

**A message from Packnet General Sales Manager Dan Schultze**  
*Custom Crating Considerations*

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Numerous considerations need to be taken into account when designing custom built crates for your product. With wood crating, one of the most important considerations is determining the mode of transportation. There may be restrictions on the size of a package depending on how the product will be transported. Additional considerations may include utilizing reusable crating, handling restrictions at destination and within one's own facility, temperature, humidity, as well as shock and vibration concerns.

Once the fragility and gross weight of a product have been determined and proper cushioning and preservation methods have been evaluated, one needs to consider the overall size of the finished crate. The outside height measurement is most likely the greatest factor in affecting the price (or how much additional cost) of transportation costs. In virtually every instance, no matter how large the product is, there are means and ways to transport extremely large crated products. There simply may be restrictions as outbound flights or sailing dates are less frequent and more costly.

Some common height restrictions for air-bound shipments are based on the aircraft door sizes. All crated products that are 64" or less in height can be moved via passenger or cargo planes, and these options provide the most flexibility when shipping domestically or internationally. Other height restrictions are 88" side door openings on DC-10 planes, and 96" openings in the nose cone section on 747 freighter planes. Main deck side door openings are 118" on 747 freighters. Airbus planes are becoming more popular and freighter service will usually schedule one to two flights per week to most countries.

There also are some crate length and width considerations to keep in mind. When shipping via air, it is highly recommended to keep crate lengths less than 10' whenever possible. This is due to the fact that most bulky or larger crated products are secured to a flat rack or air pallet, which are low profile heavy-duty aluminum or steel platforms equipped with fittings that allow the pallet to be firmly attached to the aircraft deck. Air freight pallets are typically 10' or 20' in length. Airlines have been known to charge for two air pallet "positions" when a crate exceeds the 10' length (even if only exceeding by two or three inches). This can become very costly!

Some common limitations for ocean-bound freight also exist. Most commonly used are 20' and 40' standard sea containers. Door openings are 94" wide and 90" tall, and the entire inside width is 94". It is best practice to keep crate dimensions to a minimum of one inch under these dimensions to allow for dock plates and ease of loading and unloading. The available inside length of these containers is 19.5' and 39.5', but there are also 40' "High Cube" sea containers. They have the same 94" width but offer an additional 12" of height. In these situations, it is best to keep crate height at 101" or less. Other options include open top containers (allowing for even taller product), and there are new sizes of sea containers being introduced such as 45' and 53' long containers. It's best to check once again with a freight forwarding agent and work with a crating specialist to determine the best options. An extremely large product that ships via ocean is often classified as "break bulk" and is stowed on the sea vessel alone and not inside of a sea container. It is usually lifted with overhead cranes and extremely large forklifts; therefore, lifting locations and appropriate markings are strongly recommended.

Products being moved from facilities can be transported via truck with swing doors (usual height openings of 110" and width of 99") or trucks with roll up doors (usually 104" tall opening). The other consideration when moving product via "low boy" (step deck) or flat bed trailers is that a permit is commonly required when the width exceeds 102".

Some additional items to consider are markings, perishable cargo, liquid cargo, water damage protection, ISPM15 compliance, and dangerous goods. Provide adequate ventilation for perishable cargo when required. Packnet highly recommends the use of moisture barriers such as MIL-J-131 water vapor barrier packaging with desiccant or VCI materials to protect products against moisture and corrosion. Investigate and be certain that classified dangerous goods or hazardous products are properly labeled and are packaged in approved containers. Use of appropriate international markings such as orientation of the crating is suggested, as is the use of official ISPM15 markings by a certified crating supplier. Currently, more than 134 countries have adopted the ISPM15 standard for heat-treated lumber used in solid wood packaging. Furthermore, remember your packing slips and export documentation with gross and net weights.

For very large or extremely heavy cargo, check with carrier or freight forwarding agents and a certified and experienced crating professional to confirm capabilities and booking information. Overall, communicating and planning the shipment well in advance can save a significant amount of time and expense.