Kingspan | Teczone

Protected by Kingspan WARRANTY

LIGHT STEEL
STRUCTURAL SYSTEM

Steel Framing

Kingspan | TECZONE

Steel Framing, a lightweight structural system for buildings

The Teczone | Kingspan Steel Framing construction system is based on the use of cold-formed, high-performance galvanised steel profiles as structural elements.

It is an extremely lightweight, pre-industrialised construction system that improves efficiency, quality and sustainability in the building sector.

The flexible manufacturing system of the Steel Framing range offers a high degree of customisation, both in the profile sections and in the arrangement of stiffening folds in the profiles, which substantially increase the strength of the structure and allow the use of smaller sections, thus lowering the final costs of the building.

Broadly speaking, the construction system contemplates the integration of three sub-systems:

- The structure, built using the TZ-Steel Framing range of lightweight profiles, with optimised sections that allow for any type of architectural configuration.
- Interior cladding, generally made up of plasterboard panels.
- The exterior enclosure, generally made up of lightweight waterproof panels on which any type of traditional finish can be applied.

The Steel Framing structural system is based on the use of high structural performance galvanised steel profiles, assembled in the workshop or on site using self-drilling screws.

Development of 28 single-family homes
Project of 4,200 m2 of built surface area, executed with a total of 104 tonnes of light metallic structures.

Steel Framing system applications

The Steel Framing construction system is most commonly used in buildings of up to 4 storeys (ground floor plus three).

Although it is applicable to larger buildings, it is in the above case where its advantages over other construction systems are optimised and enhanced.

Under these conditions, the system is characterised as an open system in which all the structural components and parts needed for its correct implementation can be solved using light steel..

The Steel Framing system can be integrated with other construction typologies (conventional steel or concrete structures) and traditional finishes, and is compatible with the interior cladding and exterior enclosures commonly used in the building sector.

The most common applications of the system are:

- Single-family, detached or semi-detached homes.
- Low-rise residential buildings.
- Buildings of low height for offices, schools, hotels, health centres, etc.
- Multi-storey offices inside industrial buildings.
- Renovations and vertical extensions of existing buildings (elevations).
- Lightweight roofs (flat, single or multi-pitched, habitable lofts, etc.).
- Industrial auxiliary structures.

Advantages of the Steel Framing system

Reduction of execution deadlines

The Steel Framing system is a lightweight, pre-industrialised solution that enables the standardisation of components while substantially reducing execution times, therefore facilitating a quick return on investments in the work.

Assembly is carried out without the need for heavy machinery, and with considerable savings in skilled labour.

The low weight of the structure allows lighter foundations to be implemented, thus reducing its complexity, execution time and cost.

Secure and certified system

TZ-Steel Framing profiles are CE marked according to EN 14195:2005 or EN 1090-1:2009+A1:2011. The steel used in the production is certified according to EN 10346 (galvanised coating) and EN 10169 (organic coatings).

Precision, quality and integration

The pre-industrialisation of the system allows for high precision in the structure's execution. The profiles are supplied cut to size and can be manufactured with round or oval pre-punched holes in various dimensions.

The comprehensive control procedures implemented at Teczone | Kingspan, both for raw materials and end products, guarantee the highest quality and safety of the construction system.

The structure leaves the factory prepared to integrate all the necessary installations and mechanisms inside the walls and slabs, without the need for grooves or chases to be carried out on site.

Wide and versatile range of profiles

TZ-Steel Framing profiles can be manufactured with web widths between 50 and 250 mm, flanges between 50 and 100 mm, thicknesses of between 0.8 and 2.5 mm and various types of structural steel. The profiles are supplied cut to size with a maximum manufacturing length of up to 12.00 m.

Sustainable building system

The high structural performance of TZ-Steel Framing profiles reduces the weight of the structure and consequently the steel consumption. In addition, the steel coils used to manufacture the profiles incorporate a large proportion of recycled steel.

The reduced weight of the system, together with the optimised palletising system of Teczone | Kingspan, enables reductions in the volume of shipments to the site, thereby reducing the emissions associated with transport.

The system facilitates the reduction of construction site waste, as the structure is pre-industrialised in the factory and, as it is a "dry" construction system, water consumption on site is greatly reduced.

Since the use of the system enables substantial reductions in execution times, with no heavy machinery required, the impact of the construction work on the site environment is mitigated.

High quality structural steel

Z275 hot-dip galvanised S220GD structural steel, or S280GD or S320GD steel with ZM120 coating or higher, certified and with minimum yield strength guaranteed by testing.

Possibility of manufacturing with other superior types of steel and with Z- and ZM-type coatings, which improve anti-oxidation and anti-corrosion performance.

Technical assistance and engineering

The Teczone | Kingspan Technical Department can provide advice on the system, construction details, calculations and dimensioning.

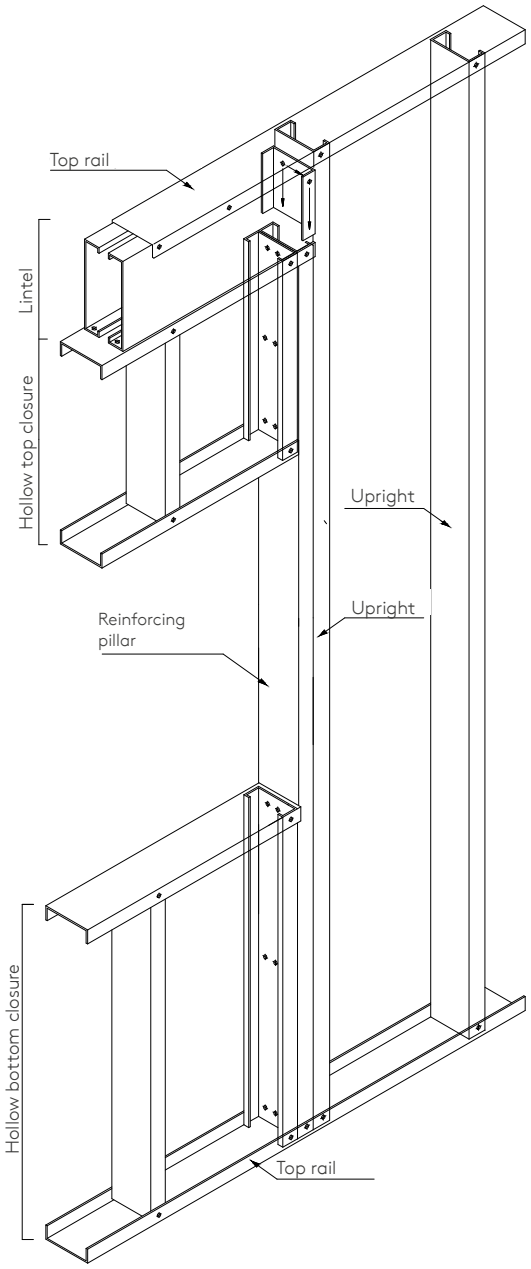
In addition, Teczone | Kingspan collaborates with external engineering firms specialising in the drafting of projects with its Steel Framing system, as well as the adaptation of projects conceived with other construction typologies.

TZ-Steel Framing profile range

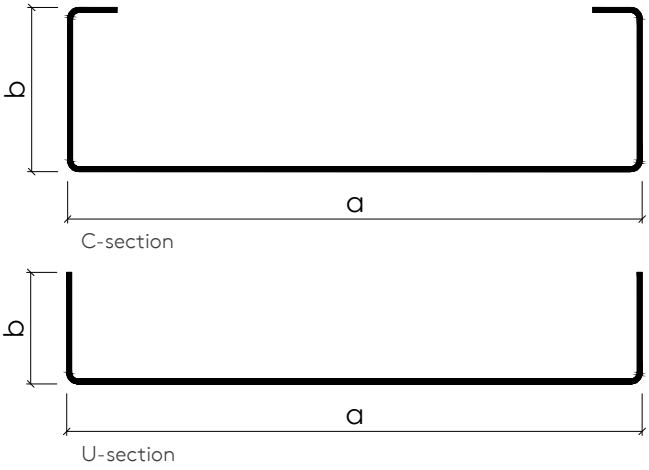
Range for wall structures

The wall structures of the building system consist of a grid of horizontal and vertical TZ-Steel Framing profiles of variable lengths. The vertical uprights of the truss are C-section profiles, connected at the top and bottom by means of a U-section Rail forming a closed structural panel.

Horizontal lintels, for the construction of door and window openings, are made up of two C-section profiles, assembled together to form a closed section.



Recommended profiles



Structure for exterior walls				
Component	Section	Profile dimensions (mm)		
		Web (a)	Flanges (b)	Thicknesses
Upright	C	100 to 175	50 to 75	0.8 | 1.0 1.2 | 1.5
Rail	U	100 to 175	30 to 50	0.8 | 1.0

Structure for interior walls				
Component	Section	Profile dimensions (mm)		
		Web (a)	Flanges (b)	Thicknesses
Upright	C	50 to 75	50 to 75	0.8 | 1.0 1.2 | 1.5
Rail	U	50 to 75	30 to 50	0.8 | 1.0

Structure for openings (windows, doors)				
Component	Section	Profile dimensions (mm)		
		Web (a)	Flanges (b)	Thicknesses
Lintel	C	100 to 250	50 to 75	1.0 | 1.2 1.5 | 2.0

NOTES:

The tables contain only one recommendation. It is possible to manufacture web sections of between 46 - 250 mm , and flanges of between 46 - 100 mm.

Manufacturing thicknesses from 0.8 to 2.5 mm.

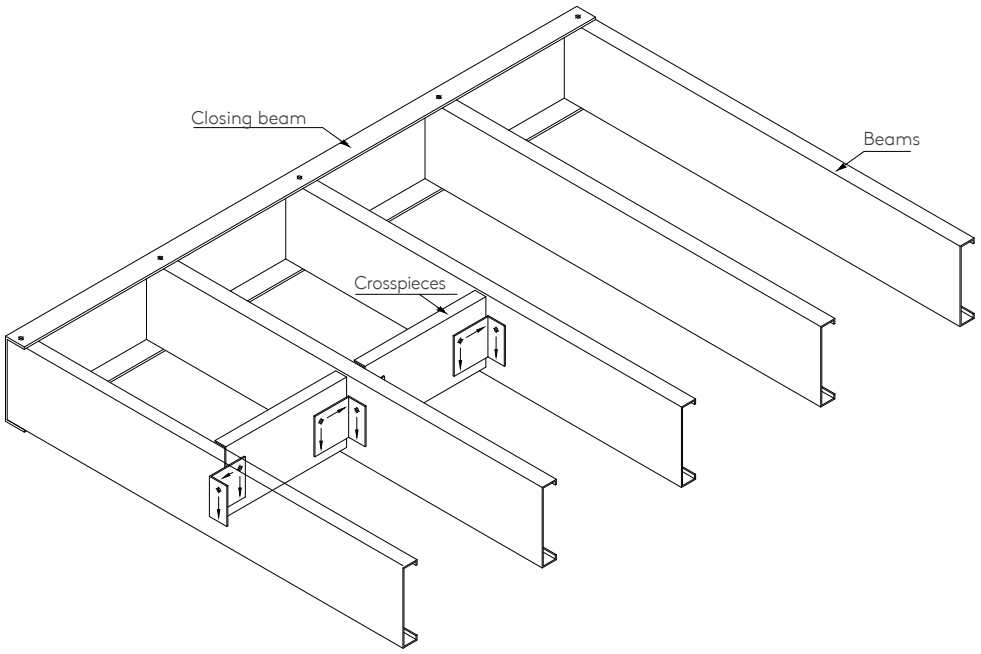
It is possible to manufacture the profiles with stiffeners in the webs and flanges, which increase their strength and stiffness. (applicable to profiles with webs of max. 100 mm).

Range for floor structures

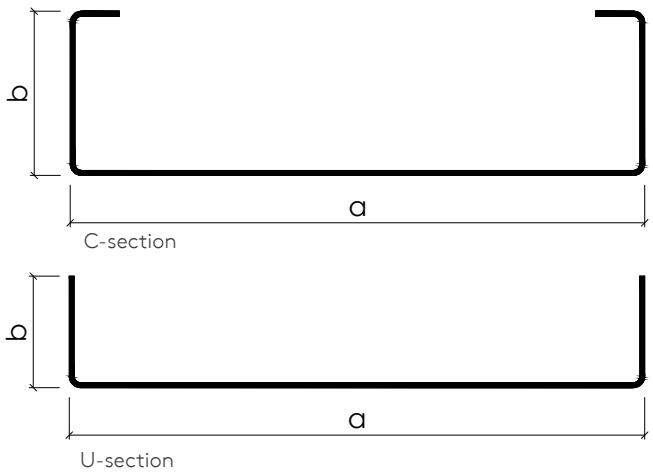
The floor slab structures are constructed using TZ-Steel Framing profiles in the same way as the walls.

In this case, the beams are C-section profiles, connected at their ends by means of Railis a U-section closing beam.

Generally, cross members are used as lateral bracing for the floor beams, which can be formed by means of C-section or U-section profiles, joined by means of L-shaped connecting pieces, also made of galvanised steel.



Recommended profiles



Structure for floor slabs				
Component	Section	Profile dimensions (mm)		
		Web (a)	Flanges (b)	Thicknesses
Beam	C	175 to 250	50 to 100	1.5 | 2.0 2.5
Rail	U	175 to 250	50 to 75	1.0 | 1.2 1.5
Crosspieces	C / U	175 to 250	50 to 75	1.0 | 1.2 1.5

NOTES:

The tables contain only one recommendation. It is possible to manufacture web sections of between 46 - 250 mm , and flanges of between 46 - 100 mm.

Manufacturing thicknesses from 0.8 to 2.5 mm.

TZ-Steel Framing profile range

Range for roof structures

With the Teczone | Kingspan Steel Framing system it is possible to build any type of roof.

In the case of flat roofs or habitable lofts, their structure is executed in a similar way to the floor slabs, i.e. by means of C-section beams, Railis a U-section closing beam and C- or U-section rails.

In the case of non-habitable single or multi-pitched roofs, the structure is optimised through the use of trusses and latticework, made up of chords and diagonals, both with a C-section.

Recommended profiles

Structure for flat or sloped/dormer roofs

Component	Section	Profile dimensions (mm)		
		Web (a)	Flanges (b)	Thicknesses
Beam	C	100 to 200	50 to 100	1.0 | 1.2 1.5
Rail	U	100 to 200	50 to 75	1.0 | 1.2 1.5
Crosspieces	C / U	100 to 200	50 to 75	0.8 | 1.0 1.2

Structure for trusses and lattices

Component	Section	Profile dimensions (mm)		
		Web (a)	Flanges (b)	Thicknesses
Cord	C	100 to 175	50 to 75	1.0 | 1.2 1.5 | 2.0
Diagonal	C	50 to 75	30 to 50	1.0 | 1.2 1.5 | 2.0

NOTES:

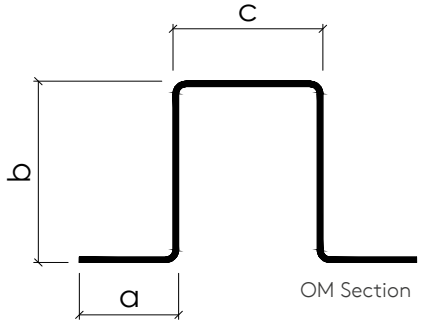
The tables contain only one recommendation. It is possible to manufacture web sections of between 46 - 250 mm , and flanges of between 46 - 100 mm.

Manufacturing thicknesses from 0.8 to 2.5 mm.

It is possible to manufacture the profiles with stiffeners in the webs and flanges, which increase their strength and stiffness. (applicable to profiles with webs of max. 100 mm)..

Range for secondary components

For the construction of secondary structures, such as roof purlins, façade purlins, supports, etc., the Teczone | Kingspan Steel Framing system incorporates a wide range of Omega section profiles.



OM Section

Secondary components

Section	Profile dimensions (mm)			
	to	b	c	Thicknesses
OM 20x20x20	20	20	20	0.6 | 0.7
OM 20x20x40	20	20	40	0.6 | 0.7
OM 20x30x20	20	30	20	0.6 | 0.7 | 0.8 1.0 | 1.2
OM 20x30x30	20	30	30	
OM 20x30x40	20	30	40	
OM 20x40x20	20	40	20	
OM 20x40x40	20	40	40	

Examples of projects

KINGSPAN | TECZONE

c/Alcalde Martín Cobos, s/n
E-09007 Burgos | Spain

T: +34 947 483 700
F: (+34) 947 483 803
E: teczone@teczone.es

www.teczone.es

DTC-196_EN | Rev 1.0 | 21/03/2025