

Renewed Computer Technology RCTech RENEW: Reuse/Recycling Program

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Best Practices Guide

Overview:

This Best Practices Guide is intended to be used by donors of surplus ICT equipment as a reference tool to facilitate the technology donation program. RCT welcomes your best practices to continuously enhance our programs. Please send your suggestions to donations@rcto.ca.

GETTING THE EQUIPMENT READY FOR SHIPMENT:

Packing Material Descriptions:

Pallets / Skids

A pallet is a flat wooden or plastic structure that can be lifted by a forklift, pallet jack, or pump truck. Pallets are appropriate for packaging items with a fixed/defined shape that allows them to be easily stacked on top of one another, such as computers, monitors, laptops and other electronic items. Pallets of equipment are easiest to build when items of one type and size are placed together on a pallet. To ensure stability and mobility, pallets of equipment should not be built higher than 4'0".

Gaylord box / Tri-Wall box

Gaylord/tri-wall boxes have the same base dimensions as a standard North American shipping pallet and are usually 36" tall. An empty box is placed on a pallet so that it can be moved with standard warehouse equipment. The box should be stretch wrapped to a pallet to prevent the box from sliding off the pallet during transport. Gaylord boxes are suitable for packaging non-standard or oddly shaped equipment that cannot easily be stacked. Examples include: computer peripherals such as monitors, mice, keyboards.

Packaging overview for surplus electronics

When disposing of surplus electronic and electrical equipment, you must ensure that proper packaging methods are used. Proper stacking and wrapping of pallets as well as correctly filling boxes, protects against shifting during transport, environmental damage due to breakage, opportunities for theft and the risk of injury caused by falling items. Equipment that is properly packaged is easy to identify, move, load and is unlikely to be refused by transporters. At no time should loose equipment be loaded directly into trucks and shipped via unsecure bulk transport (e.g. not being skidded and wrapped).

Packaging items of similar type and size makes it easier to construct stable and well-balanced pallets and boxes. Surplus electronic and electrical equipment is typically grouped by equipment type. Please see below for a detailed description of the proper method to build and wrap pallets of monitors, laptops, and desktops.



The image above shows the result of shipping skids which were poorly built.

General Guidelines for all equipment types:

To ensure the safety and security of everyone involved, please follow these general guidelines:

- ✓ Skids should not exceed 4' in height
- ✓ Gaylord/tri-wall boxes should never overflow with material
- ✓ Equipment/Gaylord/tri-wall boxes should be wrapped securely to all 4 corners of the skid
- ✓ Skids & Gaylord/tri-wall boxes should be properly wrapped to secure & protect all equipment

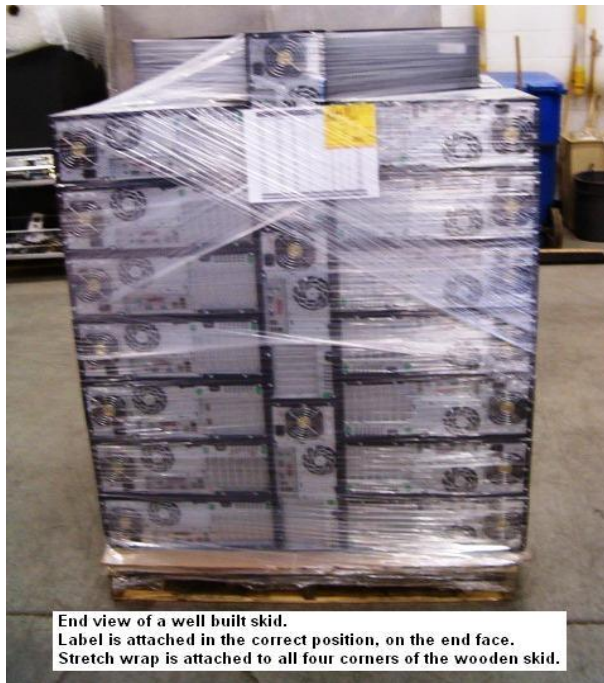
Stacking and wrapping equipment on Pallets/skids

Desktops

A skid of desktops can usually contain about 40 CMT computers, or 80 small-form-factors (SFF) per skid.

To prepare a skid of 40 full size (CMT) computers:

1. Lay down a sheet of cardboard on an empty skid, and lay computers flat on the skid, starting with a stack up to 7 desktops high, in each corner of the skid. If necessary, computers can be stacked so that labels on each computer are facing outward. NOTE: Never stack a skid higher than 4'.
2. Stacks of desktops can be stood vertically in the middle only, if there's empty space to fill, as shown above.
3. When stacking computers, ensure that there is no equipment hanging over the edges of the wooden skid, to prevent damage or injury
4. Both the computers and the wooden skid must be wrapped to cover and secure the whole skid
 - 4 thicknesses of stretch wrap, from top to bottom, are required for wrapping securely and preventing the load from shifting or toppling over in a truck.
 - The stretch wrap must be tightly wrapped around all four corners of the wooden skid to keep the equipment secured on the skid during transport.
 - It is recommended that stretch wrap cover the top of the skid, to prevent the equipment from getting wet in weather, or being tampered with during transport or storage.



To prepare a skid of 80 small form factor (SFF) desktops:

1. Lay down a floor of cardboard on the empty skid
2. Position each SFF desktop flat, in stacks. A standard skid will typically accommodate 9 stacks of 9 SFF desktops (for a total of around 81 SFF computers per skid). NOTE: Never stack a skid higher than 4'.
3. If necessary, computers can be stacked so that labels on most computers are facing outward.
4. When stacking the computers ensure that there is no equipment hanging over the edges of the wooden skid, to prevent damage or injury.
5. Both the computers and wooden skid must be wrapped to cover and secure the whole skid
 - SFF skids of 80+ computers can be very heavy and require attention to safe building and wrapping
 - 4 thicknesses of stretch wrap, from top to bottom, are required for wrapping securely and preventing the load from shifting or toppling over in a truck.
 - The stretch wrap must be tightly wrapped around all four corners of the wooden skid to keep the equipment secured on the skid during transport.
 - It is recommended that stretch wrap cover the top of the skid, to prevent the equipment from getting wet in weather, or being tampered with during transport or storage.



Laptops:

Very small quantities of laptops can just be placed on top of desktop skids for shipment. There are two ways to build and wrap skids, for larger or medium quantities of laptops.

A large skid of 40 to 100 laptops can be built like this:

1. Lay down a floor of cardboard on an empty skid
2. Lay flat a stack of 6-10 laptops in each of the 4 outside corners of the skid. These will act as your corner posts. Stacks should not be higher than 6-10 to ensure that the laptops screens on the bottom are not being damaged by too much weight resting on them.
3. Please leave space on each skid for a box containing all of the matching power supplies. One corner of the skid may be the best place for it. Don't place a heavy box of power supplies on the top of laptops laid flat, as this weight will damage the laptop screens.
4. Rows of laptops are then stood vertically between the four corner stacks, until the skid is solidly packed or filled. When stacking the laptops, ensure that there is no equipment hanging over the edges of the wooden skid, to prevent damage or injury.
5. Both the laptops and wooden skid must be wrapped to cover and secure the whole skid.
 - 4 thicknesses of stretch wrap, from top to bottom, are required for wrapping securely and preventing the load from shifting in a truck.
 - The stretch wrap must be tightly wrapped around all four corners of the wooden skid to keep the equipment secured on the skid during transport.
 - It is recommended that stretch wrap cover the top of the skid, to prevent the equipment from getting wet in weather, or being tampered with during transport or storage.



A skid of 40 or less laptops can be built like this:

1. Lay down a floor of cardboard on the empty skid
2. Fill the skid with laptops laid flat, in stacks of 6-10 high,
 - Stacks higher than 6-10 may cause damage to the screens on the bottom due to the weight pressing down on them.
 - Leave a space on each skid for a box containing the matching power supplies. One corner of the skid may be the best place for it. Don't place a heavy box of power supplies on the top of laptops laid flat, as this weight will damage the laptop screens.
3. If you feel it is necessary a cardboard belt (see above) can be wrapped around laptop skids, but this is not mandatory if the skid will be well stretch wrapped.
4. When stacking the laptops ensure that there is no equipment hanging over the edges of the wooden skid
5. Both the laptops and wooden skid must be wrapped to cover and secure the whole skid.
 - 4 thicknesses of stretch wrap, from top to bottom, are required for wrapping securely and preventing the load from shifting in a truck.
 - The stretch wrap must be tightly wrapped around all four corners of the wooden skid to keep the equipment secured on the skid during transport.
 - It is recommended that stretch wrap cover the top of the skid, to prevent the equipment from getting wet in weather, or being tampered with during transport or storage.



Packaging equipment in a Gaylord box/Tri-Wall box:

LCD Monitors

There are two methods for packing LCD monitors. The best method for safe and secure transportation or storage is in a Gaylord box as depicted below:

These boxes will usually contain around ~50-70 units depending on the size of the LCDs. The box can be filled 3 layers high, with 20-25 monitors in each layer.

1. Place the Gaylord box onto an empty skid. Gaylord boxes must be securely stretch wrapped to the wooden skid and this is more easily done when the box is empty.
2. Place the LCDs in the box with screens face to face or back to back—but not back against face. This helps to reduce screens damaging each other during shipping, and the LCD bases fit together better that way.
3. Cardboard strips can be stood vertically between rows of LCDs to prevent screen damage during shipping – as shown above.
4. Place a layer of cardboard flat over each completed layer of 20-25 LCDs to act as the floor for the next layer.
5. If necessary, an extra belt of scrap cardboard can be added at the top of the box, to wrap around and secure the top level of LCDs. (as seen above)
6. Both the box and wooden skid must be wrapped with stretch wrap to secure the whole skid
 - Usually 4 thicknesses of stretch wrap is sufficient for wrapping securely
 - The stretch wrap must be tightly wrapped around all four corners of the wooden skid to keep the Gaylord secured to the skid during transport.
 - It may not be necessary to wrap the middle area of the box with stretch wrap, if it is sufficiently strong on it's own
 - It is recommended that stretch wrap cover the top of the box, to prevent the equipment from getting wet in weather, or being tampered with during transport or storage.



If you don't have Gaylord boxes, skids of about 45 LCDs can be prepared in a similar manner to above, 2 or 3 layers high, as follows:

1. Lay down a floor of cardboard on an empty skid without a Gaylord.
2. Place a bottom layer of approximately 15 monitors on the skid.
3. The screens should be placed face to face or back to back, but not front to back, as this helps to reduce screens damaging each other during shipping, and the LCD bases fit together better that way
4. Cardboard strips can be placed vertically between rows of LCDs to prevent screen damage during shipping – as shown in the Gaylord box photo above.
5. To prevent LCDs tipping over and to add stability, each layer should be stretch wrapped before starting the next layer of LCDs. Use only a moderate level of tension when wrapping in order to secure but not strangle the LCDs
6. Place a layer of cardboard flat on top of each completed layer of about 15 LCDs, to act as the floor for the next layer. This cardboard floor should be no bigger than necessary as it will interfere with stretch wrapping.
7. Stretch wrap each layer as you complete it, to avoid tipping.
8. When finished stacking the monitors ensure that there is no equipment hanging over the edges of the wooden skid
9. Horizontal belts of cardboard can be wrapped around the exterior of the LCD levels, if you need to stabilize the skid.
10. The equipment and wooden skid must be wrapped with stretch wrap to cover and secure the whole skid
 - Wrap but don't strangle the LCDs inside
 - Ensure that enough layers of stretch wrap have been used, and all 3 levels of LCDs have been wrapped to each other, and to the wooden skid.
 - The stretch wrap must be tightly wrapped around all four corners of the wooden skid to keep the equipment secured on the skid during transport.
 - It is recommended that stretch wrap cover the top of the every skid to prevent the equipment from getting wet in weather, or being tampered with during transport or storage.