

The Importance of Proper Palletization

In a competitive environment, it becomes imperative for space optimization of unitized loads for transport and storage.

When palletizing cartons of product for shipping, it is essential that the packaging, including the pallets, are sufficient to protect the product. Improper palletization not only risks your products being damaged in transport but also can create risks to employees if the load becomes unstable. Poorly wrapped pallets with uneven load distribution can cause the products to shift, creating a dangerous situation in your warehouse or during transportation. Additionally, using the wrong pallet for your load can also create risk.

Stacking Orientation

Most boxes are stacked on a pallet using either an interlocking or columnar method. The interlocking method is similar to bricklaying, with each layer being rotated 90 degrees. The columnar method has each box stack directly on top of each other in the same orientation.

Interlocking is thought by many to be the most stable stacking method. However, if the box contents aren't rigid enough to support the load, you could experience failure of the box. There is up to a 50 percent reduction in the box compression strength using this method compared to column stacking. This may be further reduced by storage and handling conditions over time.

Corrugated box strength is greatest at the corners and least at the side of the box. With

the Interlocking method, the box's corner on the upper layer is supported by the lower box's side (weakest point). If the side has a structural feature that further reduces its strength, such as handhold cutouts, it should be considered non-load bearing.

With column stacking, the same footprint is maintained on each layer of the pallet. The strongest point of each box (corner) is stacked on the strongest point below it. This provides maximum strength because two-thirds of the stacking strength of a box is concentrated at the corners.

Another factor that impacts the pallet's stability is pallet overhang. Overhang can reduce compression strength by 32 percent, and the part overhanging the pallet is subject to impacts that can result in punctures, abrasions, and damage.

Companies will often use software to optimize the pallet's stacking strength and determine the most effective stacking configuration.

Pallets

Not all pallets are created equal. Two of the main characteristics of pallets are their strength and their stiffness. The stiffness refers to how much it deflects or bends under a load. The flexing can create instability of the load or damage to the product. This deflection can also create issues for fork truck tines to be inserted properly.

The pallet used should be free from any damage, missing deck boards, or protruding nail heads. The spacing between the deck boards is typically 1-3 inches. Care should be taken that edges of the boxes do not fall between the deck boards, as this can damage the boxes and their contents.

Tie sheets may be needed between each layer to add additional stability, particularly with a column stacked pallet. Edge/corner protectors, strapping, unitizing adhesive, or stretch wrap may also be needed to secure the pallet and prevent damage.



Optimizing and Securing for Transit

In addition to optimizing your pallet load, you may also need to increase load efficiency to reduce shipping costs. In addition to the stacking orientation, determining how many pallets will be stacked, the stack height of each, and specifications for your transit method are a few factors to consider. Whether you ship by rail, road, sea, or intermodal, load securement is essential and may require a combination of airbags, strapping, load divider panels, and void fillers to secure your cargo to ensure it arrives safely.

Work With an Experienced Partner

For over 50 years, we have provided corrugated, bulk bag, packaging, transit protection, and pallet and crate solutions to various companies. We have the experience you need to ensure your products are protected in your warehouse and during transport. We have provided countless customers with solutions to routine and unusual transport issues. Contact us to learn how we can help you.