

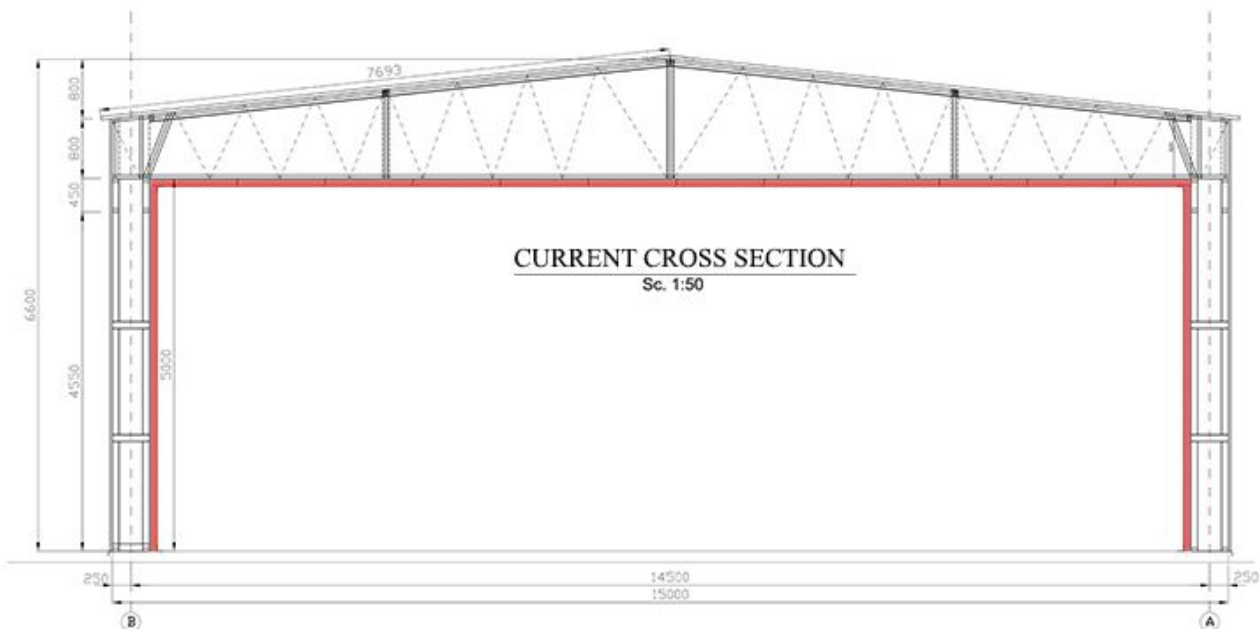
Unic Rotarex® load bearing structures are fireproofed in the following ways:

- 0 - 15 minutes protection – not needed;
- 15 - 180 minutes protection – 2 main ways:
 - protection of the steel structure with sandwich panels and rock wool
 - protection of the steel structure with fireproof gypsum boards

We propose to you 2 easy and economical ways of fireproofing Unic Rotarex® industrial buildings:

Protection of the steel structure with sandwich panels and rock wool

The density of structural elements of Unic Rotarex® structures allows cladding the interior of the industrial buildings as in the following image:



Forming a fireproofed volume which will not allow fire to affect the load bearing structure for a period of time determined by the thickness of the applied sandwich panel. The rock wool panel will ensure the thermal protection of the space as well (2 requirements solved with only one work). In this manner we will have additional costs only for the steel sheet (which is cheap) applied to the exterior of the building. This protection type will have lower costs than other solutions.

We present to you the rock wool panel *Isofire* which has obtained A2S1D0 classification according to European standard EN13501-1. What does it mean:

- A2 = Fire reaction which indicates the participation degree of a material subjected to fire action. A2 refers to products that can not ignite with flame and whose contribution to fire development is extremely limited;
- S1 = Absence of smoke
- D0 = Absence of incendiary particles.

Because the structure has A1 fire reaction (non-combustible products) we obtained a 2 materials package which will ensure a very well protected to fire space, the protection duration depending on the thickness of the used panel (see the table below).

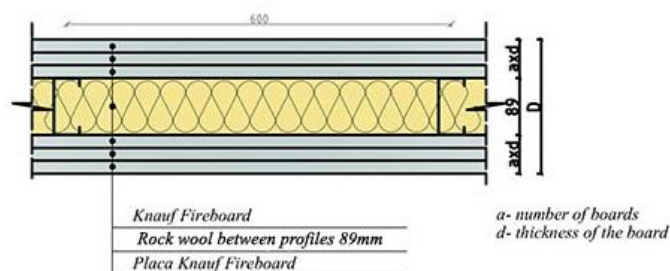
Panel thickness (mm)	According to EN 13501-2 (European norm)
50	EI 15 // EI 30*
80	EI 60
100	EI 60 // EI 120*
120	EI 90
150	EI 180

- The stability or the load bearing capacity (R) is the capacity of a structure or of assembly to support the specific actions during a relevant exposure to fire. It is given by the load bearing structure calculated by Eurocode;
- The tightness or integrity (E) is the capacity of the separation assembly of preventing the hot gas to enter below the exposed surface, during a relevant exposure to fire;
- The thermal insulation (I) is the capacity of the separation assembly to prevent excessive transmission of heat.

Protection of the steel structure with fireproofed gypsum boards

In case you want to obtain spaces with a higher aesthetic degree we recommend covering the columns and walls with fireproofed gypsum boards which will ensure the protection as in the following table:

Steel framed wall	Notation	Knauf Fireboards	Knauf Fireboards	Knauf Fireboards	Knauf Fireboards	Knauf Fireboards
Board thickness [mm]	axd	1x20	1x30	2x20	2x30	2x30 + 1x20
Wall thickness[mm]	D	129	149	169	209	229
Fire protection SR EN 13501: A1(C0)	R	30 min.	60 min.	90 min.	120 min.	180 min.



Observation:
- when more layers of gypsum are applied on top of each other their margins must not overlap.

C Light gauge steel profile, cold formed from galvanized steel sheet, straight section with C shape and cut edges.
type C12/41/89/41/12x1.0 - GK (SR EN 10162:2003)
Galvanized steel DX51D+Z 275 (EN 10346:2009)