

# ***Knocked-Down (KD) and Semi-Knock-Down (SKD) Protective Packaging Requirements***

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Revision	Originated By	Approved By	Effective Date / Season

## 1. Scope

This document covers basic requirements for CPWM furniture products that are packaged for shipment in the knocked down (KD) or semi knocked down (SKD) state which requires some assembly before use.

## 2. Application

This specification is applicable for all products that do not have specific CPWM packaging requirements specified elsewhere.

## 3. Product Classifications

- 3.1 Knocked Down: Products that are shipped completely un-assembled down to the component level for the purpose of nesting and space saving during shipment. These types of product require extensive assembling prior to use. Examples include but not limited to chair, wine storage racking, wine bar, and media stands...
- 3.2 Semi Knocked Down: Products that are shipped in partially assembled stage in sub-assemblies. These types of products required minor assembling before use. Examples include dining tables which only require legs attachment to the table top, pre-built drawers and loose legs shipped with unassembled desk....

## 4. Pre-Packing

- 4.1 All surfaces of the product must be completely dry, clean, and free of dirt, grease, glue, or foreign matter.
- 4.2 All attached hardware and finishing color must be thoroughly checked to insure proper installation and to be in compliance with the approved sample and quality standard. Use counter sample and shade/color swatches as applicable.
- 4.3 All packaging material must be clean and free of debris, no pre printed (re-use) corrugated material is allowed.
- 4.4 Detail packaging instruction and/or copy of approved BV test report must be available to ensure packaging process is duplicated exactly as tested.

## 5. Cosmetic Protection Requirements

- 5.1. All cosmetic areas (show surface) of the product must have full coverage protection with non-abrasive materials such as layers of polypropylene, polyethylene foam sheeting minimum thickness 1 mm, plastic-bags (min. thickness 2 mil, .05 mm). Sharp corners may need to be reinforced with extra foam sheet to prevent tearing puncturing during packing and shipping. Secure all foam/plastic wrapping to fully contain the component with minimum amount of clear tape as needed.



**Figure 1:** Wrap each individual component with min. 1 mm thick Poly foam sheet. Separate inside inner carton.



**Figure 2:** Protect the edge of table with PE foam channel or thick PE foam wrapping.

- 5.2 Non cosmetic area (class C surface) such as the underside of cabinet, table or drawer should be packed positioned facing one another whenever possible to avoid abrasion and impact damage to the product show surfaces (class A or B).

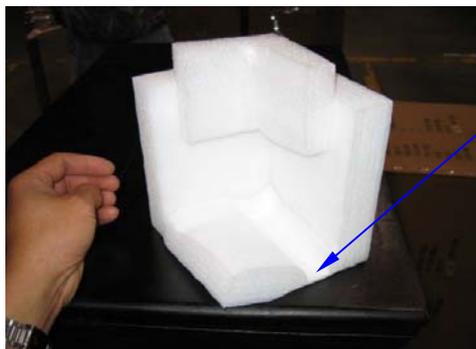
## 6. Impact Protection Requirements

- 6.1 Protruding objects such as table and chair's legs should be adequately contained using corrugated pads to prevent them from puncturing the shipping carton during shipping (transit damage). Corrugated built up pad or corrugated reinforced EPS foam pad are commonly used to increase the contact surface of the foam pads and prevent the weak outer carton from being punctured.

**Figure 3:** EPS high density with corrugated pad reinforcement helps prevent foam corner breakage during impact.



- 6.2 All packaging material must be secured with clear vinyl tape to prevent them from shifting or moving away from the intended protective areas within the carton.
- 6.3 Corners of heavy products such as dining table top, bookcase and media center panels must be adequately cushioned using corrugated built up pads, foam pads (Expanded Polystyrene –EPS or Polyethylene - PE). If foam material is used, it must be of high density (23kg/m<sup>3</sup>) and of sufficient thickness to avoid “bottoming out” (flattened beyond effective use due to static compression).



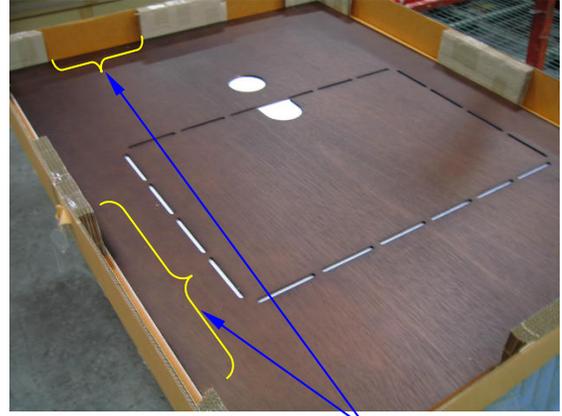
**Figure 4:** Incorrect use of PE foam corner pad causes pad to bottoming out. This results in a large void within the package which allows excessive component shifting.

Solution: Increase surface loading area at corners, use high density PE foam or thick corrugated built up pad instead.

- 6.4 Corner and Edges of product can be padded using corrugated build up pads, high density EPS foam pads (24 kg/m<sup>3</sup>) min., thickness must be min. 1.5" (38 mm). Edge protection coverage must be min. 75% of the length of edge. No un-protected edge larger than 12" (30 cm) is allowed.



**Figure 5:** Using corrugated built up pad for corner protection.

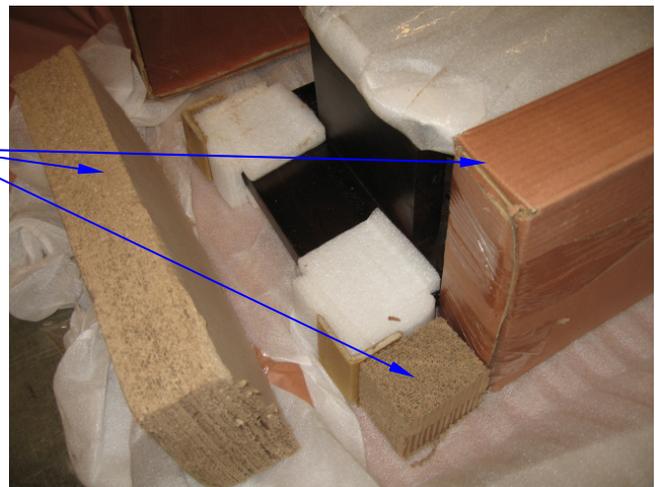


**Figure 6:** Distance between pads can not be more than 12" (30 cm).

## 7. Internal Movement Restriction

- 7.1 Internal components movement is the leading cause of shipping damage. All components must be effectively contained and restricted from free movement during shipping and handling. Voids must be blocked/braced using corrugated built up pads, corrugated tubes and/or void cartons. Keep in mind that these block/brace materials must be sufficiently strong to be effective. Collapsed inner carton and tube will cause voids which allow components shifting.
- 7.2 Corner protection using corrugated built up pad or EPS/Thermaco/PE foam blocks must be engineered to avoid crushing under the item's weight. Bottoming out (flatten) corner pad will also leave void that allow components to shift within the carton. This will lead to damage.

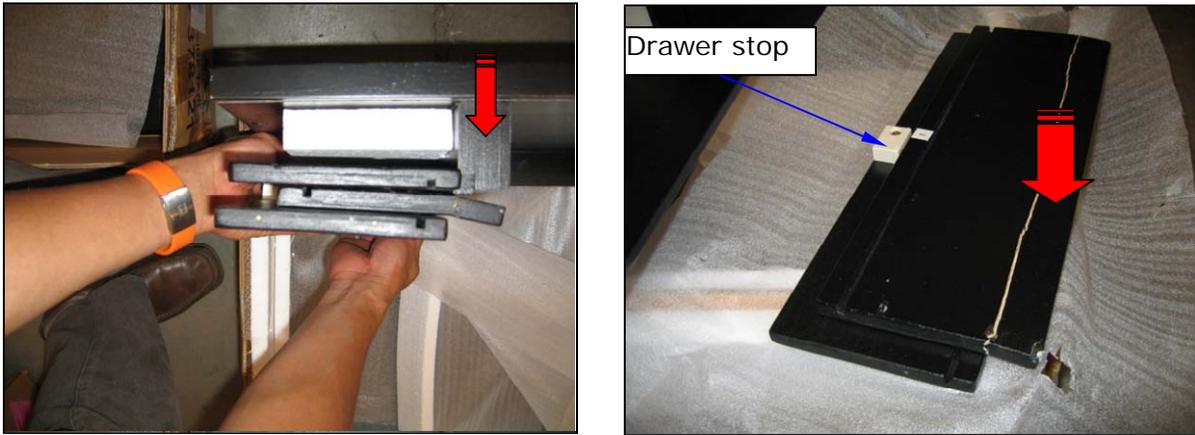
**Figure 7:** Using corrugated built up pad or strong void carton to block/brace the table top overhang to minimize stress to table top.



- 7.3 Especially for heavy item such as dining table, it is very important to effectively provide blocking/bracing on areas where exterior straps are to be applied. This will help minimize carton collapse from strapping pressure during handling.

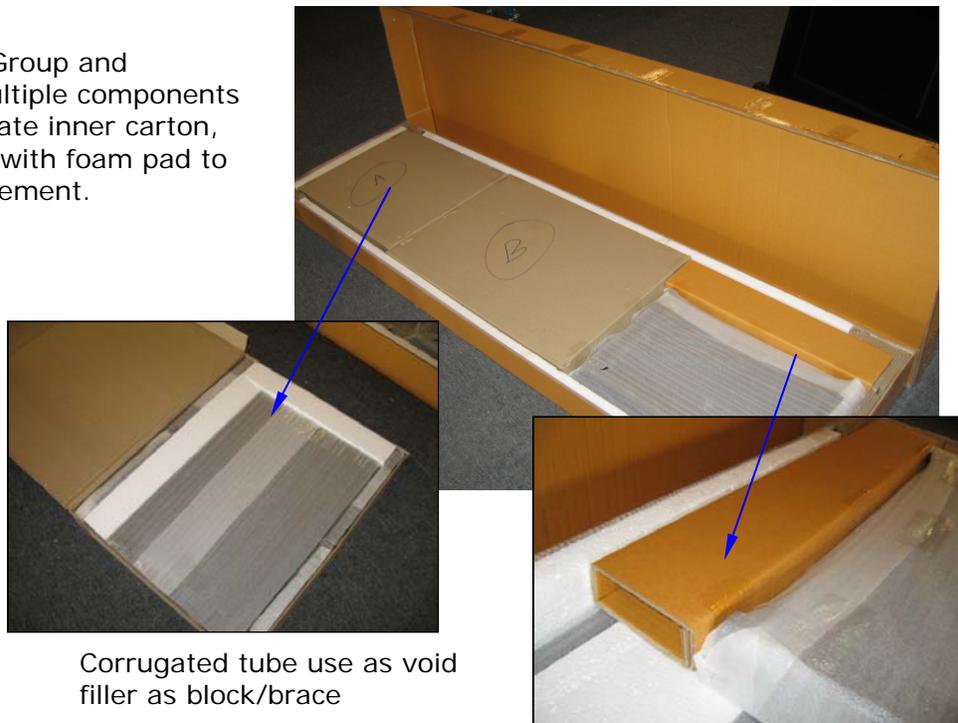
## 8. Components Separation

- 8.1 Components should be grouped together inside several inner cartons to better contain and help organize components packing. Seal inner cartons with clear tape. It is also highly recommended that content label be place on the outside of inner carton to identify the content. Example – “**Contains 4 legs and associated hardware**”
- 8.2 Provide adequate components separation to minimize abrasion damage from surface to surface contact. Use EPS/Thermaco/corrugated pads to eliminate small pressure points that may cause damage from compression (dynamic and/or static).
- 8.3 Assembled (attached) objects that protrude from the flat profile of the KD components such as door hinges and brackets must be adequately wrapped shimmed/blocked/braced to avoid breakage or to cause scratch/gauge to other surrounding components. See figure 8 for detail.



**Figure 8:** Avoid stacking components in a manner that creates an overhang and stress. Note the Red arrow places pressure that cause the damage.

**Figure 9:** Group and separate multiple components inside separate inner carton, block/brace with foam pad to restrict movement.



Corrugated tube use as void filler as block/brace

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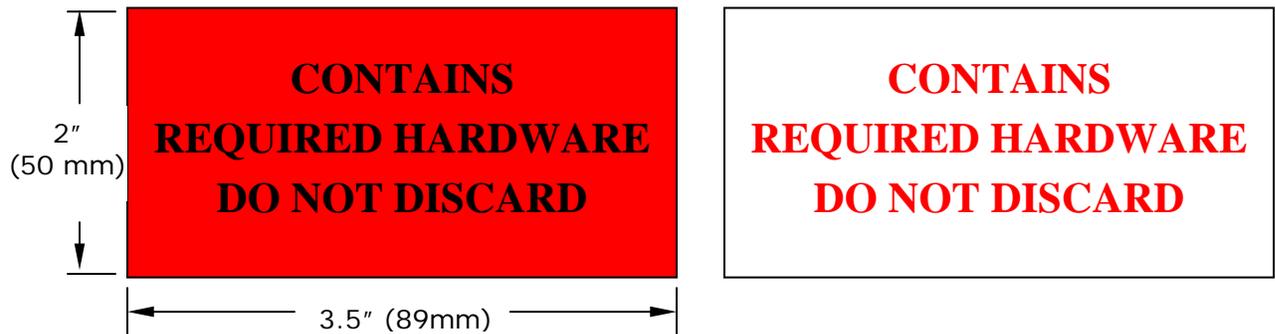
## 9. Hardware Package Requirements

- 9.1 Hardware must be clean and free of dirt, rust, and excessive grease (rust inhibitor).
- 9.2 Do not install removable hardware on components such as table legs. All removable bolts, nuts and washers must be removed from components to avoid falling out during shipping.
- 9.3 It is preferred that hardware be packed in blister pack with separate compartments as shown in figure 10. At minimum, hardware (in the correct amount and tools as required in the Assembly Instruction) must be separated in different types and sizes. Each type of hardware must be packed inside a sealed plastic bag min. 2 mil (0.05 mm) thick. All individual hardware bags must also be packed in one larger sealed bag (heat sealed or clear vinyl taped) of 4 mil (0.1 mm) minimum thickness. Do not use staples to seal bags.



**Figure 10:** Prefer pack - Hardware inside blister pack

- 9.4 Affix a large sticker either in white background with red lettering (or reverse color) that contains the following statement, or similar. CONTAINS REQUIRED HARDWARE DO NOT DISCARD. Minimum label size must be 2" x 3.5" (50 mm x 89 mm) with permanent adhesive backing. Apply one label to the top of hardware package.



**Figure 11:** Hardware package label

- 9.5 Whenever possible, hardware package must be positioned in a readily visible location as the carton is opened. Using clear vinyl tape, secure the hardware bag onto the foam wrapping of the internal components. Never apply tape directly onto product.

## 10. Assembly Instruction Packing Requirements

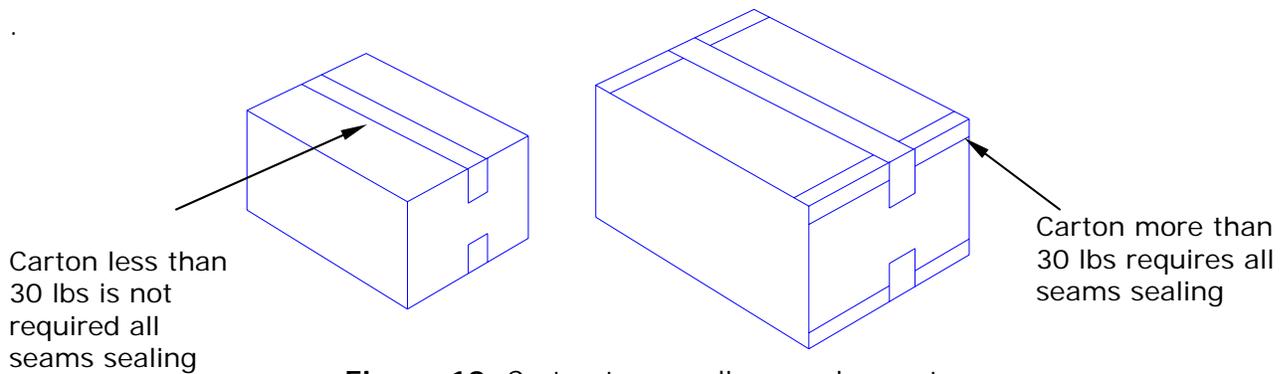
Assembly instruction must be folded in half across the page width with front page facing out. Place instruction inside sealed or zip lock bag of appropriate size. Position and secure the bagged Assembly Instruction near the hardware pack.

## 11. Carton Sealing and Strapping Requirements

Depends on the carton gross weight and physical dimensions, reference the matrix below for carton tape seal and strapping requirements

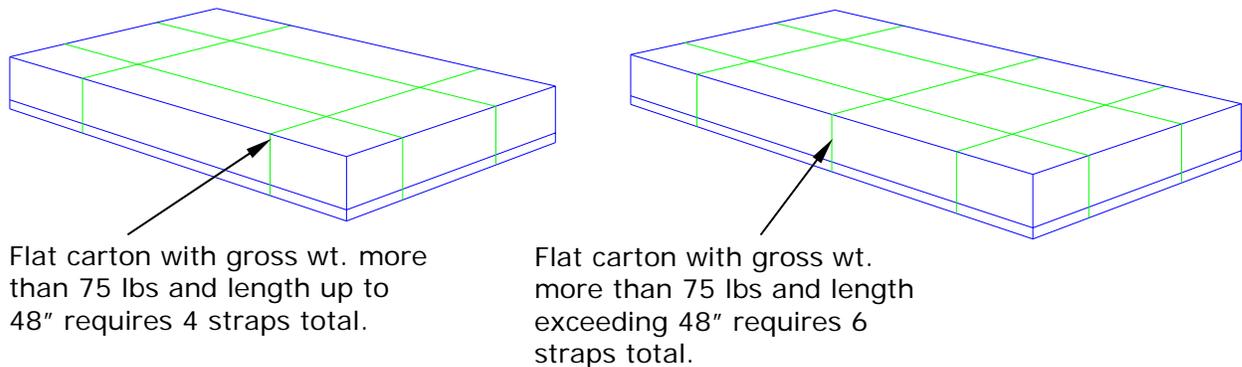
Number of straps required widthwise	Gross wt less than 30 lbs (13.63 Kg)	Gross wt more than 30 lbs (13.63 Kg)	Flat carton gross weight more than 75 lbs (34 Kg)	
	None	None	4 straps if length < 48" (122 cm)	6 straps if length < 48" (122 cm)
Seal all seams	Not required	Required	Yes	Yes

11.1 Clear vinyl tape should be used. Furniture carton with gross weight more than 30 lbs (13.63 Kg) should also be sealed at all seams.



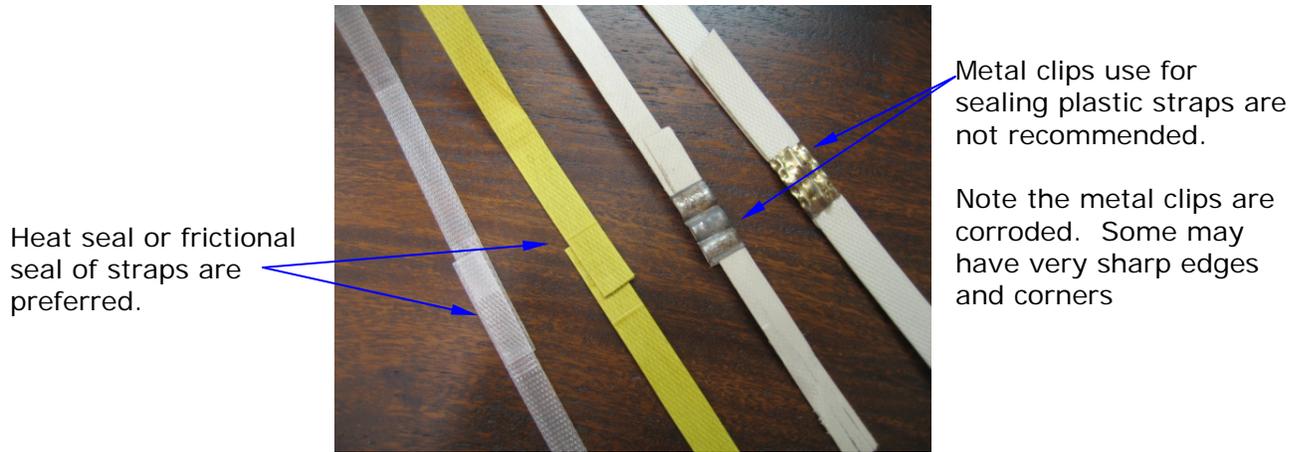
**Figure 12:** Carton tape sealing requirement

11.2 Flat cartons (table top, bookcase, wine bar, desk...) with gross weight of more than 75 lbs (34 Kg) should also be strapped with plastic strapping. Minimum of 4 straps should be used. Carton with length of more than 48" (122 cm) must have 3 straps across the width.



**Figure 13:** Carton strapping requirement.

- 11.3 It is very important to provide adequate internal support at all strapping locations on the carton as required.
  - 11.3.1 Strap tight but not to place excessive pressure on the carton.
  - 11.3.2 Straps must be laid flat against the carton outer surface. Do not twist straps.
  - 11.3.3 Use only plastic straps and heat (frictional) sealing method only. Do not use metal clips as this will catch on to other cartons and/or create a safety hazard for customer.



**Figure 14:** Examples of acceptable and non acceptable strapping methods

## 12. Reference

For specific question regarding this document, please send your question to [qa@cpwm.com](mailto:qa@cpwm.com)

- 12.1 Vendor Compliance Manual