MEZZANINE – NOW OR LATER?

Maybe the answer is BOTH!

Mezzanine (Multi-Level) Storage Systems can be an effective way to utilize all the available vertical space in your building. However, even if you don't need one now, a little evaluation, planning, and a small expense up front, can save you time & money in the future. First, we will discuss the different types of mezzanine support structures. Then, we will let you know how to effectively plan for a mezzanine in the future.

Structural Steel

Uses structural steel beams to support the second floor deck structure. Column spacing can vary from 8' to 20' clear. This provides a clear, open second level and relatively clear workspace below. Railings will be required on sides that do not meet a wall.

Wide Span

Uses pre-fabricated steel trusses to support the second floor deck structure. Uses fewer columns, with clear spans available to 40' wide. This provides a clear, open second level and maximum clear area under the mezzanine. Railings will be required on sides that do not meet a wall.

Rack Supported

Uses standard pallet storage racking to support the second level. Rack can stop at the deck height to provide a clear, open second floor or continue up through the floor level, to provide storage on the second level. In the latter case, only the aisles will have the floor decking. The area below can be open rack bays for bulk storage or work areas, or you can have shelf levels below for static or carton flow storage. Railings will be required on the ends of aisles.

Shelving Supported

Uses standard steel shelving or rivet style bulk racking to support the second level. Rack can stop at the deck height to provide a clear, open second floor or continue up through the floor level, to provide storage on the second level. In the latter case, only the aisles will have the floor decking. Shelves are required in the lower level for strength and stability. So, the lower level is always used for parts or small carton storage. Railings will be required on the ends of aisles.

Flooring Options

Flooring material can be open style flooring, using bar grating or open steel plank grating or it can be a solid flooring, using 1-1/8" tongue & groove plywood, 3/4" T & G plywood over corrugated steel roof decking or steel plate over corrugated steel roof decking. HVAC, lighting, and fire sprinkler considerations will vary with the different floor types.

So, why would you want to think about a mezzanine before you need one? The answer (as it often is in the business situation) is Money! Installing a mezzanine in an existing facility with on-going manufacturing, order picking and storage operations is possibly dangerous, time consuming, and definitely more costly. If you are planning for a mezzanine in the future, there are a few easy and low cost steps you can take now to minimize the extra costs and impact to your operations in the future.

With structural and wide span mezzanines, the most difficult aspect of design and installation in existing facilities is the placement of the support columns. Keeping the column locations away from existing offices, machinery, storage areas and traffic aisles can be difficult. It often requires additional and irregularly spaced columns to avoid interference with existing structures and passageways. This will increase the material costs and the installation labor time and costs.

One way to avoid these problems in the future is to *design the mezzanine before you need it.* You can obtain a proposal for a mezzanine with pricing and installation drawings before you layout your warehouse or manufacturing facility. The drawings will give you the optimum future mezzanine column locations. Then, the lower level equipment and walkways can be placed around the areas reserved for columns. The other possibility is to place equipment that may end up being moved up onto the mezzanine along one of the future column lines. The moved equipment will free these areas for column placement. This minimal planning effort can reduce or eliminate many of the extra costs involved in designing and installing a mezzanine in an operating facility.

Shelving and rack supported mezzanines, on the other hand, are often installed in two phases. The lower level is installed first, with the anticipation of expanding upward to a second level as storage, order picking or manufacturing needs grow. It is *very* important to design your shelving or rack layout today with a future mezzanine in mind. You can avoid major safety concerns and extra installation costs if this is done correctly in the beginning. Most of these concerns will apply to both the deck-over and the shelving-up-through options

The first consideration is capacity. A shelving or rack system may be adequate for a single level system, but when a second level of storage is added, the upright post or frame capacities may not be sufficient to support the load on the second level. This can be addressed in two ways. First, ensure that the posts or uprights you install on the lower level will be adequate for the capacities when the second level is added. Second, the spaces between the rack or shelf levels will affect the capacity of the uprights: the greater the shelf spacing, the lower the capacity of the uprights. So, ensure that shelf spacing used on the lower levels is close enough to guarantee the required capacity or plan to add these levels when the mezzanine is added.

The next concern comes when it is time to extend the upright posts or frames to accommodate the second level. The second level posts are usually joined to the lower level with a factory approved splice kit. However, for strength and bracing reasons, the splice is *not allowed below the floor level*. So, if you installed 7’ high shelving, you will have to remove the top shelf, install the splice and effectively reduce your storage capacity on the lower level. To avoid this situation, you can install higher posts than you need during the initial lower level installation. Then, when the time comes to install the second level, there is free post extending beyond your top shelf where the splice can be installed. The second floor can then be installed below the splice without affecting any of the existing shelves on the lower level. This option can be used with rack, shelving or rivet rack applications.

The last two problems you can avoid with a little planning are: floor anchoring and aisle spacing. Shelving supported mezzanines require the lower level posts to be lagged into the floor. This is very difficult to do after the shelving has been installed, requiring the emptying and removal of all the lower shelves to get access to the post bases. Then those lower shelves are re-installed and reloaded. This represents a significant investment in time and money. So, for a small additional cost per unit, you can install floor anchors in all the shelving units on the lower level and avoid the higher cost later.

The last recommendation is simply to install row ties at the top of all the shelving units of the lower level. With time, usage, loading & unloading, and the occasional 'bump' from a cart or truck, shelving rows can become misaligned. Installing row ties ensures that all the rows are straight and none of the individual units are out of alignment. It also maintains a consistent spacing between the shelving units. Then, the flooring for the second level can be sized to easily fit in each row and no expensive custom cutting or fitting will be required during the installation process.

So, if a mezzanine is in your future, consider it now! Then take these few simple and inexpensive steps to ensure a smooth and cost efficient transition to a two-level storage system in the future.

For questions or help with Mezzanine Storage applications:

Call Preferred Equipment Resource at 800-711-8698
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