



# Mezzanines





Mezzanines enable the warehouse space to be utilized to its full potential by doubling or tripling the surface area. They can be designed as storage areas, changing rooms or offices, among other applications. Installing a mezzanine is the best way of optimizing available space, such that the area below can remain open allowing for other storage. Adding a mezzanine can be the most economical way to increase your warehouse needs saving you the cost of a conventional building expansion.

### Advantages

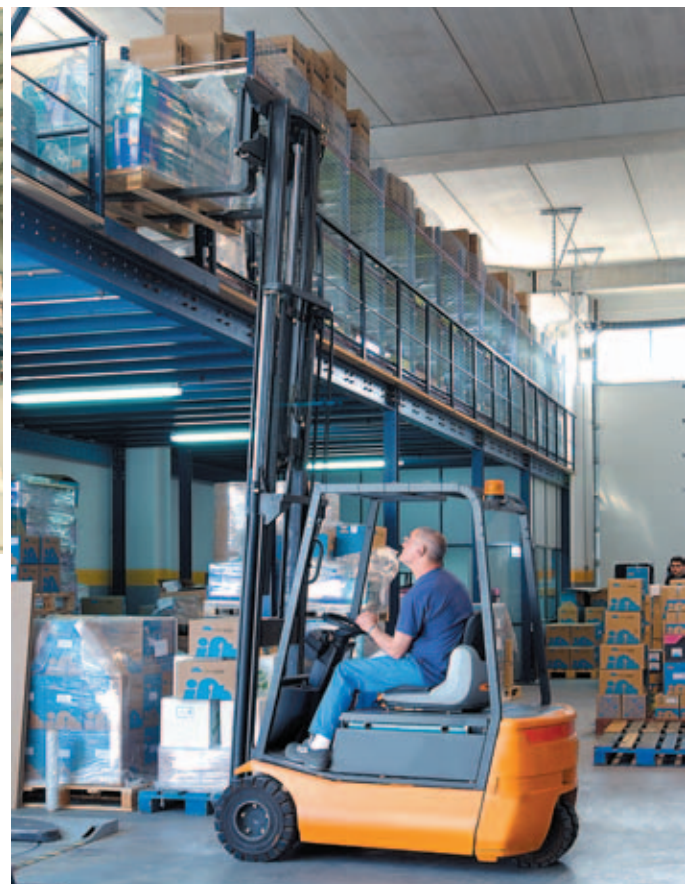
- They are quick, clean and easy to install.
- They can be completely disassembled; all parts can be reused, and their structure, size or location can easily be modified.
- The wide range of sizes, floor types and construction systems mean the mezzanines can be adapted to meet specific client needs.
- They can be complemented with a variety of shelving systems.

The mezzanine design must take into account the access-ways, work system, the product and handling methods so that components such as stairs, handrails, and loading and unloading zones can be accurately planned.

Platform and product lifts can be combined to enable easy access to the products in each level.









## Applications

The installation of mezzanines enables the utilization of different applications in that area, from work areas, to component assembly, preparation orders, storage, etc. even office placement.



The installation consists of two raised floors. The ground floor has been fitted with shelves for storing small and medium sized goods and a larger amount of picking operations. The top floor is used to store large or less frequently consumed products.

The mezzanine is connected to a picking storage area by walkways that serve as reception and order preparation area, it has a platform lift attached to it to lift and lower products from different levels.



A common application is to use the bottom area as a work or order preparation zone and the top part as offices or isolated work areas, complemented by aluminium partitions and false ceilings for a more agreeable working space.



Mezzanine with offices for the control and management area installed in a factory.

The mezzanine, in this case with several levels, is used as a classification and storage area for hanging items of clothing. The structure itself supports the elements required for the movement of the clothing trolleys.



In the bottom part of the mezzanine, bulky products are stored while shelving for storing small and medium-sized goods has been fitted in the top part.





## Construction Systems

Interlake Mecalux has several construction systems available to suit the load, column span, and planned utility of the mezzanine floor. The most common systems are the GL2000, made of hot-rolled steel selections, standard IPN or IPE sections, or the SIGMA system.

### GL2000 System

This is ideal for large spans and medium to heavy loads.

The secondary beams are embedded in the primary beams and are joined together by brackets bolted to the beam cores.

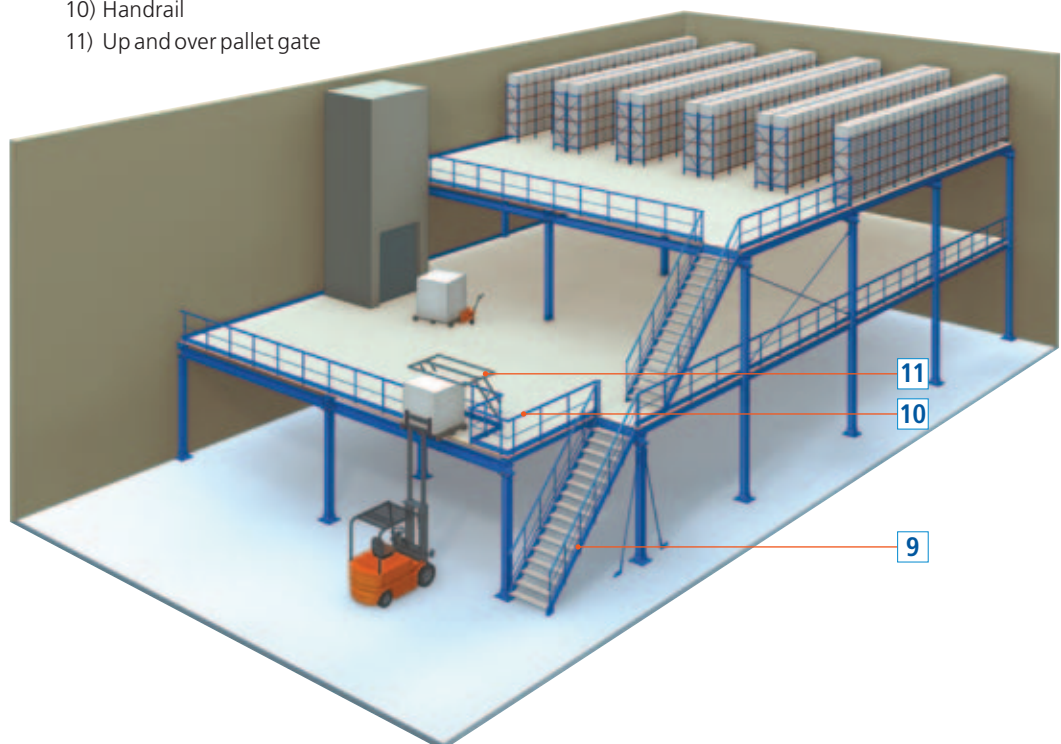
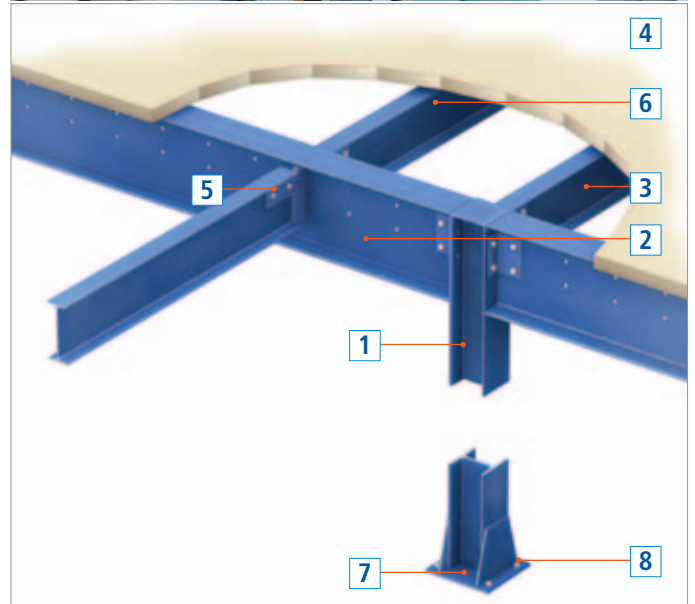
The columns are made of HEA structural profiles. Holes are drilled into the beam flanges so that the beams can be held in place using lateral brackets.

This construction system enables various floors to be installed one on top of another.

Large spans (up to 26ft x 26ft).  
Heavy loads (100 lbs/ft<sup>2</sup> - 300 lbs/ft<sup>2</sup>).  
Lift truck movement

### Basic components

- 1) Columns
- 2) Main beams
- 3) Secondary beams
- 4) Floor
- 5) Floor support angle bracket
- 6) Floor attachment clamps
- 7) Column base plate
- 8) Base plate floor fixing
- 9) Staircase
- 10) Handrail
- 11) Up and over pallet gate



### The SIGMA System

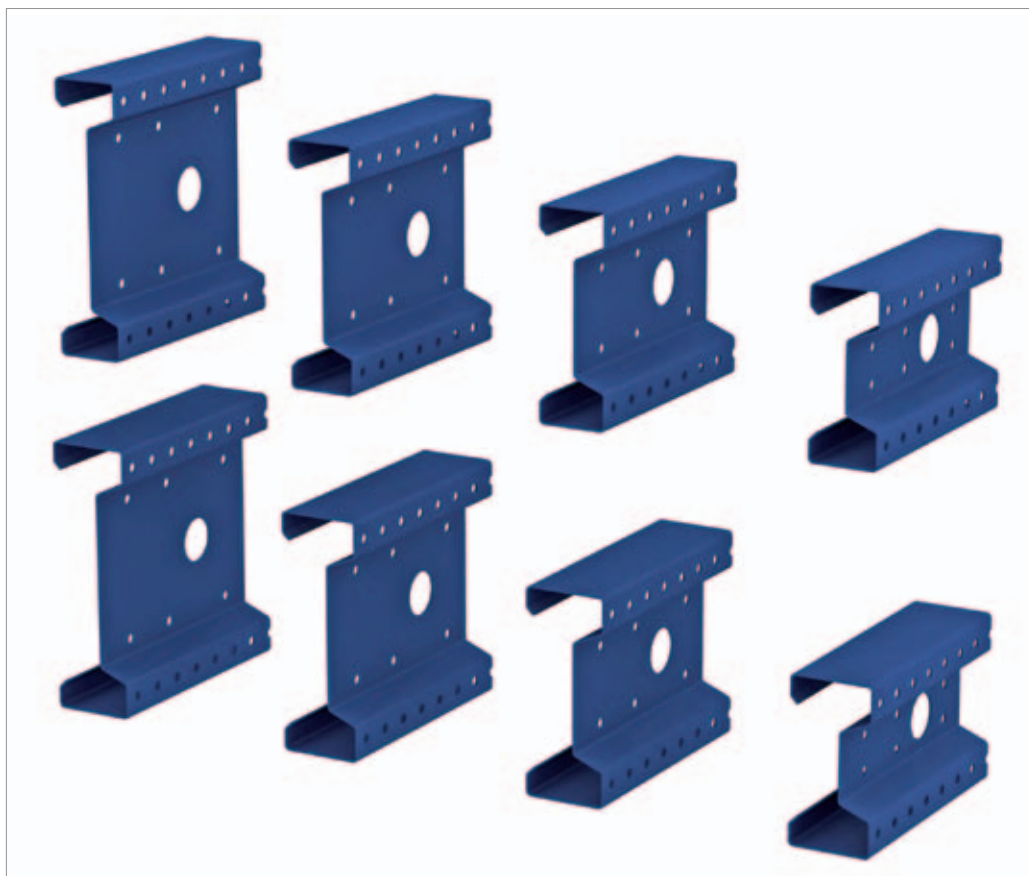
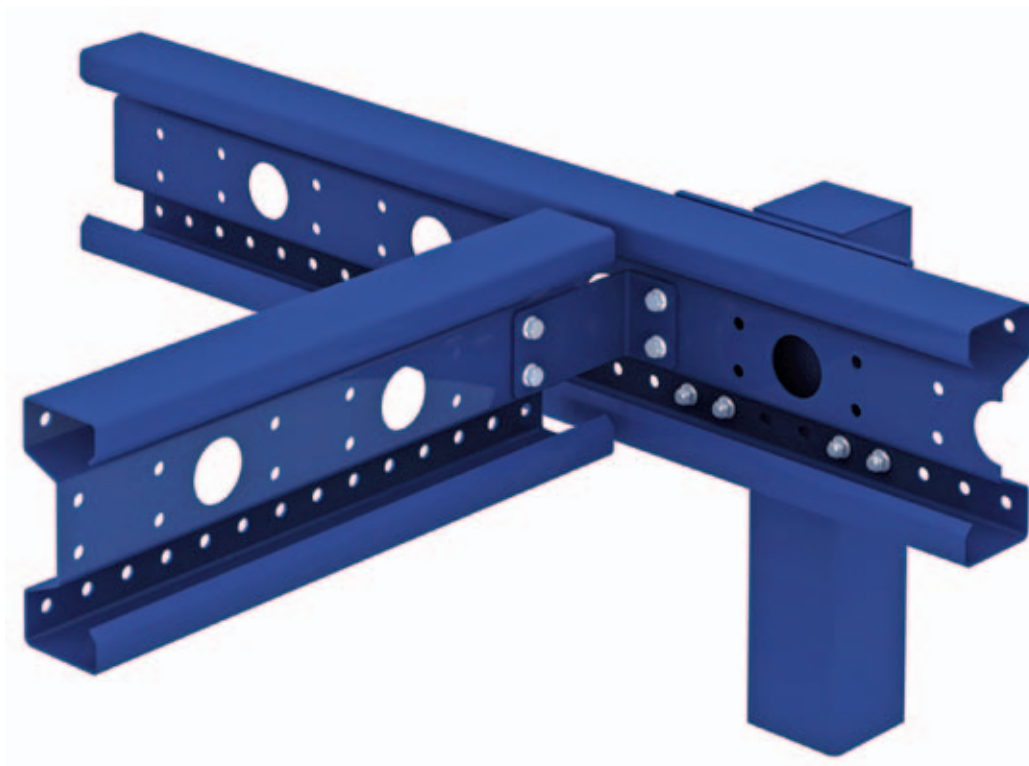
This type of mezzanine features components made of cold-formed steel sections:

- main or master beams
- secondary or bracing beams

We offer a wide variety of sections ranging from 400 to 250 mm high and 100 to 120 mm wide, and a variety of thicknesses to permit the construction of diaphanous space under the mezzanine floor itself. The high degree of resistance provides for column span.

SIGMA sections have core perforations that are 65 mm in diameter to allow for electric cables and fire sprinkler pipes to penetrate.

The many drill holes on the beams themselves allow for various components, such as electric rails, overhead conveyors, auxiliary structures, work accessories, etc., to be fastened to them simply and easily. These types of installations must be considered in the initial design calculations.



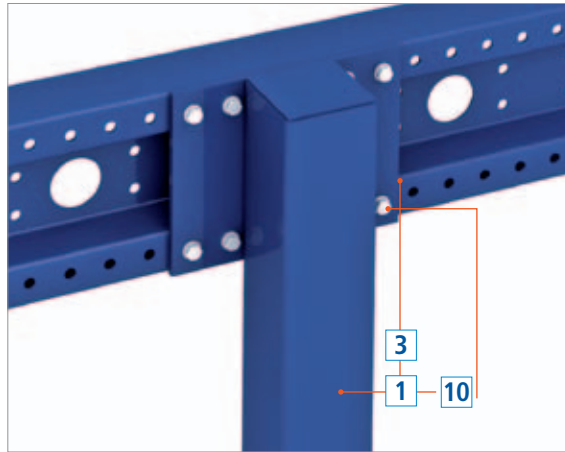
### Basic components

- 1) Single column
- 2) Double column
- 3) Main beam
- 4) Secondary beam
- 5) Flooring
- 6) Safety railing
- 7) Swing railing
- 8) Up-and-over gate
- 9) Staircase
- 10) Fasteners

### Railing components

- 11) Railing post
- 12) Handrail
- 13) Intermediate rail
- 14) Kick board

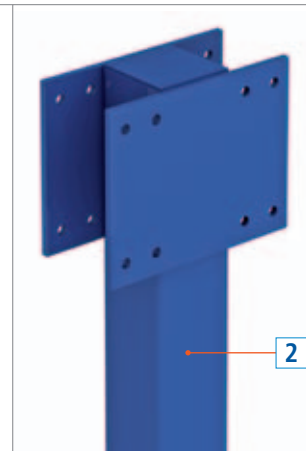
SIGMA section



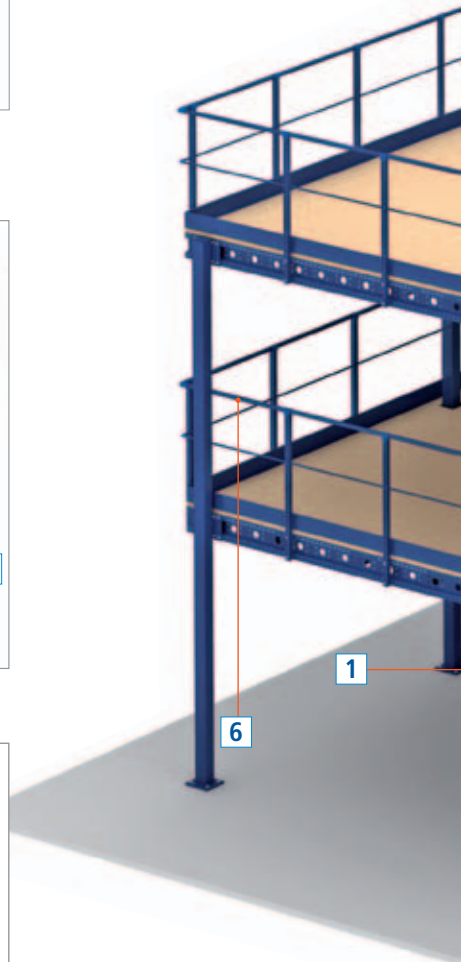
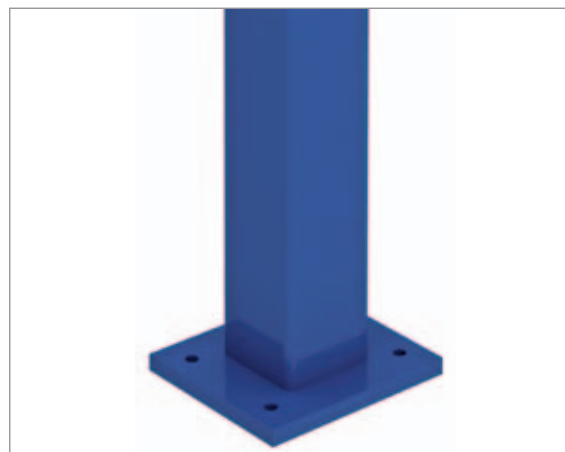
Single column  
top section



Double column  
top section



Column bottom section





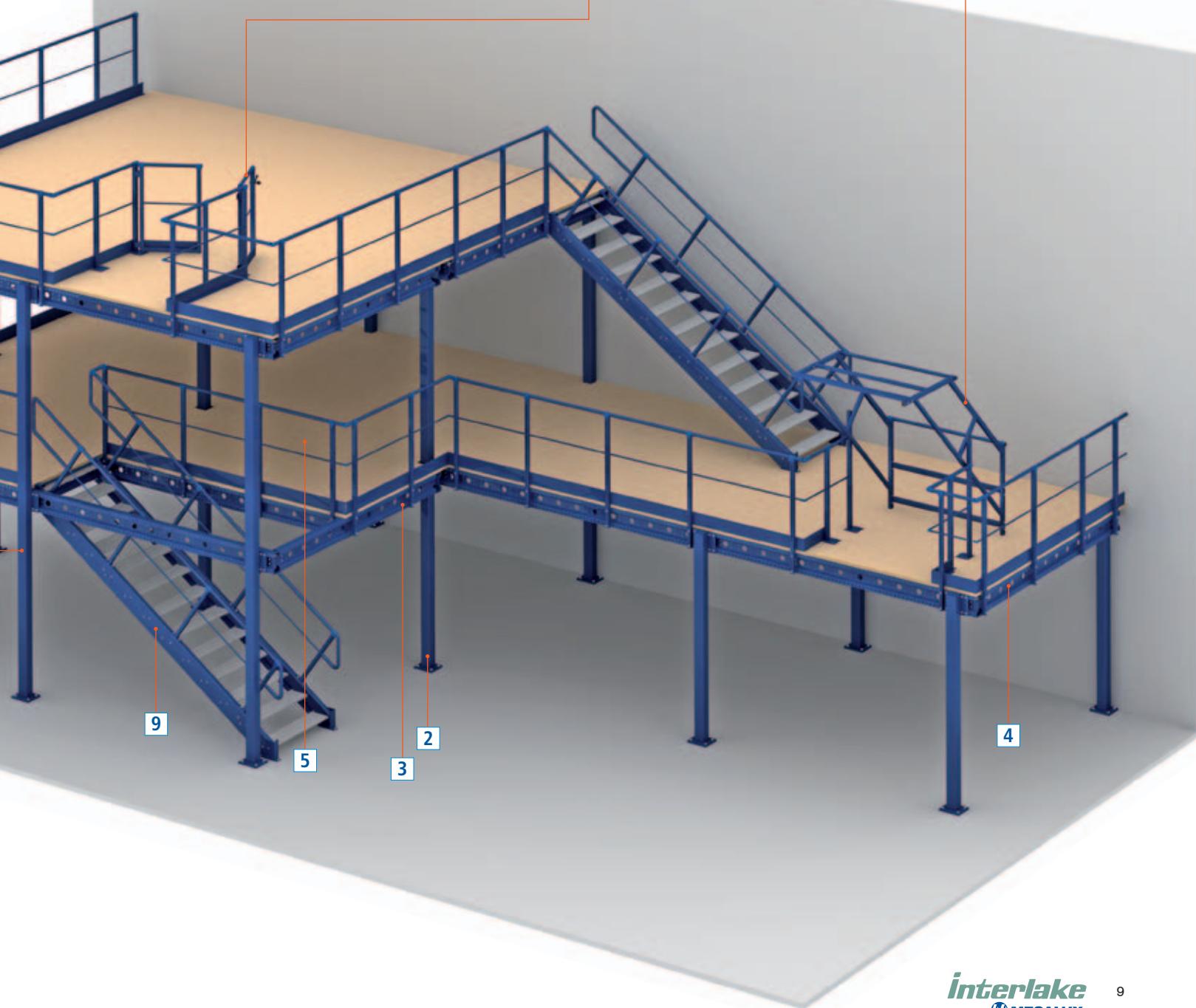
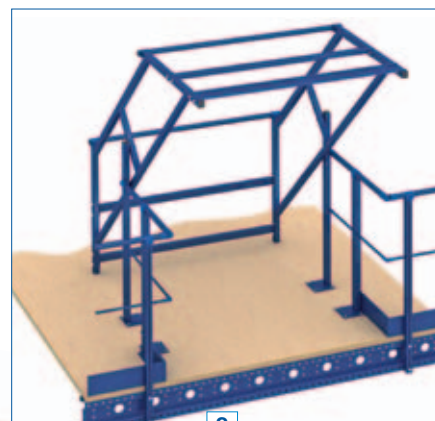
Safety railing



Swing railing



Up-and-over gate





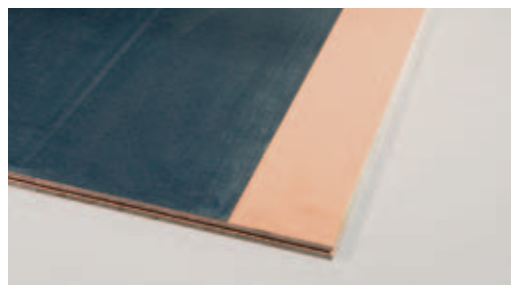
## Mezzanine Flooring

A range of floor types are available to cover a variety of needs, depending on the load, type of work, lift truck use, ventilation requirements and other factors.



### Wooden Flooring

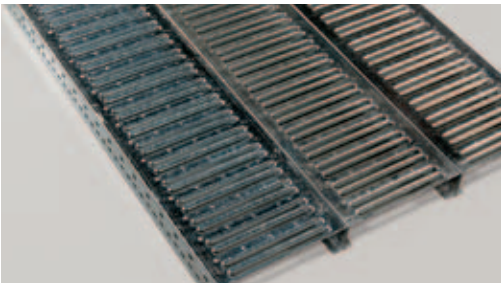
This consists of chipboard panels interlocked in a bridge joint system for a strong floor. An alternative wood floor is made of fire-resistant high-density fibers.



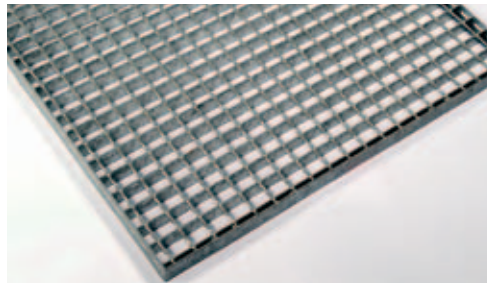
### Wooden Flooring with Steel Sheet

This is installed when heavy trucks or pallet forks are to be used on the top part and resulting noise levels need to be minimized.





**Slotted Metal**



**Metal Grid**

### **Metal Flooring**

Metal flooring has a high load-bearing capacity and comes in a variety of grooved or perforated models, depending on the requirements for ventilation and water supply in fire-fighting systems.

## Railings

The protective railings consist of round and rectangular tubes joined together by flanged attachments. Protective kick boards are fitted around the bottom to prevent objects falling off the mezzanine.

Railings on high floors are connected to banisters by joints permitting elements to be attached from varying angles. The banister components have similar characteristics to the railings.

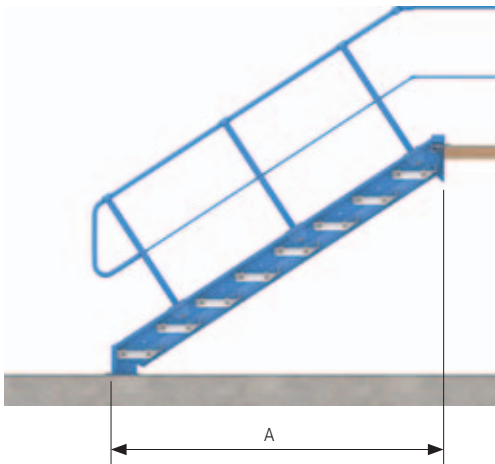


## Staircases

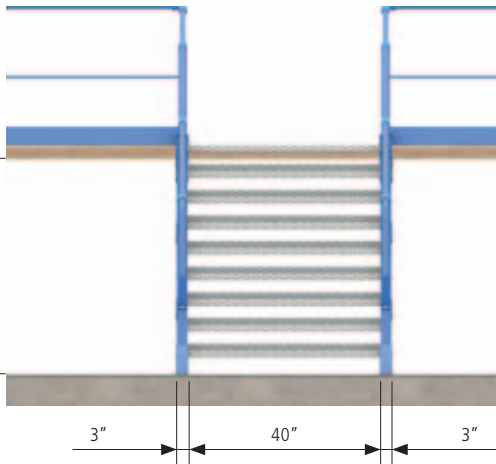
The stairs developed by Interlake Mecalux are easy to install, sturdy and adaptable to different heights (the same staircase can be used for different heights by adjusting the angle of incline). They also meet all current U.S. building standards.

Staircases of 8, 10, 12, or 15 steps can be installed, depending on the distance between the ground floor and the mezzanine floor. Extra flights of stairs are required for staircases over 15 steps.

Single flight of stairs



Single flight of stairs



Heights and steps available

Number of steps	A	B
8	Min. 95 1/4" Max.101 1/4"	Min. 52" Max. 65 1/2"
10	Min. 117 3/4" Max. 26"	Min. 63 5/8" Max. 79 7/8"
12	Min. 140 1/8" Max. 150"	Min. 75 1/4" Max. 94 1/2"
15	Min. 173 7/8" Max.186 1/4"	Min. 92 1/2" Max. 116 1/2"

Heights in inches).

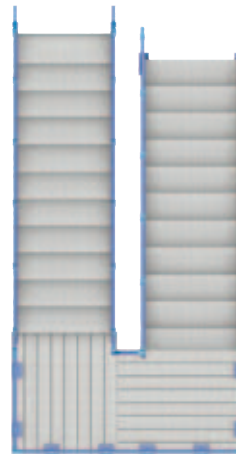
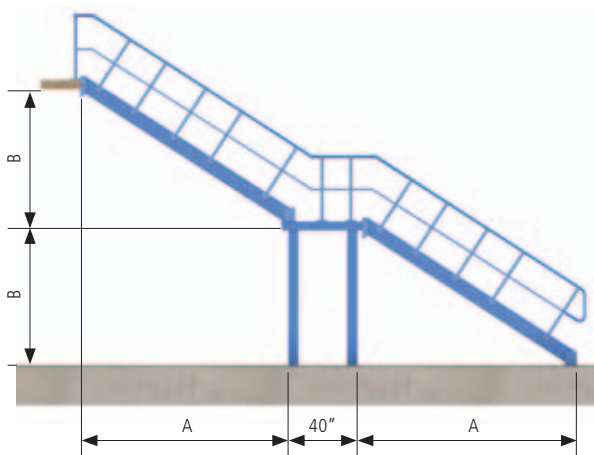




Two continuous flights

Two flights of stairs at 180°

Two flights of stairs at 90°



## Accessories



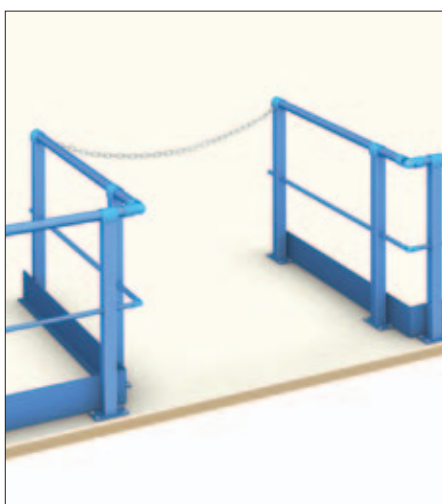
### Swing Gate

This opens inwardly, with a stop at the bottom and a security latch at the top. It permits access to goods from outside or limits the work area.



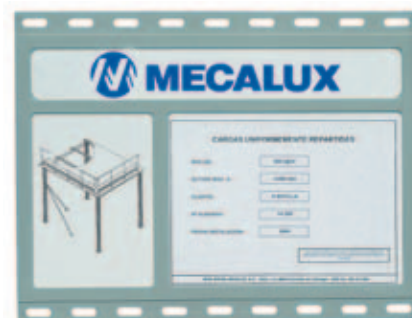
### Up and over pallet gate

This is the best system for creating a product loading and unloading bay when lift trucks and pallet forks are used. It has two positions, depending on the direction of access, which prevent the area from being entered from both parts at the same time. The weight of the assembly is balanced to make it easier to open and close the space.



### Safety Zone

This is marked by the railings, creating a space exclusively for depositing goods, whenever a loading and unloading zone is required.



### Load Sign





### ISO 9001

Interlake Mecalux has implemented a certified quality management system in conformance with ISO Standard 9001, which applies to the design, production, installation and after-sale service of metal racks and automatic storage systems. ISO 9001 certificate has been awarded to the production centres in Spain, Poland, Mexico and Argentina for all static, mobile, and live storage shelving, light-load shelving, mezzanines, lockers for changing rooms and dividers.



### ISO 14001

Interlake Mecalux is environmentally aware and conscious of the effect the activity carried out in their work centres may have on the environment. The application of the Environmental Management System to all activities guarantees that all organisational, production and technical tasks which affect the environment are planned, managed and controlled in such a way as to meet the requisites established in ISO standard 14001.



### CALCULATION STANDARDS

When calculating the structures for mezzanine systems, the Eurocode 3 set of indications has been taken strictly into account.

The main considerations that have been adopted are as follows:

- Structure is created in three dimensions (3D).
- Structure is created with a global flaw.
- Calculation of 2nd order effects.
- Load increase coefficient: 1.5.





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