	5	712	<0.10	0	
200x150x16	338	>0.70	0	686	<0.10	0	
220x120x7.1	540	0.515	60	797	<0.10	0	

**Table B.1.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	15 minutes fire exposure			30 minutes fire exposure			
	RHS	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$	Critical Temp. $\theta_{cr}$	$\mu_{0,G}$	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$
		(°C)	(-)	(%)	(°C)	(-)	(%)
220x120x8	496	0.629	70	780	<0.10	0	
220x120x8.8	473	0.673	64	765	<0.10	0	
220x120x10	443	>0.70	49	746	<0.10	0	
220x120x12.5	391	>0.70	15	730	<0.10	0	
220x120x14.2	364	>0.70	5	713	<0.10	0	
220x120x16	339	>0.70	0	687	<0.10	0	
250x100x8	495	0.630	70	779	<0.10	0	
250x100x8.8	473	0.675	64	764	<0.10	0	
250x100x10	442	>0.70	48	746	<0.10	0	
250x100x12.5	391	>0.70	15	730	<0.10	0	
250x100x14.2	363	>0.70	5	712	<0.10	0	
250x100x16	338	>0.70	0	686	<0.10	0	
250x150x8	493	0.634	69	778	<0.10	0	
250x150x8.8	470	0.679	63	763	<0.10	0	
250x150x10	440	>0.70	47	745	<0.10	0	
250x150x12.5	388	>0.70	14	728	<0.10	0	
250x150x14.2	360	>0.70	4	710	<0.10	0	
250x150x16	334	>0.70	0	681	<0.10	0	
260x140x8.8	470	0.679	63	763	<0.10	0	
260x140x10	440	>0.70	47	745	<0.10	0	
260x140x12.5	388	>0.70	14	728	<0.10	0	
260x140x14.2	360	>0.70	4	710	<0.10	0	
260x140x16	334	>0.70	0	681	<0.10	0	
300x100x10	440	>0.70	47	745	<0.10	0	
300x100x12.5	388	>0.70	14	728	<0.10	0	
300x100x14.2	360	>0.70	4	710	<0.10	0	
300x100x16	334	>0.70	0	681	<0.10	0	
300x150x10	438	>0.70	45	744	<0.10	0	
300x150x12.5	384	>0.70	13	727	<0.10	0	
300x150x14.2	356	>0.70	2	706	<0.10	0	
300x150x16	331	>0.70	0	677	<0.10	0	
300x200x10	436	>0.70	44	743	<0.10	0	
300x200x12.5	384	>0.70	12	726	<0.10	0	
300x200x14.2	354	>0.70	2	704	<0.10	0	
300x200x16	329	>0.70	0	674	<0.10	0	
300x250x10	435	>0.70	43	743	<0.10	0	
300x250x12.5	381	>0.70	11	725	<0.10	0	
300x250x14.2	353	>0.70	1	703	<0.10	0	
300x250x16	327	>0.70	0	671	<0.10	0	

**Table B.1.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation RHS	15 minutes fire exposure			30 minutes fire exposure		
	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)	Critical Temp. $\theta_{cr}$ (°C)	$\mu_{0,G}$ (-)	$\frac{\mu_{0,G} - \mu_0}{\mu_0}$ (%)
350x150x12.5	384	>0.70	12	726	<0.10	0
350x150x14.2	354	>0.70	2	704	<0.10	0
350x150x16	329	>0.70	0	674	<0.10	0
350x250x12.5	381	>0.70	11	725	<0.10	0
350x250x14.2	352	>0.70	1	702	<0.10	0
350x250x16	326	>0.70	0	669	<0.10	0
400x150x12.5	381	>0.70	11	725	<0.10	0
400x150x14.2	353	>0.70	1	703	<0.10	0
400x150x16	327	>0.70	0	671	<0.10	0
400x200x12.5	381	>0.70	11	725	<0.10	0
400x200x14.2	352	>0.70	1	702	<0.10	0
400x200x16	326	>0.70	0	669	<0.10	0
400x300x12.5	379	>0.70	11	724	<0.10	0
400x300x14.2	349	>0.70	0	699	<0.10	0
400x300x16	323	>0.70	0	666	<0.10	0
450x250x14.2	349	>0.70	0	699	<0.10	0
450x250x16	323	>0.70	0	666	<0.10	0
500x200x16	323	>0.70	0	666	<0.10	0
500x300x16	322	>0.70	0	663	<0.10	0
500x300x20	277	>0.70	0	579	0.424	324



**Table B.2.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
1100x400x607	34 [8]	35 [8]	37 [8]	38 [7]	41 [7]	45 [6]
1100x400x548	32 [8]	33 [8]	34 [7]	36 [7]	39 [6]	43 [6]
1100x400x499	30 [7]	31 [7]	33 [7]	34 [6]	37 [6]	41 [5]
1100x400x433	27 [7]	29 [6]	30 [6]	32 [6]	34 [5]	38 [5]
1100x400x390	26 [6]	27 [6]	28 [6]	30 [5]	32 [5]	35 [4]
1100x400x343	24 [6]	25 [5]	26 [5]	28 [5]	30 [4]	33 [4]
1016x305x584	35 [9]	37 [9]	38 [8]	40 [8]	43 [7]	47 [7]
1016x305x494	32 [8]	34 [8]	35 [7]	37 [7]	39 [7]	43 [6]
1016x305x438	30 [7]	31 [7]	33 [7]	34 [6]	36 [6]	40 [5]
1016x305x415	29 [7]	30 [7]	32 [7]	33 [6]	35 [6]	39 [5]
1016x305x393	28 [7]	29 [7]	31 [6]	32 [6]	34 [5]	38 [5]
1016x305x350	26 [6]	27 [6]	29 [6]	30 [5]	32 [5]	36 [4]
1016x305x314	25 [6]	26 [6]	27 [5]	28 [5]	30 [5]	34 [4]
1016x305x272	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [3]
1016x305x249	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
1016x305x222	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
1000x400x976	46 [12]	48 [12]	50 [11]	52 [11]	55 [10]	61 [9]
1000x400x883	43 [11]	45 [11]	47 [11]	49 [10]	52 [10]	57 [9]
1000x400x748	39 [10]	41 [10]	43 [9]	45 [9]	48 [9]	53 [8]
1000x400x642	36 [9]	38 [9]	39 [8]	41 [8]	44 [8]	48 [7]
1000x400x591	34 [9]	36 [8]	37 [8]	39 [8]	42 [7]	46 [6]
1000x400x554	33 [8]	35 [8]	36 [8]	38 [7]	40 [7]	44 [6]
1000x400x539	33 [8]	34 [8]	35 [7]	37 [7]	40 [7]	44 [6]
1000x400x483	30 [8]	32 [7]	33 [7]	35 [7]	37 [6]	41 [5]
1000x400x443	29 [7]	30 [7]	32 [7]	33 [6]	35 [6]	39 [5]
1000x400x412	28 [7]	29 [6]	30 [6]	32 [6]	34 [5]	38 [5]
1000x400x371	26 [6]	27 [6]	28 [6]	30 [5]	32 [5]	36 [4]
1000x400x321	24 [6]	25 [5]	26 [5]	28 [5]	29 [4]	33 [4]
1000x400x296	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	32 [4]
920x420x1377	57 [15]	60 [15]	62 [14]	65 [14]	68 [13]	75 [12]
920x420x1269	54 [15]	57 [14]	59 [14]	62 [13]	65 [13]	71 [12]
920x420x1194	53 [14]	55 [14]	57 [13]	60 [13]	63 [12]	69 [11]
920x420x1077	50 [13]	52 [13]	54 [12]	56 [12]	60 [11]	65 [10]
920x420x970	47 [12]	49 [12]	51 [12]	53 [11]	56 [11]	62 [10]
920x420x787	41 [11]	43 [10]	45 [10]	47 [10]	50 [9]	55 [8]
920x420x725	40 [10]	41 [10]	43 [9]	45 [9]	48 [9]	53 [8]
920x420x656	37 [9]	39 [9]	41 [9]	43 [8]	45 [8]	50 [7]
920x420x588	35 [9]	37 [8]	38 [8]	40 [8]	43 [7]	47 [7]
920x420x537	33 [8]	35 [8]	36 [8]	38 [7]	40 [7]	45 [6]
920x420x491	31 [8]	33 [7]	34 [7]	36 [7]	38 [6]	42 [6]
920x420x449	30 [7]	31 [7]	33 [7]	34 [6]	36 [6]	40 [5]

**Table B.2.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
920x420x420	29 [7]	30 [7]	31 [6]	33 [6]	35 [6]	39 [5]
920x420x390	27 [7]	29 [6]	30 [6]	32 [6]	34 [5]	37 [5]
920x420x368	26 [6]	28 [6]	29 [6]	30 [6]	33 [5]	36 [4]
920x420x344	25 [6]	27 [6]	28 [6]	29 [5]	31 [5]	35 [4]
914x305x576	36 [9]	38 [9]	39 [8]	41 [8]	44 [8]	48 [7]
914x305x521	34 [9]	36 [8]	37 [8]	39 [8]	41 [7]	46 [6]
914x305x474	32 [8]	34 [8]	35 [7]	37 [7]	39 [7]	43 [6]
914x305x425	30 [7]	32 [7]	33 [7]	35 [6]	37 [6]	41 [5]
914x305x381	28 [7]	30 [7]	31 [6]	33 [6]	35 [6]	39 [5]
914x305x345	27 [6]	28 [6]	29 [6]	31 [6]	33 [5]	37 [5]
914x305x313	25 [6]	26 [6]	28 [6]	29 [5]	31 [5]	35 [4]
914x305x289	24 [6]	25 [5]	26 [5]	28 [5]	30 [5]	33 [4]
914x305x271	23 [5]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
914x305x253	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	31 [3]
914x305x238	21 [5]	23 [5]	24 [4]	25 [4]	27 [4]	30 [3]
914x305x224	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
914x305x201	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	28 [3]
840x400x576	36 [9]	37 [9]	39 [8]	41 [8]	44 [8]	48 [7]
840x400x527	34 [9]	36 [8]	37 [8]	39 [8]	41 [7]	46 [6]
840x400x473	32 [8]	33 [8]	35 [7]	37 [7]	39 [7]	43 [6]
840x400x433	30 [7]	32 [7]	33 [7]	35 [7]	37 [6]	41 [5]
840x400x392	29 [7]	30 [7]	31 [6]	33 [6]	35 [6]	39 [5]
840x400x359	27 [7]	28 [6]	30 [6]	31 [6]	33 [5]	37 [5]
840x400x329	26 [6]	27 [6]	28 [6]	30 [5]	32 [5]	35 [4]
840x400x299	24 [6]	26 [6]	27 [5]	28 [5]	30 [5]	34 [4]
838x292x251	23 [5]	24 [5]	25 [5]	27 [5]	28 [4]	32 [4]
838x292x226	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
838x292x194	20 [5]	21 [4]	22 [4]	23 [4]	25 [3]	28 [3]
838x292x176	19 [4]	20 [4]	21 [4]	22 [3]	23 [3]	27 [3]
760x380x582	38 [10]	39 [9]	41 [9]	43 [9]	46 [8]	50 [7]
760x380x531	36 [9]	37 [9]	39 [8]	41 [8]	43 [8]	48 [7]
760x380x484	34 [9]	35 [8]	37 [8]	39 [8]	41 [7]	46 [6]
760x380x434	32 [8]	33 [8]	35 [7]	36 [7]	39 [6]	43 [6]
760x380x389	30 [7]	31 [7]	33 [7]	34 [6]	36 [6]	40 [5]
760x380x350	28 [7]	29 [7]	31 [6]	32 [6]	34 [6]	38 [5]
760x380x314	26 [6]	28 [6]	29 [6]	30 [5]	32 [5]	36 [4]
760x380x284	25 [6]	26 [6]	27 [5]	29 [5]	31 [5]	34 [4]
760x380x257	23 [6]	25 [5]	26 [5]	27 [5]	29 [4]	32 [4]
762x267x220	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
762x267x197	21 [5]	22 [5]	23 [4]	25 [4]	26 [4]	30 [3]
762x267x173	20 [5]	21 [4]	22 [4]	23 [4]	24 [3]	28 [3]

**Table B.2.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
762x267x147	18 [4]	19 [4]	20 [4]	21 [3]	22 [3]	26 [2]
762x267x134	17 [4]	18 [4]	19 [3]	20 [3]	21 [3]	24 [2]
690x360x802	47 [12]	49 [12]	51 [12]	54 [11]	57 [11]	62 [10]
690x360x548	38 [10]	40 [9]	42 [9]	44 [9]	46 [8]	51 [7]
690x360x500	36 [9]	38 [9]	39 [9]	41 [8]	44 [8]	48 [7]
690x360x457	34 [9]	36 [8]	38 [8]	39 [8]	42 [7]	46 [6]
690x360x419	33 [8]	34 [8]	36 [8]	37 [7]	40 [7]	44 [6]
690x360x384	31 [8]	33 [7]	34 [7]	36 [7]	38 [6]	42 [6]
690x360x350	30 [7]	31 [7]	32 [7]	34 [6]	36 [6]	40 [5]
690x360x323	28 [7]	30 [7]	31 [6]	32 [6]	35 [6]	38 [5]
690x360x289	26 [6]	28 [6]	29 [6]	30 [6]	32 [5]	36 [4]
690x360x265	25 [6]	26 [6]	27 [5]	29 [5]	31 [5]	34 [4]
690x360x240	24 [6]	25 [5]	26 [5]	27 [5]	29 [4]	33 [4]
690x360x217	22 [5]	23 [5]	25 [5]	26 [4]	28 [4]	31 [3]
686x254x192	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	31 [3]
686x254x170	20 [5]	21 [4]	22 [4]	24 [4]	25 [4]	29 [3]
686x254x152	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
686x254x140	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]
686x254x125	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
610x325x551	40 [10]	42 [10]	44 [10]	46 [9]	49 [9]	54 [8]
610x325x498	38 [10]	40 [9]	42 [9]	44 [9]	46 [8]	51 [7]
610x325x455	36 [9]	38 [9]	39 [9]	41 [8]	44 [8]	48 [7]
610x325x415	34 [9]	36 [8]	38 [8]	39 [8]	42 [7]	46 [6]
610x325x372	32 [8]	34 [8]	35 [7]	37 [7]	39 [7]	44 [6]
610x325x341	31 [8]	32 [7]	34 [7]	35 [7]	38 [6]	42 [6]
610x325x307	29 [7]	30 [7]	32 [7]	33 [6]	35 [6]	39 [5]
610x325x285	28 [7]	29 [6]	30 [6]	32 [6]	34 [5]	38 [5]
610x325x262	26 [6]	28 [6]	29 [6]	30 [6]	32 [5]	36 [4]
610x325x241	25 [6]	26 [6]	28 [6]	29 [5]	31 [5]	35 [4]
610x325x217	24 [6]	25 [5]	26 [5]	27 [5]	29 [4]	33 [4]
610x325x195	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	31 [3]
610x325x174	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
610x325x155	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	28 [3]
610x305x238	25 [6]	26 [6]	28 [6]	29 [5]	31 [5]	35 [4]
610x305x179	21 [5]	22 [5]	23 [4]	25 [4]	27 [4]	30 [3]
610x305x149	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
610x229x153	21 [5]	22 [4]	23 [4]	24 [4]	26 [4]	29 [3]
610x229x140	19 [4]	20 [4]	21 [4]	23 [4]	24 [3]	28 [3]
610x229x125	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]
610x229x113	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
610x229x101	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]



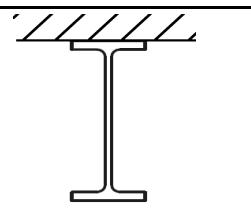
**Table B.2.1.1**  
**Galvanized steel beams not supporting concrete slabs**  
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]						
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
610x178x92	16 [3]	17 [3]	17 [3]	19 [3]	20 [2]	23 [2]	
610x178x82	15 [3]	16 [3]	16 [3]	17 [2]	19 [2]	22 [2]	
533x210x138	20 [5]	22 [4]	23 [4]	24 [4]	26 [4]	29 [3]	
533x210x122	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]	
533x210x109	18 [4]	19 [4]	20 [4]	21 [3]	22 [3]	26 [2]	
533x210x101	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]	
533x210x92	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]	
533x210x82	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]	
533x165x85	16 [3]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]	
533x165x74	15 [3]	16 [3]	17 [3]	18 [2]	19 [2]	22 [2]	
533x165x66	14 [3]	15 [3]	15 [2]	16 [2]	18 [2]	21 [1]	
457x191x106	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]	
457x191x98	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]	
457x191x89	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]	
457x191x82	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]	
457x191x74	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]	
457x191x67	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [2]	
457x152x82	17 [4]	18 [3]	19 [3]	20 [3]	21 [3]	24 [2]	
457x152x74	16 [3]	17 [3]	18 [3]	19 [3]	20 [2]	23 [2]	
457x152x67	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]	
457x152x60	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]	
457x152x52	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]	
406x178x85	18 [4]	19 [4]	19 [4]	21 [3]	22 [3]	25 [2]	
406x178x74	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]	
406x178x67	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]	
406x178x60	15 [3]	15 [3]	16 [3]	17 [2]	19 [2]	22 [1]	
406x178x54	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	21 [1]	
406x140x53	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]	
406x140x46	13 [3]	14 [2]	14 [2]	15 [2]	17 [2]	20 [1]	
406x140x39	12 [2]	13 [2]	13 [2]	14 [2]	16 [1]	19 [1]	
356x171x67	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]	
356x171x57	15 [3]	16 [3]	16 [3]	18 [3]	19 [2]	22 [2]	
356x171x51	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]	
356x171x45	13 [3]	14 [2]	15 [2]	16 [2]	17 [2]	20 [1]	
356x127x39	13 [3]	13 [2]	14 [2]	15 [2]	16 [2]	19 [1]	
356x127x33	12 [2]	12 [2]	13 [2]	14 [2]	15 [1]	18 [1]	
305x165x54	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]	
305x165x46	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]	
305x165x40	13 [3]	14 [2]	15 [2]	16 [2]	17 [2]	20 [1]	
305x127x48	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]	
305x127x42	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]	



<b>Table B.2.1.1</b> <b>Galvanized steel beams not supporting concrete slabs</b> <b>(BS 5950-8)</b>						
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
305x127x37	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
305x102x33	12 [3]	13 [2]	14 [2]	15 [2]	16 [2]	19 [1]
305x102x28	11 [2]	12 [2]	13 [2]	14 [2]	15 [1]	18 [1]
305x102x25	11 [2]	11 [2]	12 [2]	13 [2]	14 [1]	17 [1]
254x146x43	15 [3]	16 [3]	16 [3]	17 [3]	19 [2]	22 [2]
254x146x37	14 [3]	14 [3]	15 [2]	16 [2]	18 [2]	21 [1]
254x146x31	12 [3]	13 [2]	14 [2]	15 [2]	16 [2]	19 [1]
254x102x28	12 [3]	13 [2]	14 [2]	15 [2]	16 [2]	19 [1]
254x102x25	12 [2]	12 [2]	13 [2]	14 [2]	15 [1]	18 [1]
254x102x22	11 [2]	11 [2]	12 [2]	13 [1]	14 [1]	18 [1]
203x133x30	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
203x133x25	12 [2]	13 [2]	13 [2]	14 [2]	16 [1]	19 [1]
203x102x23	12 [2]	13 [2]	14 [2]	15 [2]	16 [2]	19 [1]
178x102x19	11 [2]	12 [2]	13 [2]	14 [2]	15 [1]	18 [1]
152x89x16	11 [2]	12 [2]	13 [2]	14 [2]	15 [1]	18 [1]
127x76x13	11 [2]	12 [2]	12 [2]	13 [2]	15 [1]	18 [1]

**Table B.2.1.2**  
**Galvanized steel beams supporting concrete slab or composite slab**  
**(BS 5950-8)**

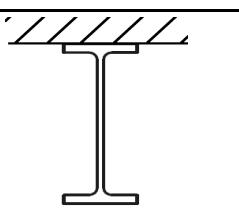


Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
1100x400x607	40 [9]	42 [8]	44 [8]	46 [8]	51 [7]	59 [6]
1100x400x548	38 [8]	40 [8]	41 [7]	44 [7]	48 [6]	56 [5]
1100x400x499	36 [8]	38 [7]	39 [7]	41 [7]	45 [6]	54 [5]
1100x400x433	33 [7]	35 [7]	36 [6]	38 [6]	42 [5]	50 [4]
1100x400x390	31 [6]	33 [6]	34 [6]	36 [5]	40 [5]	47 [4]
1100x400x343	29 [6]	30 [5]	32 [5]	33 [5]	37 [4]	44 [3]
1016x305x584	42 [9]	44 [9]	46 [8]	48 [8]	52 [7]	61 [6]
1016x305x494	38 [8]	40 [8]	42 [7]	44 [7]	48 [6]	56 [5]
1016x305x438	35 [7]	37 [7]	39 [7]	41 [6]	45 [6]	53 [5]
1016x305x415	34 [7]	36 [7]	38 [7]	39 [6]	44 [6]	52 [4]
1016x305x393	33 [7]	35 [7]	36 [6]	38 [6]	42 [5]	50 [4]
1016x305x350	31 [6]	33 [6]	34 [6]	36 [5]	40 [5]	47 [4]
1016x305x314	29 [6]	31 [6]	32 [5]	34 [5]	37 [4]	45 [3]
1016x305x272	27 [5]	28 [5]	30 [5]	31 [4]	35 [4]	42 [3]
1016x305x249	26 [5]	27 [5]	28 [4]	30 [4]	33 [3]	40 [3]
1016x305x222	24 [5]	25 [4]	26 [4]	28 [4]	31 [3]	38 [2]
1000x400x976	55 [13]	58 [12]	60 [12]	63 [11]	68 [10]	79 [9]
1000x400x883	52 [12]	55 [11]	57 [11]	59 [11]	65 [10]	75 [8]
1000x400x748	48 [11]	50 [10]	52 [10]	54 [9]	59 [9]	69 [7]
1000x400x642	44 [9]	45 [9]	47 [9]	50 [8]	54 [8]	64 [6]
1000x400x591	42 [9]	43 [9]	45 [8]	47 [8]	52 [7]	61 [6]
1000x400x554	40 [9]	42 [8]	44 [8]	46 [7]	50 [7]	59 [6]
1000x400x539	39 [8]	41 [8]	43 [8]	45 [7]	49 [7]	58 [5]
1000x400x483	37 [8]	39 [7]	40 [7]	42 [7]	46 [6]	55 [5]
1000x400x443	35 [7]	37 [7]	38 [7]	40 [6]	44 [6]	52 [5]
1000x400x412	34 [7]	35 [7]	37 [6]	39 [6]	43 [5]	50 [4]
1000x400x371	32 [6]	33 [6]	35 [6]	36 [6]	40 [5]	48 [4]
1000x400x321	29 [6]	30 [5]	32 [5]	33 [5]	37 [4]	44 [3]
1000x400x296	28 [5]	29 [5]	30 [5]	32 [5]	36 [4]	43 [3]
920x420x1377	70 [16]	72 [16]	75 [15]	79 [15]	85 [14]	98 [12]
920x420x1269	66 [15]	69 [15]	72 [14]	75 [14]	81 [13]	93 [11]
920x420x1194	64 [15]	66 [14]	69 [14]	72 [13]	78 [12]	90 [11]
920x420x1077	60 [14]	63 [13]	65 [13]	68 [13]	74 [12]	86 [10]
920x420x970	57 [13]	59 [13]	62 [12]	65 [12]	70 [11]	81 [9]
920x420x787	51 [11]	53 [11]	55 [10]	57 [10]	63 [9]	73 [8]
920x420x725	48 [11]	50 [10]	52 [10]	55 [10]	60 [9]	70 [7]
920x420x656	46 [10]	47 [10]	50 [9]	52 [9]	57 [8]	66 [7]
920x420x588	43 [9]	45 [9]	47 [9]	49 [8]	53 [7]	62 [6]
920x420x537	41 [9]	42 [8]	44 [8]	46 [8]	51 [7]	60 [6]
920x420x491	38 [8]	40 [8]	42 [7]	44 [7]	48 [6]	57 [5]
920x420x449	37 [8]	38 [7]	40 [7]	42 [7]	46 [6]	54 [5]

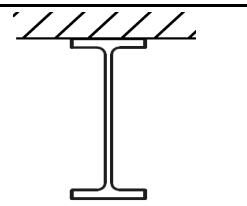
**Table B.2.1.2**  
**Galvanized steel beams supporting concrete slab or composite slab**  
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
920x420x420	35 [7]	37 [7]	38 [7]	40 [6]	44 [6]	52 [5]
920x420x390	34 [7]	35 [7]	37 [6]	39 [6]	42 [5]	50 [4]
920x420x368	32 [7]	34 [6]	35 [6]	37 [6]	41 [5]	49 [4]
920x420x344	31 [6]	33 [6]	34 [6]	36 [5]	40 [5]	47 [4]
914x305x576	43 [9]	45 [9]	47 [9]	49 [8]	54 [7]	63 [6]
914x305x521	41 [9]	42 [8]	44 [8]	46 [8]	51 [7]	60 [6]
914x305x474	38 [8]	40 [8]	42 [7]	44 [7]	48 [6]	57 [5]
914x305x425	36 [8]	38 [7]	39 [7]	41 [7]	45 [6]	54 [5]
914x305x381	34 [7]	35 [7]	37 [6]	39 [6]	43 [5]	51 [4]
914x305x345	32 [7]	33 [6]	35 [6]	37 [6]	41 [5]	48 [4]
914x305x313	30 [6]	32 [6]	33 [6]	35 [5]	39 [5]	46 [3]
914x305x289	29 [6]	30 [5]	32 [5]	33 [5]	37 [4]	44 [3]
914x305x271	28 [5]	29 [5]	31 [5]	32 [5]	36 [4]	43 [3]
914x305x253	27 [5]	28 [5]	29 [5]	31 [4]	34 [4]	42 [3]
914x305x238	26 [5]	27 [5]	28 [4]	30 [4]	33 [4]	40 [3]
914x305x224	25 [5]	26 [5]	27 [4]	29 [4]	32 [3]	39 [2]
914x305x201	23 [4]	25 [4]	26 [4]	27 [4]	31 [3]	37 [2]
840x400x576	44 [10]	46 [9]	48 [9]	50 [8]	55 [8]	64 [6]
840x400x527	42 [9]	43 [9]	45 [8]	48 [8]	52 [7]	61 [6]
840x400x473	39 [8]	41 [8]	43 [8]	45 [7]	49 [7]	58 [5]
840x400x433	37 [8]	39 [8]	41 [7]	43 [7]	47 [6]	55 [5]
840x400x392	35 [7]	37 [7]	38 [7]	40 [6]	44 [6]	52 [5]
840x400x359	33 [7]	35 [7]	36 [6]	38 [6]	42 [5]	50 [4]
840x400x329	32 [6]	33 [6]	35 [6]	36 [6]	40 [5]	48 [4]
840x400x299	30 [6]	31 [6]	33 [5]	35 [5]	38 [4]	46 [3]
838x292x251	28 [5]	29 [5]	30 [5]	32 [5]	36 [4]	43 [3]
838x292x226	26 [5]	27 [5]	29 [5]	30 [4]	34 [4]	41 [3]
838x292x194	24 [5]	25 [4]	26 [4]	28 [4]	31 [3]	38 [2]
838x292x176	23 [4]	24 [4]	25 [4]	26 [3]	30 [3]	36 [2]
760x380x582	46 [10]	48 [10]	50 [9]	53 [9]	57 [8]	67 [7]
760x380x531	44 [10]	46 [9]	48 [9]	50 [8]	55 [8]	64 [6]
760x380x484	42 [9]	43 [9]	45 [8]	48 [8]	52 [7]	61 [6]
760x380x434	39 [8]	41 [8]	43 [8]	45 [7]	49 [7]	58 [5]
760x380x389	37 [8]	38 [7]	40 [7]	42 [7]	46 [6]	54 [5]
760x380x350	35 [7]	36 [7]	38 [7]	40 [6]	44 [6]	52 [4]
760x380x314	32 [7]	34 [6]	35 [6]	37 [6]	41 [5]	49 [4]
760x380x284	31 [6]	32 [6]	33 [6]	35 [5]	39 [5]	46 [4]
760x380x257	29 [6]	30 [5]	32 [5]	33 [5]	37 [4]	44 [3]
762x267x220	27 [5]	28 [5]	30 [5]	31 [4]	35 [4]	42 [3]
762x267x197	25 [5]	27 [5]	28 [4]	30 [4]	33 [3]	40 [3]
762x267x173	24 [4]	25 [4]	26 [4]	28 [4]	31 [3]	38 [2]

**Table B.2.1.2**  
**Galvanized steel beams supporting concrete slab or**  
**composite slab**  
**(BS 5950-8)**



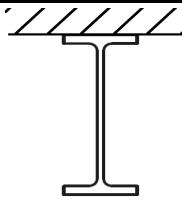
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
762x267x147	22 [4]	23 [4]	24 [3]	25 [3]	28 [3]	35 [2]
762x267x134	20 [4]	22 [3]	23 [3]	24 [3]	27 [2]	34 [2]
690x360x802	58 [13]	60 [13]	63 [12]	66 [12]	71 [11]	83 [10]
690x360x548	47 [10]	49 [10]	51 [10]	53 [9]	58 [8]	68 [7]
690x360x500	45 [10]	46 [9]	48 [9]	51 [9]	55 [8]	65 [7]
690x360x457	42 [9]	44 [9]	46 [9]	48 [8]	53 [7]	62 [6]
690x360x419	40 [9]	42 [8]	44 [8]	46 [8]	50 [7]	59 [6]
690x360x384	38 [8]	40 [8]	42 [8]	44 [7]	48 [6]	57 [5]
690x360x350	36 [8]	38 [7]	40 [7]	42 [7]	46 [6]	54 [5]
690x360x323	35 [7]	36 [7]	38 [7]	40 [6]	44 [6]	52 [4]
690x360x289	33 [7]	34 [6]	36 [6]	37 [6]	41 [5]	49 [4]
690x360x265	31 [6]	32 [6]	34 [6]	36 [5]	39 [5]	47 [4]
690x360x240	29 [6]	31 [6]	32 [5]	34 [5]	37 [4]	45 [3]
690x360x217	28 [5]	29 [5]	30 [5]	32 [5]	36 [4]	43 [3]
686x254x192	26 [5]	28 [5]	29 [5]	31 [4]	34 [4]	41 [3]
686x254x170	25 [5]	26 [4]	27 [4]	29 [4]	32 [3]	39 [2]
686x254x152	23 [4]	24 [4]	26 [4]	27 [4]	30 [3]	37 [2]
686x254x140	22 [4]	23 [4]	24 [4]	26 [3]	29 [3]	36 [2]
686x254x125	21 [4]	22 [4]	23 [3]	24 [3]	28 [2]	34 [2]
610x325x551	50 [11]	52 [11]	54 [10]	56 [10]	62 [9]	72 [8]
610x325x498	47 [10]	49 [10]	51 [10]	53 [9]	58 [8]	68 [7]
610x325x455	45 [10]	47 [9]	49 [9]	51 [9]	56 [8]	65 [7]
610x325x415	43 [9]	44 [9]	46 [8]	48 [8]	53 [7]	62 [6]
610x325x372	40 [9]	42 [8]	44 [8]	46 [7]	50 [7]	59 [6]
610x325x341	38 [8]	40 [8]	41 [7]	43 [7]	48 [6]	56 [5]
610x325x307	36 [7]	37 [7]	39 [7]	41 [7]	45 [6]	53 [5]
610x325x285	34 [7]	36 [7]	38 [7]	39 [6]	43 [5]	51 [4]
610x325x262	33 [7]	34 [6]	36 [6]	38 [6]	41 [5]	49 [4]
610x325x241	31 [6]	33 [6]	34 [6]	36 [5]	40 [5]	47 [4]
610x325x217	29 [6]	31 [6]	32 [5]	34 [5]	38 [4]	45 [3]
610x325x195	28 [5]	29 [5]	30 [5]	32 [5]	36 [4]	43 [3]
610x325x174	26 [5]	27 [5]	29 [4]	30 [4]	34 [4]	41 [3]
610x325x155	24 [5]	25 [4]	27 [4]	28 [4]	32 [3]	38 [2]
610x305x238	31 [6]	33 [6]	34 [6]	36 [5]	40 [5]	47 [4]
610x305x179	26 [5]	28 [5]	29 [5]	31 [4]	34 [4]	41 [3]
610x305x149	24 [4]	25 [4]	26 [4]	28 [4]	31 [3]	38 [2]
610x229x153	25 [5]	26 [4]	27 [4]	29 [4]	32 [3]	39 [2]
610x229x140	24 [4]	25 [4]	26 [4]	28 [4]	31 [3]	37 [2]
610x229x125	22 [4]	23 [4]	24 [4]	26 [3]	29 [3]	36 [2]
610x229x113	21 [4]	22 [4]	23 [3]	25 [3]	28 [2]	34 [2]
610x229x101	20 [3]	21 [3]	22 [3]	23 [3]	26 [2]	33 [1]



**Table B.2.1.2**  
**Galvanized steel beams supporting concrete slab or composite slab**  
**(BS 5950-8)**

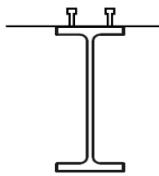
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
610x178x92	19 [3]	20 [3]	21 [3]	22 [3]	25 [2]	32 [1]
610x178x82	18 [3]	19 [3]	20 [3]	21 [2]	24 [2]	30 [1]
533x210x138	25 [5]	26 [5]	27 [4]	29 [4]	32 [3]	39 [2]
533x210x122	23 [4]	24 [4]	26 [4]	27 [4]	30 [3]	37 [2]
533x210x109	22 [4]	23 [4]	24 [3]	26 [3]	29 [3]	35 [2]
533x210x101	21 [4]	22 [4]	23 [3]	25 [3]	28 [2]	34 [2]
533x210x92	20 [4]	21 [3]	22 [3]	23 [3]	26 [2]	33 [1]
533x210x82	19 [3]	20 [3]	21 [3]	22 [2]	25 [2]	31 [1]
533x165x85	19 [3]	20 [3]	21 [3]	23 [3]	26 [2]	32 [1]
533x165x74	18 [3]	19 [3]	20 [3]	21 [2]	24 [2]	31 [1]
533x165x66	17 [3]	18 [3]	19 [2]	20 [2]	23 [1]	29 [1]
457x191x106	23 [4]	24 [4]	26 [4]	27 [3]	30 [3]	37 [2]
457x191x98	22 [4]	23 [4]	25 [4]	26 [3]	29 [3]	36 [2]
457x191x89	21 [4]	22 [4]	23 [3]	25 [3]	28 [2]	34 [2]
457x191x82	20 [4]	21 [3]	22 [3]	24 [3]	27 [2]	33 [1]
457x191x74	19 [3]	20 [3]	21 [3]	22 [3]	26 [2]	32 [1]
457x191x67	18 [3]	19 [3]	20 [3]	21 [2]	24 [2]	31 [1]
457x152x82	20 [4]	21 [3]	23 [3]	24 [3]	27 [2]	33 [2]
457x152x74	19 [3]	20 [3]	21 [3]	23 [3]	26 [2]	32 [1]
457x152x67	18 [3]	19 [3]	20 [3]	22 [2]	25 [2]	31 [1]
457x152x60	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	30 [1]
457x152x52	16 [3]	17 [2]	18 [2]	19 [2]	22 [1]	28 [1]
406x178x85	22 [4]	23 [4]	24 [3]	25 [3]	29 [3]	35 [2]
406x178x74	20 [4]	21 [3]	22 [3]	24 [3]	27 [2]	33 [1]
406x178x67	19 [3]	20 [3]	21 [3]	22 [3]	26 [2]	32 [1]
406x178x60	18 [3]	19 [3]	20 [3]	21 [2]	24 [2]	30 [1]
406x178x54	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	29 [1]
406x140x53	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	29 [1]
406x140x46	16 [3]	17 [2]	18 [2]	19 [2]	22 [1]	28 [1]
406x140x39	14 [2]	15 [2]	16 [2]	18 [2]	21 [1]	27 [0]
356x171x67	20 [4]	21 [3]	22 [3]	24 [3]	27 [2]	33 [1]
356x171x57	18 [3]	19 [3]	21 [3]	22 [2]	25 [2]	31 [1]
356x171x51	17 [3]	18 [3]	19 [2]	21 [2]	24 [2]	30 [1]
356x171x45	16 [3]	17 [2]	18 [2]	20 [2]	23 [1]	29 [1]
356x127x39	15 [3]	16 [2]	17 [2]	19 [2]	22 [1]	28 [1]
356x127x33	14 [2]	15 [2]	16 [2]	17 [1]	20 [1]	26 [0]
305x165x54	19 [3]	20 [3]	21 [3]	23 [3]	26 [2]	32 [1]
305x165x46	18 [3]	19 [3]	20 [3]	21 [2]	24 [2]	30 [1]
305x165x40	16 [3]	17 [2]	18 [2]	20 [2]	23 [1]	29 [1]
305x127x48	18 [3]	19 [3]	21 [3]	22 [2]	25 [2]	31 [1]
305x127x42	17 [3]	18 [3]	19 [2]	21 [2]	24 [2]	30 [1]

**Table B.2.1.2**  
**Galvanized steel beams supporting concrete slab or composite slab**  
**(BS 5950-8)**



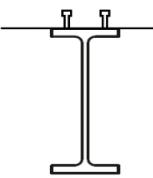
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
UB 305x127x37	16 [3]	17 [2]	18 [2]	19 [2]	22 [1]	28 [1]
305x102x33	15 [2]	16 [2]	17 [2]	18 [2]	21 [1]	27 [1]
305x102x28	14 [2]	15 [2]	16 [2]	17 [1]	20 [1]	26 [0]
305x102x25	13 [2]	14 [2]	15 [1]	16 [1]	19 [1]	25 [0]
254x146x43	19 [3]	20 [3]	21 [3]	22 [2]	25 [2]	31 [1]
254x146x37	17 [3]	18 [3]	19 [2]	20 [2]	23 [2]	30 [1]
254x146x31	16 [3]	17 [2]	18 [2]	19 [2]	22 [1]	28 [1]
254x102x28	15 [2]	16 [2]	17 [2]	18 [2]	21 [1]	27 [1]
254x102x25	14 [2]	15 [2]	16 [2]	17 [1]	20 [1]	27 [0]
254x102x22	13 [2]	14 [2]	15 [2]	16 [1]	19 [1]	26 [0]
203x133x30	17 [3]	18 [3]	19 [2]	20 [2]	23 [1]	29 [1]
203x133x25	15 [2]	16 [2]	17 [2]	19 [2]	22 [1]	28 [1]
203x102x23	15 [2]	16 [2]	17 [2]	18 [2]	21 [1]	27 [1]
178x102x19	14 [2]	15 [2]	16 [2]	18 [1]	21 [1]	27 [0]
152x89x16	14 [2]	15 [2]	16 [2]	17 [1]	20 [1]	26 [0]
127x76x13	14 [2]	15 [2]	16 [2]	17 [1]	20 [1]	26 [0]

**Table B.2.2.1**  
**Galvanized steel composite beams with 40 % degree of shear connection (BS 5950-8)**



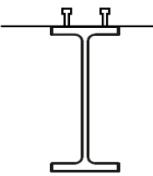
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
1100x400x607	40 [9]	41 [9]	43 [8]	45 [8]	48 [7]	57 [6]
1100x400x548	37 [8]	39 [8]	41 [8]	42 [7]	45 [7]	54 [5]
1100x400x499	35 [8]	37 [7]	38 [7]	40 [7]	43 [6]	52 [5]
1100x400x433	32 [7]	34 [7]	35 [6]	37 [6]	39 [6]	48 [4]
1100x400x390	31 [6]	32 [6]	33 [6]	35 [6]	37 [5]	46 [4]
1100x400x343	28 [6]	29 [6]	31 [5]	32 [5]	35 [5]	43 [3]
1016x305x584	41 [9]	43 [9]	45 [8]	47 [8]	49 [8]	59 [6]
1016x305x494	37 [8]	39 [8]	41 [8]	43 [7]	45 [7]	54 [5]
1016x305x438	35 [8]	36 [7]	38 [7]	40 [7]	42 [6]	51 [5]
1016x305x415	34 [7]	35 [7]	37 [7]	39 [6]	41 [6]	50 [5]
1016x305x393	33 [7]	34 [7]	36 [6]	37 [6]	40 [6]	48 [4]
1016x305x350	30 [6]	32 [6]	33 [6]	35 [6]	37 [5]	45 [4]
1016x305x314	29 [6]	30 [6]	31 [5]	33 [5]	35 [5]	43 [4]
1016x305x272	26 [5]	27 [5]	29 [5]	30 [5]	32 [4]	40 [3]
1016x305x249	25 [5]	26 [5]	27 [5]	29 [4]	31 [4]	38 [3]
1016x305x222	23 [5]	24 [4]	26 [4]	27 [4]	29 [3]	36 [2]
1000x400x976	54 [13]	56 [12]	59 [12]	61 [12]	65 [11]	77 [9]
1000x400x883	51 [12]	53 [12]	56 [11]	58 [11]	61 [10]	73 [9]
1000x400x748	47 [11]	48 [10]	51 [10]	53 [10]	56 [9]	67 [7]
1000x400x642	43 [10]	44 [9]	46 [9]	49 [9]	51 [8]	62 [7]
1000x400x591	41 [9]	42 [9]	44 [8]	46 [8]	49 [8]	59 [6]
1000x400x554	39 [9]	41 [8]	43 [8]	45 [8]	47 [7]	57 [6]
1000x400x539	39 [9]	40 [8]	42 [8]	44 [8]	47 [7]	56 [6]
1000x400x483	36 [8]	37 [8]	39 [7]	41 [7]	44 [6]	53 [5]
1000x400x443	34 [7]	36 [7]	37 [7]	39 [6]	42 [6]	51 [5]
1000x400x412	33 [7]	34 [7]	36 [6]	38 [6]	40 [6]	49 [4]
1000x400x371	31 [7]	32 [6]	34 [6]	35 [6]	38 [5]	46 [4]
1000x400x321	28 [6]	29 [6]	31 [5]	33 [5]	35 [5]	43 [3]
1000x400x296	27 [6]	28 [5]	30 [5]	31 [5]	33 [4]	41 [3]
920x420x1377	68 [17]	71 [16]	74 [16]	77 [15]	81 [14]	95 [13]
920x420x1269	65 [16]	67 [15]	70 [15]	73 [14]	77 [14]	91 [12]
920x420x1194	63 [15]	65 [15]	68 [14]	71 [14]	75 [13]	88 [11]
920x420x1077	59 [14]	61 [14]	64 [13]	67 [13]	70 [12]	83 [10]
920x420x970	56 [13]	58 [13]	61 [12]	63 [12]	67 [11]	79 [10]
920x420x787	50 [11]	51 [11]	54 [11]	56 [10]	59 [10]	71 [8]
920x420x725	47 [11]	49 [11]	51 [10]	54 [10]	57 [9]	68 [8]
920x420x656	45 [10]	46 [10]	48 [9]	51 [9]	54 [9]	64 [7]
920x420x588	42 [9]	43 [9]	46 [9]	48 [8]	50 [8]	60 [6]
920x420x537	40 [9]	41 [9]	43 [8]	45 [8]	48 [7]	58 [6]
920x420x491	38 [8]	39 [8]	41 [8]	43 [7]	46 [7]	55 [5]
920x420x449	36 [8]	37 [8]	39 [7]	41 [7]	43 [6]	52 [5]

**Table B.2.2.1**  
**Galvanized steel composite beams with 40 % degree of shear**  
**connection**  
**(BS 5950-8)**



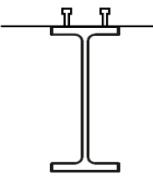
Section Designation	Maximum exposure time $t$ (minutes)					
	[Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
920x420x420	34 [7]	36 [7]	37 [7]	39 [6]	42 [6]	51 [5]
920x420x390	33 [7]	34 [7]	36 [6]	38 [6]	40 [6]	49 [4]
920x420x368	32 [7]	33 [7]	35 [6]	36 [6]	39 [5]	47 [4]
920x420x344	31 [6]	32 [6]	33 [6]	35 [6]	37 [5]	46 [4]
914x305x576	42 [9]	44 [9]	46 [9]	48 [8]	51 [8]	61 [6]
914x305x521	40 [9]	41 [9]	43 [8]	45 [8]	48 [7]	58 [6]
914x305x474	38 [8]	39 [8]	41 [8]	43 [7]	45 [7]	55 [5]
914x305x425	35 [8]	37 [7]	38 [7]	40 [7]	43 [6]	52 [5]
914x305x381	33 [7]	34 [7]	36 [7]	38 [6]	40 [6]	49 [5]
914x305x345	31 [7]	32 [6]	34 [6]	36 [6]	38 [5]	47 [4]
914x305x313	30 [6]	31 [6]	32 [6]	34 [5]	36 [5]	44 [4]
914x305x289	28 [6]	29 [6]	31 [5]	32 [5]	35 [5]	43 [3]
914x305x271	27 [6]	28 [5]	30 [5]	31 [5]	33 [4]	41 [3]
914x305x253	26 [5]	27 [5]	29 [5]	30 [4]	32 [4]	40 [3]
914x305x238	25 [5]	26 [5]	28 [5]	29 [4]	31 [4]	39 [3]
914x305x224	24 [5]	25 [5]	27 [4]	28 [4]	30 [4]	38 [3]
914x305x201	23 [5]	24 [4]	25 [4]	27 [4]	28 [3]	36 [2]
840x400x576	43 [10]	44 [9]	47 [9]	49 [9]	52 [8]	62 [7]
840x400x527	41 [9]	42 [9]	44 [8]	46 [8]	49 [8]	59 [6]
840x400x473	38 [8]	40 [8]	42 [8]	44 [7]	46 [7]	56 [6]
840x400x433	36 [8]	38 [8]	40 [7]	42 [7]	44 [7]	53 [5]
840x400x392	34 [7]	36 [7]	37 [7]	39 [7]	42 [6]	51 [5]
840x400x359	33 [7]	34 [7]	36 [6]	37 [6]	40 [6]	48 [4]
840x400x329	31 [7]	32 [6]	34 [6]	36 [6]	38 [5]	46 [4]
840x400x299	29 [6]	30 [6]	32 [6]	34 [5]	36 [5]	44 [4]
838x292x251	27 [6]	28 [5]	30 [5]	31 [5]	33 [4]	41 [3]
838x292x226	25 [5]	26 [5]	28 [5]	29 [4]	32 [4]	39 [3]
838x292x194	23 [5]	24 [4]	26 [4]	27 [4]	29 [3]	36 [2]
838x292x176	22 [4]	23 [4]	24 [4]	26 [4]	28 [3]	35 [2]
760x380x582	45 [10]	47 [10]	49 [10]	51 [9]	54 [9]	65 [7]
760x380x531	43 [10]	45 [9]	47 [9]	49 [9]	52 [8]	62 [7]
760x380x484	41 [9]	42 [9]	44 [8]	46 [8]	49 [8]	59 [6]
760x380x434	38 [8]	40 [8]	42 [8]	44 [7]	46 [7]	56 [6]
760x380x389	36 [8]	37 [8]	39 [7]	41 [7]	44 [6]	53 [5]
760x380x350	34 [7]	35 [7]	37 [7]	39 [6]	41 [6]	50 [5]
760x380x314	32 [7]	33 [6]	35 [6]	36 [6]	39 [5]	47 [4]
760x380x284	30 [6]	31 [6]	33 [6]	34 [5]	37 [5]	45 [4]
760x380x257	28 [6]	29 [6]	31 [5]	33 [5]	35 [5]	43 [3]
762x267x220	27 [5]	28 [5]	29 [5]	31 [5]	33 [4]	40 [3]
762x267x197	25 [5]	26 [5]	27 [4]	29 [4]	31 [4]	38 [3]
762x267x173	23 [5]	24 [4]	25 [4]	27 [4]	29 [3]	36 [2]

**Table B.2.2.1**  
**Galvanized steel composite beams with 40 % degree of shear connection (BS 5950-8)**



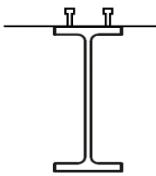
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
762x267x147	21 [4]	22 [4]	23 [4]	25 [3]	26 [3]	33 [2]
762x267x134	20 [4]	21 [4]	22 [3]	23 [3]	25 [3]	32 [2]
690x360x802	57 [13]	59 [13]	61 [13]	64 [12]	68 [12]	80 [10]
690x360x548	46 [11]	48 [10]	50 [10]	52 [9]	55 [9]	66 [7]
690x360x500	44 [10]	45 [10]	47 [9]	50 [9]	53 [8]	63 [7]
690x360x457	42 [9]	43 [9]	45 [9]	47 [8]	50 [8]	60 [6]
690x360x419	39 [9]	41 [9]	43 [8]	45 [8]	48 [7]	57 [6]
690x360x384	38 [8]	39 [8]	41 [8]	43 [7]	45 [7]	55 [5]
690x360x350	36 [8]	37 [7]	39 [7]	41 [7]	43 [6]	52 [5]
690x360x323	34 [7]	35 [7]	37 [7]	39 [6]	41 [6]	50 [5]
690x360x289	32 [7]	33 [7]	35 [6]	36 [6]	39 [5]	47 [4]
690x360x265	30 [6]	31 [6]	33 [6]	35 [6]	37 [5]	45 [4]
690x360x240	29 [6]	30 [6]	31 [5]	33 [5]	35 [5]	43 [3]
690x360x217	27 [6]	28 [5]	30 [5]	31 [5]	33 [4]	41 [3]
686x254x192	26 [5]	27 [5]	28 [5]	30 [4]	32 [4]	40 [3]
686x254x170	24 [5]	25 [5]	27 [4]	28 [4]	30 [4]	37 [3]
686x254x152	23 [4]	24 [4]	25 [4]	26 [4]	28 [3]	36 [2]
686x254x140	22 [4]	23 [4]	24 [4]	25 [3]	27 [3]	34 [2]
686x254x125	20 [4]	21 [4]	22 [3]	24 [3]	26 [3]	33 [2]
610x325x551	49 [11]	50 [11]	53 [10]	55 [10]	58 [10]	69 [8]
610x325x498	46 [11]	48 [10]	50 [10]	52 [9]	55 [9]	66 [7]
610x325x455	44 [10]	45 [10]	48 [9]	50 [9]	53 [8]	63 [7]
610x325x415	42 [9]	43 [9]	45 [9]	47 [8]	50 [8]	60 [6]
610x325x372	39 [9]	41 [8]	43 [8]	45 [8]	47 [7]	57 [6]
610x325x341	37 [8]	39 [8]	41 [8]	42 [7]	45 [7]	54 [5]
610x325x307	35 [8]	36 [7]	38 [7]	40 [7]	43 [6]	52 [5]
610x325x285	34 [7]	35 [7]	37 [7]	38 [6]	41 [6]	50 [5]
610x325x262	32 [7]	33 [7]	35 [6]	37 [6]	39 [6]	48 [4]
610x325x241	31 [6]	32 [6]	33 [6]	35 [6]	37 [5]	46 [4]
610x325x217	29 [6]	30 [6]	32 [5]	33 [5]	35 [5]	43 [4]
610x325x195	27 [6]	28 [5]	30 [5]	31 [5]	33 [4]	41 [3]
610x325x174	25 [5]	26 [5]	28 [5]	29 [4]	31 [4]	39 [3]
610x325x155	24 [5]	25 [4]	26 [4]	27 [4]	29 [4]	37 [2]
610x305x238	30 [6]	32 [6]	33 [6]	35 [6]	37 [5]	45 [4]
610x305x179	26 [5]	27 [5]	28 [5]	30 [4]	32 [4]	40 [3]
610x305x149	23 [5]	24 [4]	26 [4]	27 [4]	29 [3]	36 [2]
610x229x153	24 [5]	25 [5]	27 [4]	28 [4]	30 [4]	38 [3]
610x229x140	23 [5]	24 [4]	25 [4]	27 [4]	29 [3]	36 [2]
610x229x125	22 [4]	23 [4]	24 [4]	25 [3]	27 [3]	34 [2]
610x229x113	20 [4]	21 [4]	23 [3]	24 [3]	26 [3]	33 [2]
610x229x101	19 [4]	20 [3]	21 [3]	23 [3]	24 [2]	31 [2]

**Table B.2.2.1**  
**Galvanized steel composite beams with 40 % degree of shear**  
**connection**  
**(BS 5950-8)**



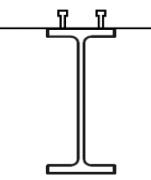
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
610x178x92	18 [3]	19 [3]	20 [3]	22 [3]	23 [2]	30 [1]
610x178x82	17 [3]	18 [3]	19 [3]	20 [2]	22 [2]	29 [1]
533x210x138	24 [5]	25 [5]	27 [4]	28 [4]	30 [4]	38 [3]
533x210x122	23 [4]	24 [4]	25 [4]	26 [4]	28 [3]	35 [2]
533x210x109	21 [4]	22 [4]	23 [4]	25 [3]	27 [3]	34 [2]
533x210x101	20 [4]	21 [4]	22 [3]	24 [3]	26 [3]	33 [2]
533x210x92	19 [4]	20 [3]	21 [3]	23 [3]	24 [3]	31 [2]
533x210x82	18 [3]	19 [3]	20 [3]	21 [3]	23 [2]	30 [1]
533x165x85	19 [3]	20 [3]	21 [3]	22 [3]	24 [2]	31 [1]
533x165x74	17 [3]	18 [3]	19 [3]	21 [2]	22 [2]	29 [1]
533x165x66	16 [3]	17 [3]	18 [2]	19 [2]	21 [2]	28 [1]
457x191x106	23 [4]	23 [4]	25 [4]	26 [4]	28 [3]	35 [2]
457x191x98	22 [4]	23 [4]	24 [4]	25 [3]	27 [3]	34 [2]
457x191x89	21 [4]	21 [4]	23 [4]	24 [3]	26 [3]	33 [2]
457x191x82	20 [4]	20 [3]	22 [3]	23 [3]	25 [3]	32 [2]
457x191x74	19 [3]	19 [3]	21 [3]	22 [3]	24 [2]	30 [1]
457x191x67	18 [3]	18 [3]	19 [3]	21 [2]	22 [2]	29 [1]
457x152x82	20 [4]	21 [4]	22 [3]	23 [3]	25 [3]	32 [2]
457x152x74	19 [4]	20 [3]	21 [3]	22 [3]	24 [2]	31 [1]
457x152x67	18 [3]	19 [3]	20 [3]	21 [3]	23 [2]	29 [1]
457x152x60	17 [3]	17 [3]	19 [3]	20 [2]	22 [2]	28 [1]
457x152x52	16 [3]	16 [3]	17 [2]	18 [2]	20 [2]	27 [1]
406x178x85	21 [4]	22 [4]	23 [4]	25 [3]	27 [3]	34 [2]
406x178x74	20 [4]	20 [3]	22 [3]	23 [3]	25 [3]	32 [2]
406x178x67	19 [3]	19 [3]	21 [3]	22 [3]	24 [2]	30 [1]
406x178x60	17 [3]	18 [3]	19 [3]	21 [2]	22 [2]	29 [1]
406x178x54	16 [3]	17 [3]	18 [3]	20 [2]	21 [2]	28 [1]
406x140x53	17 [3]	17 [3]	18 [3]	20 [2]	21 [2]	28 [1]
406x140x46	15 [3]	16 [2]	17 [2]	18 [2]	20 [2]	27 [1]
406x140x39	14 [2]	15 [2]	16 [2]	17 [2]	19 [1]	25 [1]
356x171x67	20 [4]	20 [3]	22 [3]	23 [3]	25 [3]	32 [2]
356x171x57	18 [3]	19 [3]	20 [3]	21 [3]	23 [2]	30 [1]
356x171x51	17 [3]	18 [3]	19 [3]	20 [2]	22 [2]	28 [1]
356x171x45	16 [3]	17 [3]	18 [2]	19 [2]	21 [2]	27 [1]
356x127x39	15 [3]	16 [2]	17 [2]	18 [2]	20 [2]	26 [1]
356x127x33	14 [2]	14 [2]	15 [2]	17 [2]	18 [1]	25 [0]
305x165x54	19 [3]	20 [3]	21 [3]	22 [3]	24 [2]	31 [1]
305x165x46	17 [3]	18 [3]	19 [3]	20 [2]	22 [2]	29 [1]
305x165x40	16 [3]	17 [3]	18 [2]	19 [2]	21 [2]	27 [1]
305x127x48	18 [3]	19 [3]	20 [3]	21 [3]	23 [2]	30 [1]
305x127x42	17 [3]	17 [3]	19 [3]	20 [2]	22 [2]	28 [1]

**Table B.2.2.1**  
**Galvanized steel composite beams with 40 % degree of shear**  
**connection**  
**(BS 5950-8)**



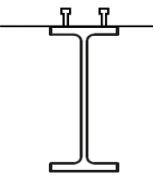
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
UB 305x127x37	16 [3]	16 [3]	18 [2]	19 [2]	20 [2]	27 [1]
305x102x33	15 [3]	15 [2]	16 [2]	18 [2]	19 [1]	26 [1]
305x102x28	14 [2]	14 [2]	15 [2]	16 [2]	18 [1]	25 [0]
305x102x25	13 [2]	13 [2]	14 [2]	15 [1]	17 [1]	24 [0]
254x146x43	18 [3]	19 [3]	20 [3]	21 [3]	23 [2]	30 [1]
254x146x37	17 [3]	17 [3]	19 [3]	20 [2]	22 [2]	28 [1]
254x146x31	15 [3]	16 [2]	17 [2]	18 [2]	20 [2]	27 [1]
254x102x28	15 [3]	15 [2]	17 [2]	18 [2]	19 [1]	26 [1]
254x102x25	14 [2]	15 [2]	16 [2]	17 [2]	18 [1]	25 [1]
254x102x22	13 [2]	14 [2]	15 [2]	16 [1]	17 [1]	24 [0]
203x133x30	16 [3]	17 [3]	18 [2]	19 [2]	21 [2]	28 [1]
203x133x25	15 [3]	16 [2]	17 [2]	18 [2]	20 [2]	26 [1]
203x102x23	15 [3]	15 [2]	17 [2]	18 [2]	19 [1]	26 [1]
178x102x19	14 [2]	15 [2]	16 [2]	17 [2]	19 [1]	25 [1]
152x89x16	14 [2]	15 [2]	16 [2]	17 [2]	18 [1]	25 [1]
127x76x13	14 [2]	14 [2]	15 [2]	16 [2]	18 [1]	25 [1]

**Table B.2.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



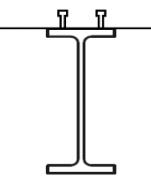
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
1100x400x607	38 [9]	40 [9]	42 [8]	44 [8]	47 [8]	55 [6]
1100x400x548	36 [8]	38 [8]	39 [8]	41 [7]	44 [7]	52 [6]
1100x400x499	34 [8]	36 [8]	37 [7]	39 [7]	42 [6]	49 [5]
1100x400x433	31 [7]	33 [7]	34 [7]	36 [6]	38 [6]	45 [5]
1100x400x390	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
1100x400x343	27 [6]	28 [6]	30 [6]	31 [5]	34 [5]	40 [4]
1016x305x584	40 [9]	41 [9]	43 [9]	45 [8]	48 [8]	56 [7]
1016x305x494	36 [9]	38 [8]	39 [8]	41 [7]	44 [7]	52 [6]
1016x305x438	34 [8]	35 [7]	36 [7]	38 [7]	41 [6]	48 [5]
1016x305x415	33 [8]	34 [7]	35 [7]	37 [7]	40 [6]	47 [5]
1016x305x393	32 [7]	33 [7]	34 [7]	36 [6]	39 [6]	46 [5]
1016x305x350	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
1016x305x314	28 [6]	29 [6]	30 [6]	32 [5]	34 [5]	41 [4]
1016x305x272	25 [6]	26 [5]	28 [5]	29 [5]	31 [4]	38 [3]
1016x305x249	24 [5]	25 [5]	26 [5]	28 [4]	30 [4]	36 [3]
1016x305x222	23 [5]	24 [5]	25 [4]	26 [4]	28 [4]	34 [3]
1000x400x976	53 [13]	55 [13]	57 [12]	60 [12]	63 [11]	73 [10]
1000x400x883	50 [12]	52 [12]	54 [12]	56 [11]	60 [10]	69 [9]
1000x400x748	45 [11]	47 [11]	49 [10]	51 [10]	55 [9]	64 [8]
1000x400x642	41 [10]	43 [10]	45 [9]	47 [9]	50 [8]	59 [7]
1000x400x591	39 [9]	41 [9]	43 [9]	45 [8]	48 [8]	56 [7]
1000x400x554	38 [9]	40 [9]	41 [8]	43 [8]	46 [7]	54 [6]
1000x400x539	37 [9]	39 [8]	41 [8]	43 [8]	45 [7]	53 [6]
1000x400x483	35 [8]	36 [8]	38 [8]	40 [7]	43 [7]	50 [6]
1000x400x443	33 [8]	35 [7]	36 [7]	38 [7]	41 [6]	48 [5]
1000x400x412	32 [7]	33 [7]	35 [7]	36 [6]	39 [6]	46 [5]
1000x400x371	30 [7]	31 [6]	33 [6]	34 [6]	37 [5]	44 [4]
1000x400x321	27 [6]	29 [6]	30 [6]	32 [5]	34 [5]	40 [4]
1000x400x296	26 [6]	27 [6]	29 [5]	30 [5]	32 [5]	39 [3]
920x420x1377	66 [17]	69 [16]	71 [16]	75 [15]	79 [15]	91 [13]
920x420x1269	63 [16]	65 [16]	68 [15]	71 [15]	75 [14]	87 [12]
920x420x1194	61 [15]	63 [15]	66 [15]	69 [14]	73 [13]	84 [12]
920x420x1077	57 [14]	60 [14]	62 [14]	65 [13]	69 [12]	79 [11]
920x420x970	54 [13]	56 [13]	59 [13]	61 [12]	65 [12]	75 [10]
920x420x787	48 [12]	50 [11]	52 [11]	55 [11]	58 [10]	67 [9]
920x420x725	46 [11]	48 [11]	50 [10]	52 [10]	55 [9]	64 [8]
920x420x656	43 [10]	45 [10]	47 [10]	49 [9]	52 [9]	61 [7]
920x420x588	41 [10]	42 [9]	44 [9]	46 [9]	49 [8]	57 [7]
920x420x537	38 [9]	40 [9]	42 [8]	44 [8]	47 [8]	55 [6]
920x420x491	36 [9]	38 [8]	40 [8]	42 [7]	44 [7]	52 [6]
920x420x449	35 [8]	36 [8]	38 [7]	40 [7]	42 [7]	50 [5]

**Table B.2.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



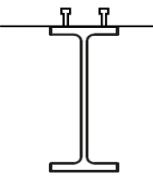
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
920x420x420	33 [8]	35 [7]	36 [7]	38 [7]	41 [6]	48 [5]
920x420x390	32 [7]	33 [7]	35 [7]	36 [6]	39 [6]	46 [5]
920x420x368	31 [7]	32 [7]	33 [6]	35 [6]	38 [6]	45 [5]
920x420x344	30 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
914x305x576	41 [10]	42 [9]	44 [9]	46 [9]	49 [8]	58 [7]
914x305x521	38 [9]	40 [9]	42 [8]	44 [8]	47 [8]	55 [6]
914x305x474	36 [9]	38 [8]	39 [8]	42 [8]	44 [7]	52 [6]
914x305x425	34 [8]	36 [8]	37 [7]	39 [7]	42 [7]	49 [5]
914x305x381	32 [7]	33 [7]	35 [7]	37 [6]	39 [6]	46 [5]
914x305x345	30 [7]	31 [7]	33 [6]	35 [6]	37 [6]	44 [4]
914x305x313	29 [6]	30 [6]	31 [6]	33 [5]	35 [5]	42 [4]
914x305x289	27 [6]	28 [6]	30 [6]	31 [5]	34 [5]	40 [4]
914x305x271	26 [6]	27 [6]	29 [5]	30 [5]	32 [5]	39 [4]
914x305x253	25 [6]	26 [5]	28 [5]	29 [5]	31 [4]	38 [3]
914x305x238	24 [5]	25 [5]	27 [5]	28 [4]	30 [4]	36 [3]
914x305x224	23 [5]	25 [5]	26 [5]	27 [4]	29 [4]	35 [3]
914x305x201	22 [5]	23 [4]	24 [4]	26 [4]	28 [3]	34 [3]
840x400x576	42 [10]	43 [10]	45 [9]	47 [9]	50 [8]	59 [7]
840x400x527	40 [9]	41 [9]	43 [9]	45 [8]	48 [8]	56 [7]
840x400x473	37 [9]	39 [8]	40 [8]	42 [8]	45 [7]	53 [6]
840x400x433	35 [8]	37 [8]	38 [8]	40 [7]	43 [7]	50 [6]
840x400x392	33 [8]	35 [7]	36 [7]	38 [7]	41 [6]	48 [5]
840x400x359	32 [7]	33 [7]	34 [7]	36 [6]	39 [6]	46 [5]
840x400x329	30 [7]	31 [7]	33 [6]	34 [6]	37 [5]	44 [4]
840x400x299	28 [6]	30 [6]	31 [6]	33 [5]	35 [5]	42 [4]
838x292x251	26 [6]	27 [5]	28 [5]	30 [5]	32 [5]	39 [3]
838x292x226	25 [5]	26 [5]	27 [5]	28 [5]	31 [4]	37 [3]
838x292x194	22 [5]	23 [5]	25 [4]	26 [4]	28 [4]	34 [3]
838x292x176	21 [5]	22 [4]	23 [4]	25 [4]	27 [3]	33 [2]
760x380x582	44 [11]	46 [10]	48 [10]	50 [10]	53 [9]	62 [8]
760x380x531	42 [10]	43 [10]	45 [9]	47 [9]	50 [8]	59 [7]
760x380x484	40 [9]	41 [9]	43 [9]	45 [8]	48 [8]	56 [7]
760x380x434	37 [9]	39 [8]	40 [8]	42 [8]	45 [7]	53 [6]
760x380x389	35 [8]	36 [8]	38 [7]	40 [7]	42 [7]	50 [5]
760x380x350	33 [8]	34 [7]	36 [7]	37 [7]	40 [6]	47 [5]
760x380x314	31 [7]	32 [7]	33 [6]	35 [6]	38 [6]	45 [5]
760x380x284	29 [6]	30 [6]	31 [6]	33 [6]	36 [5]	42 [4]
760x380x257	27 [6]	28 [6]	30 [6]	31 [5]	34 [5]	40 [4]
762x267x220	26 [6]	27 [5]	28 [5]	30 [5]	32 [4]	38 [3]
762x267x197	24 [5]	25 [5]	26 [5]	28 [4]	30 [4]	36 [3]
762x267x173	22 [5]	23 [5]	24 [4]	26 [4]	28 [4]	34 [3]

**Table B.2.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



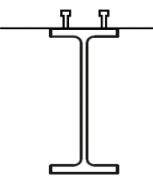
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
762x267x147	20 [4]	21 [4]	22 [4]	24 [3]	26 [3]	31 [2]
762x267x134	19 [4]	20 [4]	21 [3]	22 [3]	24 [3]	30 [2]
690x360x802	55 [14]	57 [13]	59 [13]	62 [12]	66 [12]	76 [10]
690x360x548	45 [11]	46 [10]	48 [10]	51 [10]	54 [9]	63 [8]
690x360x500	42 [10]	44 [10]	46 [9]	48 [9]	51 [8]	60 [7]
690x360x457	40 [10]	42 [9]	44 [9]	46 [9]	49 [8]	57 [7]
690x360x419	38 [9]	40 [9]	41 [8]	44 [8]	46 [7]	54 [6]
690x360x384	36 [9]	38 [8]	39 [8]	42 [8]	44 [7]	52 [6]
690x360x350	34 [8]	36 [8]	37 [7]	39 [7]	42 [7]	50 [5]
690x360x323	33 [8]	34 [7]	36 [7]	38 [7]	40 [6]	48 [5]
690x360x289	31 [7]	32 [7]	34 [6]	35 [6]	38 [6]	45 [5]
690x360x265	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
690x360x240	28 [6]	29 [6]	30 [6]	32 [5]	34 [5]	41 [4]
690x360x217	26 [6]	27 [6]	29 [5]	30 [5]	32 [5]	39 [3]
686x254x192	25 [5]	26 [5]	27 [5]	29 [5]	31 [4]	37 [3]
686x254x170	23 [5]	24 [5]	26 [5]	27 [4]	29 [4]	35 [3]
686x254x152	22 [5]	23 [4]	24 [4]	25 [4]	27 [3]	33 [3]
686x254x140	21 [4]	22 [4]	23 [4]	24 [4]	26 [3]	32 [2]
686x254x125	20 [4]	20 [4]	21 [4]	23 [3]	25 [3]	30 [2]
610x325x551	47 [12]	49 [11]	51 [11]	54 [10]	57 [10]	66 [8]
610x325x498	45 [11]	46 [11]	48 [10]	51 [10]	54 [9]	63 [8]
610x325x455	42 [10]	44 [10]	46 [9]	48 [9]	51 [9]	60 [7]
610x325x415	40 [10]	42 [9]	44 [9]	46 [9]	49 [8]	57 [7]
610x325x372	38 [9]	39 [9]	41 [8]	43 [8]	46 [7]	54 [6]
610x325x341	36 [8]	37 [8]	39 [8]	41 [7]	44 [7]	52 [6]
610x325x307	34 [8]	35 [8]	37 [7]	39 [7]	41 [6]	49 [5]
610x325x285	33 [7]	34 [7]	35 [7]	37 [7]	40 [6]	47 [5]
610x325x262	31 [7]	32 [7]	34 [6]	35 [6]	38 [6]	45 [5]
610x325x241	30 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
610x325x217	28 [6]	29 [6]	30 [6]	32 [5]	34 [5]	41 [4]
610x325x195	26 [6]	27 [6]	29 [5]	30 [5]	32 [5]	39 [3]
610x325x174	24 [5]	26 [5]	27 [5]	28 [4]	30 [4]	37 [3]
610x325x155	23 [5]	24 [5]	25 [4]	27 [4]	29 [4]	35 [3]
610x305x238	29 [7]	31 [6]	32 [6]	34 [6]	36 [5]	43 [4]
610x305x179	25 [5]	26 [5]	27 [5]	29 [5]	31 [4]	37 [3]
610x305x149	22 [5]	23 [5]	25 [4]	26 [4]	28 [4]	34 [3]
610x229x153	23 [5]	24 [5]	26 [5]	27 [4]	29 [4]	35 [3]
610x229x140	22 [5]	23 [4]	24 [4]	26 [4]	28 [4]	34 [3]
610x229x125	21 [4]	22 [4]	23 [4]	24 [4]	26 [3]	32 [2]
610x229x113	20 [4]	21 [4]	22 [4]	23 [3]	25 [3]	31 [2]
610x229x101	19 [4]	19 [4]	20 [3]	22 [3]	24 [3]	29 [2]

**Table B.2.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	UB	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
610x178x92	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	28 [2]
610x178x82	17 [3]	17 [3]	18 [3]	20 [3]	21 [2]	27 [1]
533x210x138	23 [5]	25 [5]	26 [5]	27 [4]	29 [4]	35 [3]
533x210x122	22 [5]	23 [4]	24 [4]	25 [4]	27 [3]	33 [2]
533x210x109	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]	32 [2]
533x210x101	20 [4]	21 [4]	22 [4]	23 [3]	25 [3]	31 [2]
533x210x92	19 [4]	19 [4]	20 [3]	22 [3]	24 [3]	29 [2]
533x210x82	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]	28 [1]
533x165x85	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
533x165x74	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	27 [1]
533x165x66	16 [3]	16 [3]	17 [3]	19 [2]	20 [2]	26 [1]
457x191x106	22 [5]	23 [4]	24 [4]	25 [4]	27 [3]	33 [2]
457x191x98	21 [4]	22 [4]	23 [4]	24 [4]	26 [3]	32 [2]
457x191x89	20 [4]	21 [4]	22 [4]	23 [3]	25 [3]	31 [2]
457x191x82	19 [4]	20 [4]	21 [3]	22 [3]	24 [3]	30 [2]
457x191x74	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	28 [2]
457x191x67	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	27 [1]
457x152x82	19 [4]	20 [4]	21 [4]	22 [3]	24 [3]	30 [2]
457x152x74	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
457x152x67	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	27 [1]
457x152x60	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	26 [1]
457x152x52	15 [3]	16 [3]	17 [2]	18 [2]	19 [2]	25 [1]
406x178x85	20 [4]	21 [4]	22 [4]	24 [4]	26 [3]	31 [2]
406x178x74	19 [4]	20 [4]	21 [3]	22 [3]	24 [3]	30 [2]
406x178x67	18 [4]	19 [3]	20 [3]	21 [3]	23 [2]	28 [2]
406x178x60	17 [3]	18 [3]	18 [3]	20 [3]	21 [2]	27 [1]
406x178x54	16 [3]	17 [3]	18 [3]	19 [2]	20 [2]	26 [1]
406x140x53	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	26 [1]
406x140x46	15 [3]	15 [3]	16 [2]	17 [2]	19 [2]	25 [1]
406x140x39	13 [3]	14 [2]	15 [2]	16 [2]	18 [1]	23 [1]
356x171x67	19 [4]	20 [4]	21 [3]	22 [3]	24 [3]	30 [2]
356x171x57	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	28 [1]
356x171x51	16 [3]	17 [3]	18 [3]	19 [3]	21 [2]	26 [1]
356x171x45	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]	25 [1]
356x127x39	14 [3]	15 [3]	16 [2]	17 [2]	19 [2]	24 [1]
356x127x33	13 [2]	14 [2]	15 [2]	16 [2]	17 [1]	23 [1]
305x165x54	18 [4]	19 [3]	20 [3]	21 [3]	23 [3]	29 [2]
305x165x46	17 [3]	17 [3]	18 [3]	19 [3]	21 [2]	27 [1]
305x165x40	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]	25 [1]
305x127x48	17 [4]	18 [3]	19 [3]	20 [3]	22 [2]	28 [2]
305x127x42	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	26 [1]

**Table B.2.2.2**  
**Galvanized steel composite beams with 100 % degree of**  
**shear connection**  
**(BS 5950-8)**

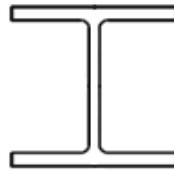


Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
UB 305x127x37	15 [3]	16 [3]	17 [3]	18 [2]	20 [2]	25 [1]
305x102x33	14 [3]	15 [2]	16 [2]	17 [2]	18 [2]	24 [1]
305x102x28	13 [2]	14 [2]	15 [2]	16 [2]	17 [1]	23 [1]
305x102x25	12 [2]	13 [2]	14 [2]	15 [1]	16 [1]	22 [0]
254x146x43	17 [3]	18 [3]	19 [3]	20 [3]	22 [2]	28 [1]
254x146x37	16 [3]	17 [3]	18 [3]	19 [2]	21 [2]	26 [1]
254x146x31	15 [3]	15 [3]	16 [2]	17 [2]	19 [2]	25 [1]
254x102x28	14 [3]	15 [2]	16 [2]	17 [2]	19 [2]	24 [1]
254x102x25	13 [2]	14 [2]	15 [2]	16 [2]	18 [1]	23 [1]
254x102x22	12 [2]	13 [2]	14 [2]	15 [2]	17 [1]	22 [0]
203x133x30	16 [3]	17 [3]	17 [3]	19 [2]	20 [2]	26 [1]
203x133x25	14 [3]	15 [2]	16 [2]	17 [2]	19 [2]	24 [1]
203x102x23	14 [3]	15 [2]	16 [2]	17 [2]	19 [2]	24 [1]
178x102x19	13 [2]	14 [2]	15 [2]	16 [2]	18 [1]	23 [1]
152x89x16	13 [2]	14 [2]	15 [2]	16 [2]	18 [1]	23 [1]
127x76x13	13 [2]	14 [2]	15 [2]	16 [2]	17 [1]	23 [1]

**Table B.2.3**  
**Galvanized steel tension plates exposed to fire**  
**(BS 5950-8)**

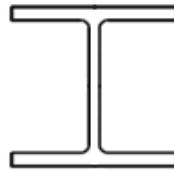
Thickness (mm)	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
5	7 [1]	8 [1]	8 [1]	9 [1]	11 [1]	13 [0]
8	9 [2]	10 [2]	11 [2]	12 [2]	13 [1]	15 [1]
10	10 [2]	11 [2]	12 [2]	13 [2]	14 [2]	17 [1]
12	11 [3]	13 [3]	13 [3]	15 [2]	16 [2]	18 [1]
14	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	20 [2]
16	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	21 [2]
18	15 [3]	16 [4]	17 [4]	18 [3]	20 [3]	22 [2]
20	16 [4]	17 [4]	18 [4]	20 [3]	21 [3]	24 [3]
22	16 [4]	18 [4]	19 [4]	21 [4]	22 [3]	25 [3]
24	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	26 [3]
26	18 [4]	20 [5]	21 [5]	23 [4]	25 [4]	27 [3]
28	19 [5]	21 [5]	22 [5]	24 [5]	26 [4]	28 [4]
30	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	30 [4]
32	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	31 [4]
34	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	32 [4]
36	23 [6]	25 [6]	26 [6]	28 [6]	30 [5]	33 [5]
38	23 [6]	26 [6]	27 [6]	29 [6]	31 [5]	34 [5]
40	24 [6]	27 [7]	28 [6]	30 [6]	32 [6]	35 [5]
42	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	36 [5]
44	26 [7]	28 [7]	30 [7]	32 [6]	34 [6]	37 [5]
46	26 [7]	29 [7]	31 [7]	33 [7]	35 [6]	38 [6]
48	27 [7]	30 [8]	31 [7]	33 [7]	36 [6]	39 [6]
50	28 [7]	31 [8]	32 [8]	34 [7]	37 [7]	40 [6]

**Table B.2.4.1.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**



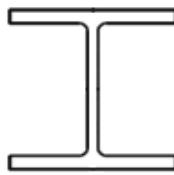
Section Designation	Maximum exposure time $t$ (minutes)					
	[Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
UC	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
356x406x1299	70 [20]	73 [19]	76 [19]	80 [18]	84 [17]	91 [16]
356x406x1202	67 [19]	70 [18]	73 [18]	77 [17]	81 [16]	88 [15]
356x406x1086	64 [18]	67 [17]	70 [17]	73 [16]	77 [16]	84 [14]
356x406x990	61 [17]	64 [17]	67 [16]	70 [15]	74 [15]	80 [14]
356x406x900	59 [16]	61 [16]	64 [15]	67 [15]	70 [14]	77 [13]
356x406x818	56 [15]	58 [15]	61 [14]	64 [14]	67 [13]	73 [12]
356x406x744	53 [15]	55 [14]	58 [14]	61 [13]	64 [12]	70 [12]
356x406x677	50 [14]	52 [13]	55 [13]	58 [12]	61 [12]	67 [11]
356x406x634	49 [13]	51 [13]	53 [12]	56 [12]	59 [11]	64 [10]
356x406x592	47 [13]	49 [12]	51 [12]	54 [11]	57 [11]	62 [10]
356x406x551	45 [12]	47 [12]	49 [11]	52 [11]	55 [10]	60 [9]
356x406x509	43 [12]	45 [11]	47 [11]	50 [10]	53 [10]	57 [9]
356x406x467	41 [11]	43 [11]	45 [10]	47 [10]	50 [9]	55 [8]
356x406x393	38 [10]	39 [10]	41 [9]	43 [9]	46 [8]	50 [7]
356x406x340	35 [9]	36 [9]	38 [8]	40 [8]	42 [7]	47 [7]
356x406x287	31 [8]	33 [8]	35 [7]	36 [7]	39 [7]	43 [6]
356x406x235	28 [7]	29 [7]	31 [6]	32 [6]	35 [6]	38 [5]
356x368x202	26 [6]	27 [6]	29 [6]	30 [6]	32 [5]	36 [5]
356x368x177	24 [6]	25 [6]	27 [5]	28 [5]	30 [5]	33 [4]
356x368x153	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	31 [4]
356x368x129	20 [5]	21 [5]	22 [4]	23 [4]	25 [4]	28 [3]
305x305x342	38 [10]	39 [10]	42 [9]	44 [9]	46 [8]	51 [8]
305x305x313	36 [9]	38 [9]	40 [9]	42 [8]	44 [8]	48 [7]
305x305x283	34 [9]	36 [9]	37 [8]	39 [8]	42 [7]	46 [7]
305x305x240	31 [8]	32 [8]	34 [7]	36 [7]	38 [7]	42 [6]
305x305x198	28 [7]	29 [7]	31 [6]	32 [6]	35 [6]	38 [5]
305x305x158	25 [6]	26 [6]	27 [6]	29 [5]	31 [5]	34 [4]
305x305x137	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	32 [4]
305x305x118	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	29 [3]
305x305x97	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
254x254x167	28 [7]	29 [7]	31 [6]	32 [6]	34 [6]	38 [5]
254x254x132	24 [6]	25 [6]	27 [5]	28 [5]	30 [5]	34 [4]
254x254x107	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
254x254x89	20 [5]	20 [4]	22 [4]	23 [4]	25 [3]	28 [3]
254x254x73	18 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
203x203x100	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
203x203x86	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
203x203x71	19 [5]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
203x203x60	18 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
203x203x52	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	23 [2]
203x203x46	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]

**Table B.2.4.1.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**



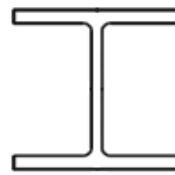
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]						
	UC	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
152x152x51		18 [4]	19 [4]	20 [4]	22 [4]	23 [3]	26 [3]
152x152x44		17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
152x152x37		15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
152x152x30		14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	21 [1]
152x152x23		12 [3]	13 [2]	13 [2]	14 [2]	16 [2]	18 [1]

**Table B.2.4.1.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**



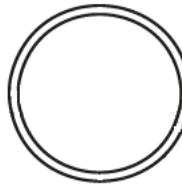
Section Designation	Maximum exposure time $t$ (minutes)					
	[Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
UC	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
356x406x1299	63 [18]	70 [20]	73 [19]	77 [18]	82 [18]	82 [18]
356x406x1202	61 [17]	67 [19]	70 [18]	74 [18]	79 [17]	79 [17]
356x406x1086	58 [16]	64 [18]	67 [17]	71 [17]	75 [16]	75 [16]
356x406x990	56 [16]	61 [17]	64 [17]	68 [16]	72 [15]	72 [15]
356x406x900	53 [15]	59 [16]	61 [16]	65 [15]	69 [14]	69 [14]
356x406x818	50 [14]	56 [15]	58 [15]	62 [14]	65 [14]	65 [14]
356x406x744	48 [13]	53 [15]	55 [14]	59 [13]	62 [13]	62 [13]
356x406x677	46 [13]	50 [14]	53 [13]	56 [13]	59 [12]	59 [12]
356x406x634	44 [12]	49 [13]	51 [13]	54 [12]	57 [12]	57 [12]
356x406x592	43 [12]	47 [13]	49 [12]	52 [12]	55 [11]	55 [11]
356x406x551	41 [11]	45 [12]	47 [12]	50 [11]	53 [11]	53 [11]
356x406x509	39 [11]	43 [12]	45 [11]	48 [11]	51 [10]	51 [10]
356x406x467	37 [10]	41 [11]	43 [11]	46 [10]	49 [9]	49 [9]
356x406x393	34 [9]	38 [10]	39 [9]	42 [9]	44 [9]	44 [9]
356x406x340	31 [8]	35 [9]	36 [9]	38 [8]	41 [8]	41 [8]
356x406x287	28 [7]	31 [8]	33 [8]	35 [7]	37 [7]	37 [7]
356x406x235	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
356x368x202	23 [6]	26 [6]	27 [6]	29 [6]	31 [5]	31 [5]
356x368x177	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
356x368x153	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
356x368x129	18 [4]	20 [5]	21 [4]	23 [4]	24 [4]	24 [4]
305x305x342	34 [9]	38 [10]	40 [10]	42 [9]	45 [9]	45 [9]
305x305x313	33 [9]	36 [9]	38 [9]	40 [9]	43 [8]	43 [8]
305x305x283	31 [8]	34 [9]	36 [9]	38 [8]	41 [8]	41 [8]
305x305x240	28 [7]	31 [8]	33 [8]	35 [7]	37 [7]	37 [7]
305x305x198	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
305x305x158	22 [6]	25 [6]	26 [6]	28 [5]	30 [5]	30 [5]
305x305x137	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	27 [5]
305x305x118	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
305x305x97	17 [4]	19 [4]	20 [4]	21 [4]	23 [3]	23 [3]
254x254x167	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
254x254x132	22 [6]	24 [6]	26 [6]	27 [5]	29 [5]	29 [5]
254x254x107	20 [5]	22 [5]	23 [5]	24 [5]	26 [4]	26 [4]
254x254x89	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
254x254x73	16 [4]	18 [4]	18 [4]	20 [3]	21 [3]	21 [3]
203x203x100	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
203x203x86	19 [5]	21 [5]	22 [5]	24 [5]	26 [4]	26 [4]
203x203x71	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	23 [4]
203x203x60	16 [4]	18 [4]	18 [4]	20 [4]	21 [3]	21 [3]
203x203x52	15 [3]	16 [4]	17 [3]	18 [3]	20 [3]	20 [3]
203x203x46	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]

**Table B.2.4.1.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

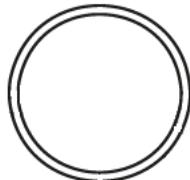


Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]						
	UC	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
152x152x51		17 [4]	18 [4]	19 [4]	21 [4]	22 [3]	22 [3]
152x152x44		15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
152x152x37		14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
152x152x30		12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
152x152x23		11 [2]	12 [3]	13 [2]	14 [2]	15 [2]	15 [2]

**Table B.2.4.2.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

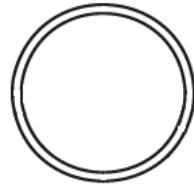


Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	CHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
60.3x8	19 [5]	20 [4]	22 [4]	23 [4]	24 [3]	28 [3]
76.1x6.3	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]	25 [2]
76.1x8	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]
88.9x6.3	18 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
88.9x8	20 [5]	21 [5]	22 [4]	23 [4]	25 [4]	28 [3]
88.9x10	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	32 [4]
101.6x6.3	18 [4]	18 [4]	20 [4]	21 [3]	22 [3]	25 [2]
101.6x8	20 [5]	21 [5]	22 [4]	24 [4]	25 [4]	28 [3]
101.6x10	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
114.3x6.3	18 [4]	18 [4]	20 [4]	21 [3]	22 [3]	25 [2]
114.3x8	20 [5]	21 [5]	23 [4]	24 [4]	25 [4]	29 [3]
114.3x10	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
139.7x6.3	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [3]
139.7x8	21 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
139.7x10	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
139.7x12.5	27 [7]	28 [6]	29 [6]	31 [6]	33 [5]	36 [5]
168.3x6.3	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [3]
168.3x8	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
168.3x10	24 [6]	25 [6]	26 [5]	27 [5]	29 [5]	33 [4]
168.3x12.5	27 [7]	28 [6]	30 [6]	31 [6]	33 [5]	37 [5]
193.7x6.3	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]
193.7x8	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
193.7x10	24 [6]	25 [6]	26 [5]	28 [5]	29 [5]	33 [4]
193.7x12.5	27 [7]	28 [7]	30 [6]	31 [6]	33 [5]	37 [5]
193.7x16	31 [8]	33 [8]	34 [7]	36 [7]	38 [7]	42 [6]
219.1x6.3	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]
219.1x8	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
219.1x10	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
219.1x12.5	27 [7]	28 [7]	30 [6]	32 [6]	34 [5]	37 [5]
219.1x14.2	29 [7]	31 [7]	32 [7]	34 [6]	36 [6]	40 [5]
219.1x16	32 [8]	33 [8]	35 [7]	36 [7]	39 [7]	43 [6]
244.5x6.3	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [3]
244.5x8	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
244.5x10	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
244.5x12.5	27 [7]	28 [7]	30 [6]	32 [6]	34 [6]	37 [5]
244.5x14.2	30 [7]	31 [7]	32 [7]	34 [6]	36 [6]	40 [5]
244.5x16	32 [8]	33 [8]	35 [7]	37 [7]	39 [7]	43 [6]
273x8	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	29 [3]
273x10	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
273x12.5	27 [7]	29 [7]	30 [6]	32 [6]	34 [6]	37 [5]
273x14.2	30 [7]	31 [7]	33 [7]	34 [7]	36 [6]	40 [5]



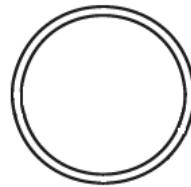
Section Designation	Maximum exposure time $t$ (minutes)					
	[Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
CHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
273x16	32 [8]	33 [8]	35 [8]	37 [7]	39 [7]	43 [6]
323.9x8	21 [5]	22 [5]	23 [5]	24 [4]	26 [4]	29 [3]
323.9x10	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
323.9x12.5	28 [7]	29 [7]	30 [6]	32 [6]	34 [6]	38 [5]
323.9x14.2	30 [8]	31 [7]	33 [7]	34 [7]	37 [6]	40 [5]
323.9x16	32 [8]	33 [8]	35 [8]	37 [7]	39 [7]	43 [6]
355.6x10	24 [6]	25 [6]	27 [5]	28 [5]	30 [5]	33 [4]
355.6x12.5	28 [7]	29 [7]	30 [6]	32 [6]	34 [6]	38 [5]
355.6x14.2	30 [8]	31 [7]	33 [7]	35 [7]	37 [6]	41 [5]
355.6x16	32 [8]	33 [8]	35 [8]	37 [7]	39 [7]	43 [6]
406.4x10	24 [6]	25 [6]	27 [5]	28 [5]	30 [5]	33 [4]
406.4x12.5	28 [7]	29 [7]	30 [6]	32 [6]	34 [6]	38 [5]
406.4x14.2	30 [8]	31 [7]	33 [7]	35 [7]	37 [6]	41 [6]
406.4x16	32 [8]	34 [8]	35 [8]	37 [7]	40 [7]	44 [6]
457x12.5	28 [7]	29 [7]	31 [6]	32 [6]	34 [6]	38 [5]
457x14.2	30 [8]	31 [7]	33 [7]	35 [7]	37 [6]	41 [6]
457x16	32 [8]	34 [8]	36 [8]	37 [7]	40 [7]	44 [6]
508x12.5	28 [7]	29 [7]	31 [6]	32 [6]	34 [6]	38 [5]
508x14.2	30 [8]	31 [7]	33 [7]	35 [7]	37 [6]	41 [6]
508x16	32 [8]	34 [8]	36 [8]	37 [7]	40 [7]	44 [6]
508x20	37 [10]	39 [10]	41 [9]	43 [9]	46 [8]	50 [7]

**Table B.2.4.2.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	CHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
60.3x8	18 [4]	19 [5]	20 [4]	22 [4]	24 [4]	24 [4]
76.1x6.3	16 [4]	17 [4]	18 [4]	20 [3]	21 [3]	21 [3]
76.1x8	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
88.9x6.3	16 [4]	18 [4]	18 [4]	20 [4]	21 [3]	21 [3]
88.9x8	18 [4]	20 [5]	21 [4]	23 [4]	24 [4]	24 [4]
88.9x10	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	27 [5]
101.6x6.3	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	21 [3]
101.6x8	18 [4]	20 [5]	21 [5]	23 [4]	24 [4]	24 [4]
101.6x10	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
114.3x6.3	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
114.3x8	18 [4]	20 [5]	21 [5]	23 [4]	25 [4]	25 [4]
114.3x10	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
139.7x6.3	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
139.7x8	18 [4]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
139.7x10	21 [5]	23 [6]	25 [5]	26 [5]	28 [5]	28 [5]
139.7x12.5	24 [6]	27 [7]	28 [6]	30 [6]	32 [6]	32 [6]
168.3x6.3	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
168.3x8	19 [4]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
168.3x10	21 [5]	24 [6]	25 [5]	26 [5]	28 [5]	28 [5]
168.3x12.5	24 [6]	27 [7]	28 [6]	30 [6]	32 [6]	32 [6]
193.7x6.3	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
193.7x8	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
193.7x10	21 [5]	24 [6]	25 [6]	27 [5]	28 [5]	28 [5]
193.7x12.5	24 [6]	27 [7]	28 [6]	30 [6]	32 [6]	32 [6]
193.7x16	28 [7]	31 [8]	33 [8]	35 [7]	37 [7]	37 [7]
219.1x6.3	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
219.1x8	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
219.1x10	21 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
219.1x12.5	25 [6]	27 [7]	29 [7]	30 [6]	33 [6]	33 [6]
219.1x14.2	27 [7]	29 [7]	31 [7]	33 [7]	35 [6]	35 [6]
219.1x16	29 [7]	32 [8]	33 [8]	35 [7]	38 [7]	38 [7]
244.5x6.3	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
244.5x8	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
244.5x10	21 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
244.5x12.5	25 [6]	27 [7]	29 [7]	30 [6]	33 [6]	33 [6]
244.5x14.2	27 [7]	30 [7]	31 [7]	33 [7]	35 [6]	35 [6]
244.5x16	29 [7]	32 [8]	33 [8]	35 [7]	38 [7]	38 [7]
273x8	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
273x10	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
273x12.5	25 [6]	27 [7]	29 [7]	31 [6]	33 [6]	33 [6]
273x14.2	27 [7]	30 [7]	31 [7]	33 [7]	35 [6]	35 [6]

**Table B.2.4.2.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**



Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	CHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
273x16	29 [7]	32 [8]	33 [8]	36 [7]	38 [7]	38 [7]
323.9x8	19 [5]	21 [5]	22 [5]	24 [4]	25 [4]	25 [4]
323.9x10	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
323.9x12.5	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
323.9x14.2	27 [7]	30 [8]	31 [7]	33 [7]	35 [6]	35 [6]
323.9x16	29 [8]	32 [8]	34 [8]	36 [7]	38 [7]	38 [7]
355.6x10	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
355.6x12.5	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
355.6x14.2	27 [7]	30 [8]	31 [7]	33 [7]	36 [6]	36 [6]
355.6x16	29 [8]	32 [8]	34 [8]	36 [7]	38 [7]	38 [7]
406.4x10	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
406.4x12.5	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
406.4x14.2	27 [7]	30 [8]	31 [7]	33 [7]	36 [6]	36 [6]
406.4x16	29 [8]	32 [8]	34 [8]	36 [8]	38 [7]	38 [7]
457x12.5	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
457x14.2	27 [7]	30 [8]	31 [7]	34 [7]	36 [6]	36 [6]
457x16	29 [8]	32 [8]	34 [8]	36 [8]	38 [7]	38 [7]
508x12.5	25 [6]	28 [7]	29 [7]	31 [6]	33 [6]	33 [6]
508x14.2	27 [7]	30 [8]	32 [7]	34 [7]	36 [6]	36 [6]
508x16	29 [8]	32 [8]	34 [8]	36 [8]	39 [7]	39 [7]
508x20	34 [9]	37 [10]	39 [9]	42 [9]	44 [8]	44 [8]

**Table B.2.4.3.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	SHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
50x50x6.3	13 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
50x50x7.1	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
50x50x8	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [2]
60x60x6.3	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]	20 [1]
60x60x7.1	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
60x60x8	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
70x70x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
70x70x7.1	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	21 [1]
70x70x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
70x70x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
80x80x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
80x80x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [2]
80x80x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
80x80x8.8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
80x80x10	17 [4]	17 [4]	18 [3]	20 [3]	21 [3]	24 [2]
80x80x12.5	19 [4]	19 [4]	21 [4]	22 [4]	23 [3]	26 [3]
90x90x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
90x90x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [2]
90x90x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
90x90x8.8	16 [4]	16 [3]	18 [3]	19 [3]	20 [3]	23 [2]
90x90x10	17 [4]	18 [4]	19 [3]	20 [3]	21 [3]	24 [2]
90x90x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
100x100x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
100x100x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [2]
100x100x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
100x100x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
100x100x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
100x100x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
120x120x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
120x120x7.1	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
120x120x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
120x120x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
120x120x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
120x120x12.5	19 [5]	20 [4]	22 [4]	23 [4]	24 [3]	27 [3]
140x140x6.3	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	20 [1]
140x140x7.1	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
140x140x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
140x140x8.8	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]
140x140x10	17 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
140x140x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]
150x150x6.3	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]

**Table B.2.4.3.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	SHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
150x150x7.1	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
150x150x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
150x150x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
150x150x10	18 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
150x150x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]
150x150x14.2	21 [5]	22 [5]	23 [5]	25 [4]	26 [4]	30 [3]
150x150x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
160x160x6.3	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
160x160x7.1	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
160x160x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
160x160x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
160x160x10	18 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
160x160x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]
160x160x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
160x160x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	32 [4]
180x180x6.3	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
180x180x7.1	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
180x180x8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
180x180x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
180x180x10	18 [4]	18 [4]	20 [4]	21 [3]	22 [3]	25 [2]
180x180x12.5	20 [5]	21 [5]	22 [4]	23 [4]	25 [4]	28 [3]
180x180x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
180x180x16	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
200x200x6.3	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
200x200x7.1	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
200x200x8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	23 [2]
200x200x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
200x200x10	18 [4]	19 [4]	20 [4]	21 [3]	22 [3]	25 [2]
200x200x12.5	20 [5]	21 [5]	22 [4]	24 [4]	25 [4]	28 [3]
200x200x14.2	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
200x200x16	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
250x250x8	16 [4]	16 [3]	18 [3]	19 [3]	20 [3]	23 [2]
250x250x8.8	17 [4]	17 [4]	18 [3]	20 [3]	21 [3]	24 [2]
250x250x10	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]
250x250x12.5	20 [5]	21 [5]	23 [4]	24 [4]	25 [4]	29 [3]
250x250x14.2	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	31 [4]
250x250x16	24 [6]	24 [5]	26 [5]	27 [5]	29 [5]	33 [4]
260x260x8.8	17 [4]	17 [4]	18 [3]	20 [3]	21 [3]	24 [2]
260x260x10	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [3]
260x260x12.5	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
260x260x14.2	22 [5]	23 [5]	24 [5]	26 [4]	27 [4]	31 [3]

**Table B.2.4.3.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	SHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
260x260x16	24 [6]	24 [5]	26 [5]	27 [5]	29 [5]	33 [4]
300x300x8.8	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	25 [2]
300x300x10	19 [5]	20 [4]	21 [4]	23 [4]	24 [3]	27 [3]
300x300x12.5	22 [5]	23 [5]	24 [5]	26 [4]	27 [4]	31 [3]
300x300x14.2	24 [6]	25 [6]	26 [5]	27 [5]	29 [5]	33 [4]
300x300x16	25 [6]	26 [6]	28 [6]	29 [5]	31 [5]	35 [4]
350x350x12.5	21 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
350x350x14.2	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
350x350x16	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
400x400x12.5	21 [5]	22 [5]	23 [4]	24 [4]	26 [4]	29 [3]
400x400x14.2	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
400x400x16	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
400x400x20	27 [7]	29 [7]	30 [6]	32 [6]	34 [6]	37 [5]

**Table B.2.4.3.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

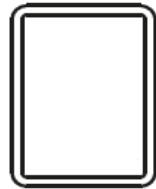
Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	SHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
50x50x6.3	11 [3]	13 [3]	13 [3]	14 [2]	16 [2]	16 [2]
50x50x7.1	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
50x50x8	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
60x60x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
60x60x7.1	12 [3]	14 [3]	14 [3]	16 [3]	17 [2]	17 [2]
60x60x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
70x70x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
70x70x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
70x70x8	13 [3]	15 [3]	15 [3]	17 [3]	18 [2]	18 [2]
70x70x8.8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
80x80x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
80x80x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
80x80x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	18 [2]
80x80x8.8	14 [3]	16 [3]	16 [3]	18 [3]	19 [3]	19 [3]
80x80x10	15 [3]	17 [4]	17 [4]	19 [3]	20 [3]	20 [3]
80x80x12.5	17 [4]	19 [4]	19 [4]	21 [4]	22 [3]	22 [3]
90x90x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
90x90x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
90x90x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	18 [2]
90x90x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	19 [3]
90x90x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
90x90x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [3]	23 [3]
100x100x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
100x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
100x100x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
100x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	19 [3]
100x100x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
100x100x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	23 [4]
120x120x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
120x120x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
120x120x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
120x120x8.8	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	20 [3]
120x120x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
120x120x12.5	17 [4]	19 [5]	20 [4]	22 [4]	24 [4]	24 [4]
140x140x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
140x140x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
140x140x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
140x140x8.8	15 [3]	16 [4]	17 [4]	18 [3]	20 [3]	20 [3]
140x140x10	16 [4]	17 [4]	18 [4]	20 [3]	21 [3]	21 [3]
140x140x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
150x150x6.3	12 [3]	14 [3]	14 [3]	15 [2]	17 [2]	17 [2]

**Table B.2.4.3.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes)					
	[Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
SHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3	LR = 0.2
150x150x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
150x150x8	14 [3]	15 [3]	16 [3]	18 [3]	19 [3]	19 [3]
150x150x8.8	15 [3]	16 [4]	17 [4]	18 [3]	20 [3]	20 [3]
150x150x10	16 [4]	18 [4]	18 [4]	20 [3]	21 [3]	21 [3]
150x150x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
150x150x14.2	19 [5]	21 [5]	22 [5]	24 [4]	26 [4]	26 [4]
150x150x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [4]	27 [4]
160x160x6.3	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	17 [2]
160x160x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
160x160x8	14 [3]	15 [3]	16 [3]	18 [3]	19 [3]	19 [3]
160x160x8.8	15 [3]	16 [4]	17 [4]	18 [3]	20 [3]	20 [3]
160x160x10	16 [4]	18 [4]	18 [4]	20 [4]	21 [3]	21 [3]
160x160x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
160x160x14.2	19 [5]	21 [5]	22 [5]	24 [5]	26 [4]	26 [4]
160x160x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	27 [5]
180x180x6.3	12 [3]	14 [3]	14 [3]	15 [2]	17 [2]	17 [2]
180x180x7.1	13 [3]	15 [3]	15 [3]	17 [3]	18 [2]	18 [2]
180x180x8	14 [3]	16 [3]	16 [3]	18 [3]	19 [3]	19 [3]
180x180x8.8	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
180x180x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
180x180x12.5	18 [4]	20 [5]	21 [5]	23 [4]	24 [4]	24 [4]
180x180x14.2	19 [5]	21 [5]	23 [5]	24 [5]	26 [4]	26 [4]
180x180x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
200x200x6.3	12 [3]	14 [3]	14 [3]	16 [3]	17 [2]	17 [2]
200x200x7.1	13 [3]	15 [3]	15 [3]	17 [3]	18 [2]	18 [2]
200x200x8	14 [3]	16 [4]	16 [3]	18 [3]	19 [3]	19 [3]
200x200x8.8	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
200x200x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
200x200x12.5	18 [4]	20 [5]	21 [4]	23 [4]	24 [4]	24 [4]
200x200x14.2	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	26 [4]
200x200x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
250x250x8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	19 [3]
250x250x8.8	15 [3]	17 [4]	17 [4]	19 [3]	20 [3]	20 [3]
250x250x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
250x250x12.5	18 [4]	20 [5]	21 [5]	23 [4]	25 [4]	25 [4]
250x250x14.2	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	26 [4]
250x250x16	21 [5]	24 [6]	25 [5]	26 [5]	28 [5]	28 [5]
260x260x8.8	15 [3]	17 [4]	17 [4]	19 [3]	20 [3]	20 [3]
260x260x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
260x260x12.5	18 [4]	20 [5]	21 [5]	23 [4]	25 [4]	25 [4]
260x260x14.2	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	26 [4]

**Table B.2.4.3.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	SHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
260x260x16	21 [5]	24 [6]	25 [5]	26 [5]	28 [5]	28 [5]
300x300x8.8	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
300x300x10	17 [4]	19 [5]	20 [4]	22 [4]	23 [4]	23 [4]
300x300x12.5	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	26 [4]
300x300x14.2	21 [5]	24 [6]	25 [6]	26 [5]	28 [5]	28 [5]
300x300x16	23 [6]	25 [6]	27 [6]	28 [6]	30 [5]	30 [5]
350x350x12.5	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
350x350x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
350x350x16	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
400x400x12.5	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
400x400x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
400x400x16	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
400x400x20	25 [6]	27 [7]	29 [7]	31 [6]	33 [6]	33 [6]



**Table B.2.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
60x40x6.3	13 [3]	13 [3]	14 [2]	15 [2]	16 [2]	19 [1]
80x40x6.3	13 [3]	13 [3]	14 [2]	15 [2]	17 [2]	20 [1]
80x40x7.1	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
80x40x8	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
90x50x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
90x50x7.1	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	21 [1]
90x50x8	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	22 [2]
100x50x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
100x50x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [1]
100x50x8	15 [3]	15 [3]	17 [3]	18 [3]	19 [2]	22 [2]
100x50x8.8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
100x50x10	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
100x60x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
100x60x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [2]
100x60x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
100x60x8.8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
100x60x10	17 [4]	17 [4]	18 [3]	20 [3]	21 [3]	24 [2]
120x60x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
120x60x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [2]
120x60x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
120x60x8.8	16 [4]	16 [3]	18 [3]	19 [3]	20 [3]	23 [2]
120x60x10	17 [4]	18 [4]	19 [3]	20 [3]	21 [3]	24 [2]
120x60x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
120x80x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
120x80x7.1	14 [3]	15 [3]	16 [3]	17 [2]	18 [2]	21 [2]
120x80x8	15 [3]	16 [3]	17 [3]	18 [3]	19 [2]	22 [2]
120x80x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
120x80x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	24 [2]
120x80x12.5	19 [4]	20 [4]	21 [4]	22 [4]	24 [3]	27 [3]
150x100x6.3	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	20 [1]
150x100x7.1	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
150x100x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
150x100x8.8	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	23 [2]
150x100x10	17 [4]	18 [4]	19 [4]	20 [3]	22 [3]	25 [2]
150x100x12.5	20 [5]	20 [4]	22 [4]	23 [4]	24 [3]	28 [3]
160x80x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
160x80x7.1	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
160x80x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
160x80x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
160x80x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
160x80x12.5	19 [5]	20 [4]	22 [4]	23 [4]	24 [3]	27 [3]

**Table B.2.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
180x60x6.3	13 [3]	14 [3]	15 [2]	16 [2]	17 [2]	20 [1]
180x60x7.1	14 [3]	15 [3]	16 [3]	17 [3]	18 [2]	21 [2]
180x60x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	22 [2]
180x60x8.8	16 [4]	17 [3]	18 [3]	19 [3]	20 [3]	23 [2]
180x60x10	17 [4]	18 [4]	19 [3]	20 [3]	22 [3]	25 [2]
180x60x12.5	19 [5]	20 [4]	22 [4]	23 [4]	24 [3]	27 [3]
180x100x6.3	13 [3]	14 [3]	15 [3]	16 [2]	17 [2]	20 [1]
180x100x7.1	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
180x100x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
180x100x8.8	16 [4]	17 [3]	18 [3]	19 [3]	21 [3]	24 [2]
180x100x10	17 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
180x100x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]
200x100x6.3	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
200x100x7.1	14 [3]	15 [3]	16 [3]	17 [2]	19 [2]	21 [2]
200x100x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
200x100x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
200x100x10	18 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
200x100x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]
200x100x14.2	21 [5]	22 [5]	23 [5]	25 [4]	26 [4]	30 [3]
200x100x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	31 [4]
200x120x6.3	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
200x120x7.1	14 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x120x8	15 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
200x120x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
200x120x10	18 [4]	18 [4]	19 [4]	21 [3]	22 [3]	25 [2]
200x120x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]
200x120x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
200x120x16	23 [5]	24 [5]	25 [5]	26 [5]	28 [4]	32 [4]
200x150x6.3	14 [3]	14 [3]	15 [3]	16 [2]	18 [2]	20 [1]
200x150x7.1	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
200x150x8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
200x150x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
200x150x10	18 [4]	18 [4]	20 [4]	21 [3]	22 [3]	25 [2]
200x150x12.5	20 [5]	21 [5]	22 [4]	23 [4]	25 [4]	28 [3]
200x150x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
200x150x16	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
220x120x7.1	15 [3]	15 [3]	16 [3]	17 [3]	19 [2]	21 [2]
220x120x8	16 [4]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
220x120x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
220x120x10	18 [4]	18 [4]	20 [4]	21 [3]	22 [3]	25 [2]
220x120x12.5	20 [5]	21 [4]	22 [4]	23 [4]	25 [4]	28 [3]

**Table B.2.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
220x120x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
220x120x16	23 [6]	24 [5]	25 [5]	27 [5]	28 [4]	32 [4]
250x100x8	16 [3]	16 [3]	17 [3]	18 [3]	20 [2]	23 [2]
250x100x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
250x100x10	18 [4]	18 [4]	20 [4]	21 [3]	22 [3]	25 [2]
250x100x12.5	20 [5]	21 [5]	22 [4]	23 [4]	25 [4]	28 [3]
250x100x14.2	21 [5]	22 [5]	24 [5]	25 [4]	27 [4]	30 [3]
250x100x16	23 [6]	24 [5]	25 [5]	27 [5]	29 [4]	32 [4]
250x150x8	16 [4]	16 [3]	17 [3]	18 [3]	20 [3]	23 [2]
250x150x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
250x150x10	18 [4]	19 [4]	20 [4]	21 [3]	22 [3]	25 [2]
250x150x12.5	20 [5]	21 [5]	22 [4]	24 [4]	25 [4]	28 [3]
250x150x14.2	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
250x150x16	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
260x140x8.8	16 [4]	17 [4]	18 [3]	19 [3]	21 [3]	24 [2]
260x140x10	18 [4]	19 [4]	20 [4]	21 [3]	22 [3]	25 [2]
260x140x12.5	20 [5]	21 [5]	22 [4]	24 [4]	25 [4]	28 [3]
260x140x14.2	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
260x140x16	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
300x100x10	18 [4]	19 [4]	20 [4]	21 [3]	22 [3]	25 [2]
300x100x12.5	20 [5]	21 [5]	22 [4]	24 [4]	25 [4]	28 [3]
300x100x14.2	22 [5]	23 [5]	24 [5]	25 [4]	27 [4]	30 [3]
300x100x16	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
300x150x10	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	25 [2]
300x150x12.5	20 [5]	21 [5]	22 [4]	24 [4]	25 [4]	29 [3]
300x150x14.2	22 [5]	23 [5]	24 [5]	26 [4]	27 [4]	30 [3]
300x150x16	23 [6]	24 [5]	26 [5]	27 [5]	29 [4]	32 [4]
300x200x10	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]
300x200x12.5	20 [5]	21 [5]	23 [4]	24 [4]	25 [4]	29 [3]
300x200x14.2	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	31 [4]
300x200x16	24 [6]	24 [5]	26 [5]	27 [5]	29 [5]	33 [4]
300x250x10	18 [4]	19 [4]	20 [4]	21 [3]	23 [3]	26 [2]
300x250x12.5	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
300x250x14.2	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	31 [4]
300x250x16	24 [6]	25 [6]	26 [5]	27 [5]	29 [5]	33 [4]
350x150x12.5	20 [5]	21 [5]	23 [4]	24 [4]	25 [4]	29 [3]
350x150x14.2	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	31 [4]
350x150x16	24 [6]	24 [5]	26 [5]	27 [5]	29 [5]	33 [4]
350x250x12.5	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
350x250x14.2	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	31 [4]
350x250x16	24 [6]	25 [6]	26 [5]	28 [5]	29 [5]	33 [4]

**Table B.2.4.4.1**  
**Galvanized steel columns with slenderness  $\lambda \leq 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
400x150x12.5	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
400x150x14.2	22 [5]	23 [5]	24 [5]	26 [5]	27 [4]	31 [4]
400x150x16	24 [6]	25 [6]	26 [5]	27 [5]	29 [5]	33 [4]
400x200x12.5	20 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
400x200x14.2	22 [5]	23 [5]	24 [5]	26 [4]	28 [4]	31 [4]
400x200x16	24 [6]	25 [6]	26 [5]	28 [5]	29 [5]	33 [4]
400x300x12.5	21 [5]	21 [5]	23 [4]	24 [4]	26 [4]	29 [3]
400x300x14.2	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
400x300x16	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
450x250x14.2	22 [5]	23 [5]	25 [5]	26 [5]	28 [4]	31 [4]
450x250x16	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
500x200x16	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
500x300x16	24 [6]	25 [6]	26 [5]	28 [5]	30 [5]	33 [4]
500x300x20	27 [7]	29 [7]	30 [6]	32 [6]	34 [6]	37 [5]

**Table B.2.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
60x40x6.3	11 [3]	13 [3]	13 [3]	14 [2]	16 [2]	16 [2]
80x40x6.3	11 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
80x40x7.1	12 [3]	14 [3]	14 [3]	16 [3]	17 [2]	17 [2]
80x40x8	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
90x50x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
90x50x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
90x50x8	13 [3]	15 [3]	15 [3]	17 [3]	18 [2]	18 [2]
100x50x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
100x50x7.1	12 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
100x50x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	18 [2]
100x50x8.8	14 [3]	15 [3]	16 [3]	18 [3]	19 [3]	19 [3]
100x50x10	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
100x60x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
100x60x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
100x60x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	18 [2]
100x60x8.8	14 [3]	16 [3]	16 [3]	18 [3]	19 [3]	19 [3]
100x60x10	15 [3]	17 [4]	17 [4]	19 [3]	20 [3]	20 [3]
120x60x6.3	12 [3]	13 [3]	14 [3]	15 [2]	16 [2]	16 [2]
120x60x7.1	13 [3]	14 [3]	15 [3]	16 [3]	17 [2]	17 [2]
120x60x8	13 [3]	15 [3]	16 [3]	17 [3]	18 [2]	18 [2]
120x60x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	19 [3]
120x60x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
120x60x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [3]	23 [3]
120x80x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
120x80x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
120x80x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
120x80x8.8	14 [3]	16 [4]	17 [3]	18 [3]	19 [3]	19 [3]
120x80x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
120x80x12.5	17 [4]	19 [4]	20 [4]	21 [4]	23 [4]	23 [4]
150x100x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
150x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
150x100x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
150x100x8.8	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	20 [3]
150x100x10	16 [4]	17 [4]	18 [4]	20 [3]	21 [3]	21 [3]
150x100x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
160x80x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
160x80x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
160x80x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
160x80x8.8	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	20 [3]
160x80x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
160x80x12.5	17 [4]	19 [5]	20 [4]	22 [4]	24 [4]	24 [4]

**Table B.2.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
180x60x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
180x60x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
180x60x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
180x60x8.8	14 [3]	16 [4]	17 [3]	18 [3]	20 [3]	20 [3]
180x60x10	15 [4]	17 [4]	18 [4]	19 [3]	21 [3]	21 [3]
180x60x12.5	17 [4]	19 [5]	20 [4]	22 [4]	24 [4]	24 [4]
180x100x6.3	12 [3]	13 [3]	14 [3]	15 [2]	17 [2]	17 [2]
180x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
180x100x8	14 [3]	15 [3]	16 [3]	17 [3]	19 [3]	19 [3]
180x100x8.8	15 [3]	16 [4]	17 [4]	18 [3]	20 [3]	20 [3]
180x100x10	16 [4]	17 [4]	18 [4]	20 [3]	21 [3]	21 [3]
180x100x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
200x100x6.3	12 [3]	14 [3]	14 [3]	15 [2]	17 [2]	17 [2]
200x100x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
200x100x8	14 [3]	15 [3]	16 [3]	18 [3]	19 [3]	19 [3]
200x100x8.8	15 [3]	16 [4]	17 [4]	18 [3]	20 [3]	20 [3]
200x100x10	16 [4]	18 [4]	18 [4]	20 [3]	21 [3]	21 [3]
200x100x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
200x100x14.2	19 [5]	21 [5]	22 [5]	24 [4]	26 [4]	26 [4]
200x100x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [4]	27 [4]
200x120x6.3	12 [3]	14 [3]	14 [3]	15 [3]	17 [2]	17 [2]
200x120x7.1	13 [3]	14 [3]	15 [3]	16 [3]	18 [2]	18 [2]
200x120x8	14 [3]	15 [3]	16 [3]	18 [3]	19 [3]	19 [3]
200x120x8.8	15 [3]	16 [4]	17 [4]	18 [3]	20 [3]	20 [3]
200x120x10	16 [4]	18 [4]	18 [4]	20 [4]	21 [3]	21 [3]
200x120x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
200x120x14.2	19 [5]	21 [5]	22 [5]	24 [5]	26 [4]	26 [4]
200x120x16	20 [5]	23 [5]	24 [5]	25 [5]	27 [5]	27 [5]
200x150x6.3	12 [3]	14 [3]	14 [3]	15 [2]	17 [2]	17 [2]
200x150x7.1	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	18 [2]
200x150x8	14 [3]	16 [3]	16 [3]	18 [3]	19 [3]	19 [3]
200x150x8.8	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
200x150x10	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	21 [3]
200x150x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
200x150x14.2	19 [5]	21 [5]	23 [5]	24 [5]	26 [4]	26 [4]
200x150x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
220x120x7.1	13 [3]	15 [3]	15 [3]	16 [3]	18 [2]	18 [2]
220x120x8	14 [3]	16 [4]	16 [3]	18 [3]	19 [3]	19 [3]
220x120x8.8	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
220x120x10	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	21 [3]
220x120x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]

**Table B.2.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
220x120x14.2	19 [5]	21 [5]	22 [5]	24 [5]	26 [4]	26 [4]
220x120x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
250x100x8	14 [3]	16 [3]	16 [3]	18 [3]	19 [3]	19 [3]
250x100x8.8	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
250x100x10	16 [4]	18 [4]	19 [4]	20 [4]	21 [3]	21 [3]
250x100x12.5	18 [4]	20 [5]	21 [4]	22 [4]	24 [4]	24 [4]
250x100x14.2	19 [5]	21 [5]	23 [5]	24 [5]	26 [4]	26 [4]
250x100x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
250x150x8	14 [3]	16 [4]	16 [3]	18 [3]	19 [3]	19 [3]
250x150x8.8	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
250x150x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
250x150x12.5	18 [4]	20 [5]	21 [4]	23 [4]	24 [4]	24 [4]
250x150x14.2	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	26 [4]
250x150x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
260x140x8.8	15 [3]	16 [4]	17 [4]	19 [3]	20 [3]	20 [3]
260x140x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
260x140x12.5	18 [4]	20 [5]	21 [4]	23 [4]	24 [4]	24 [4]
260x140x14.2	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	26 [4]
260x140x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
300x100x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
300x100x12.5	18 [4]	20 [5]	21 [4]	23 [4]	24 [4]	24 [4]
300x100x14.2	19 [5]	22 [5]	23 [5]	24 [5]	26 [4]	26 [4]
300x100x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
300x150x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
300x150x12.5	18 [4]	20 [5]	21 [5]	23 [4]	25 [4]	25 [4]
300x150x14.2	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	26 [4]
300x150x16	21 [5]	23 [6]	24 [5]	26 [5]	28 [5]	28 [5]
300x200x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
300x200x12.5	18 [4]	20 [5]	21 [5]	23 [4]	25 [4]	25 [4]
300x200x14.2	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	26 [4]
300x200x16	21 [5]	24 [6]	25 [5]	26 [5]	28 [5]	28 [5]
300x250x10	16 [4]	18 [4]	19 [4]	20 [4]	22 [3]	22 [3]
300x250x12.5	18 [5]	20 [5]	22 [5]	23 [4]	25 [4]	25 [4]
300x250x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
300x250x16	21 [5]	24 [6]	25 [6]	26 [5]	28 [5]	28 [5]
350x150x12.5	18 [4]	20 [5]	21 [5]	23 [4]	25 [4]	25 [4]
350x150x14.2	20 [5]	22 [5]	23 [5]	25 [5]	26 [4]	26 [4]
350x150x16	21 [5]	24 [6]	25 [5]	26 [5]	28 [5]	28 [5]
350x250x12.5	18 [4]	20 [5]	22 [5]	23 [4]	25 [4]	25 [4]
350x250x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
350x250x16	21 [5]	24 [6]	25 [6]	27 [5]	28 [5]	28 [5]

**Table B.2.4.4.2**  
**Galvanized steel columns with slenderness  $\lambda > 0.70$**   
**(BS 5950-8)**

Section Designation	Maximum exposure time $t$ (minutes) [Increase of maximum exposure time relative to ungalvanized steel (minutes)]					
	RHS	LR = 0.7	LR = 0.6	LR = 0.5	LR = 0.4	LR = 0.3
400x150x12.5	18 [5]	20 [5]	22 [5]	23 [4]	25 [4]	25 [4]
400x150x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
400x150x16	21 [5]	24 [6]	25 [6]	26 [5]	28 [5]	28 [5]
400x200x12.5	18 [4]	20 [5]	22 [5]	23 [4]	25 [4]	25 [4]
400x200x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
400x200x16	21 [5]	24 [6]	25 [6]	27 [5]	28 [5]	28 [5]
400x300x12.5	19 [5]	21 [5]	22 [5]	23 [4]	25 [4]	25 [4]
400x300x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
400x300x16	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
450x250x14.2	20 [5]	22 [5]	23 [5]	25 [5]	27 [4]	27 [4]
450x250x16	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
500x200x16	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
500x300x16	22 [5]	24 [6]	25 [6]	27 [5]	29 [5]	29 [5]
500x300x20	25 [6]	27 [7]	29 [7]	31 [6]	33 [6]	33 [6]



## **FIRE RESISTANCE OF STEEL SECTIONS GALVANIZED TO EN ISO 1461**

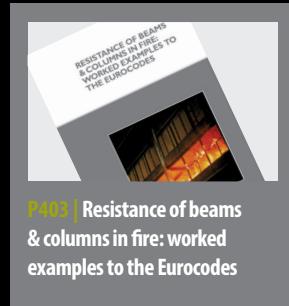
Galvanized steel has been shown to have a lower surface emissivity than non-galvanized steel at temperatures below approximately 500 °C. The temperature of a galvanized steel section will therefore increase at a slower rate than that of an equivalent non-galvanized section, leading to increased fire resistance for fire exposure periods of up to around 30 minutes.

This design guide provides tables to calculate fire resistances and maximum fire exposure periods for galvanized steel beams, composite beams, columns, and plates in tension, according to the Eurocodes and the UK and Irish National Annexes. Design tables in accordance with BS 5950 are also provided. The design tables clearly show where the use of galvanized steel leads to an increase in fire resistance or fire exposure compared to non-galvanized steel. Worked examples are also provided to illustrate the use of the tables.

### **Complementary titles**



**P375 | Fire resistance design  
of steel framed buildings**



**P403 | Resistance of beams  
& columns in fire: worked  
examples to the Eurocodes**

SCI Ref: P429



**SCI**

Silwood Park, Ascot, Berkshire. SL5 7QN UK

T: +44 (0)1344 636525

F: +44 (0)1344 636570

E: [reception@steel-sci.com](mailto:reception@steel-sci.com)  
[www.steel-sci.com](http://www.steel-sci.com)