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## **1.0 Objective**

This document is meant to establish “standardized” parameters and guidelines for usage by pallet designers and manufacturers when specifying and building material handling pallets for use in the electronics industry with primary emphasis at this time on the computer industry.

## **2.0 Purpose and Scope**

The purpose is to reduce total supply chain costs by improving the quality and consistency of pallets used within the **computer industry** integrated supply chain. It is intended that this will be achieved through the application of this VOLUNTARY specification by the organizations which are part of this supply chain; including, but not limited to the following entities:

### **Component Suppliers > Manufacturers > Resellers / Distributors > Retailers > Reverse Logistics**

a. **Component Suppliers:** Companies which are key to the process since they are often the originator of the pallet that should be used throughout the pipeline. They ship parts, subassemblies, and/or finished goods to other manufacturers or direct to selling organizations. Potential Examples: *Solectron, Liebert, AMP, Intel, and so on.*

b. **Manufacturers/OEMs:** These are the major computer manufacturers or companies contracted by them to manufacture finished goods from parts either supplied or built themselves. Potential Examples: *IBM, HP, Compaq, Apple, Micron, Dell, Acer, Solectron, Celestica, USI, STK, Intel, and so on.*

c. **Resellers / Distributors:** Organizations who buy large quantities of goods from Manufacturers and reconfigure per customer order. Potential Examples: *Ingram Micro, Magirus, CompuNet, Aslan, MicroAge, and so on.*

d. **Retailers:** Organizations that receive finished goods from manufacturers mostly in customer ready condition. Potential Examples: *Circuit City, Best Buy, Sears, CompUSA, and so on.*

e. **Reverse Logistics:** Organizations involved in lease returns, salvage operations, and so on. These organizations may be branches of the large manufacturers or vended operations controlled by them. They may be involved in the end-of-life management of the pallet, reuse, or recycling and so on.

**Disclaimer:** The companies listed above have not necessarily endorsed this specification.

## **3.0 Pallet Design Requirements**

**Table 1: Preferred Sizes and Configurations (Stringer Board dimension is listed first)\***

<b>Preferred (EU):</b> Unidirectional base, Non-Reversible, Full 4-way entry <b>Block Style</b> (Ref. Figure 1),	<b>Preferred (non-EU):</b> Full Perimeter base, Non-Reversible, Full 4-way Entry <b>Block Style</b> (Ref. Figure 2)	<b>Not Preferred:</b> Unidirectional, Non-Reversible, Partial 4-way entry <b>Stringer Style</b> (Ref. Figure. 3)
0.8 x 1.2m “Euro Pallet Style” or 1.0 x 1.2m “Industrial Pallet”	1.0 x 1.2m “Industrial Pallet”	1.2 x 1.0m (do NOT use for Europe)
* Users should confirm with their industry partners which configuration they prefer. Not all sizes and configurations will necessarily be acceptable to any given recipient.		

**Custom Sizes:** Other deck dimensions are approved providing that these dimensions reduce the cost of the supply chain by ensuring better fit to transport containers relative to the size of packaging placed on the pallets and if performance attributes match that of the standard sizes and configurations listed above. Custom pallets should be reserved for situations wherein the pallet load consists of a single package or product or for point to point closed loop situations managed separately from the International Pool System. For bulk shipping or general purpose palletization the preferred sizes highlighted above should be used. Industry partners are to accept shipments from each other on certified pallets of the preferred size and style without question.

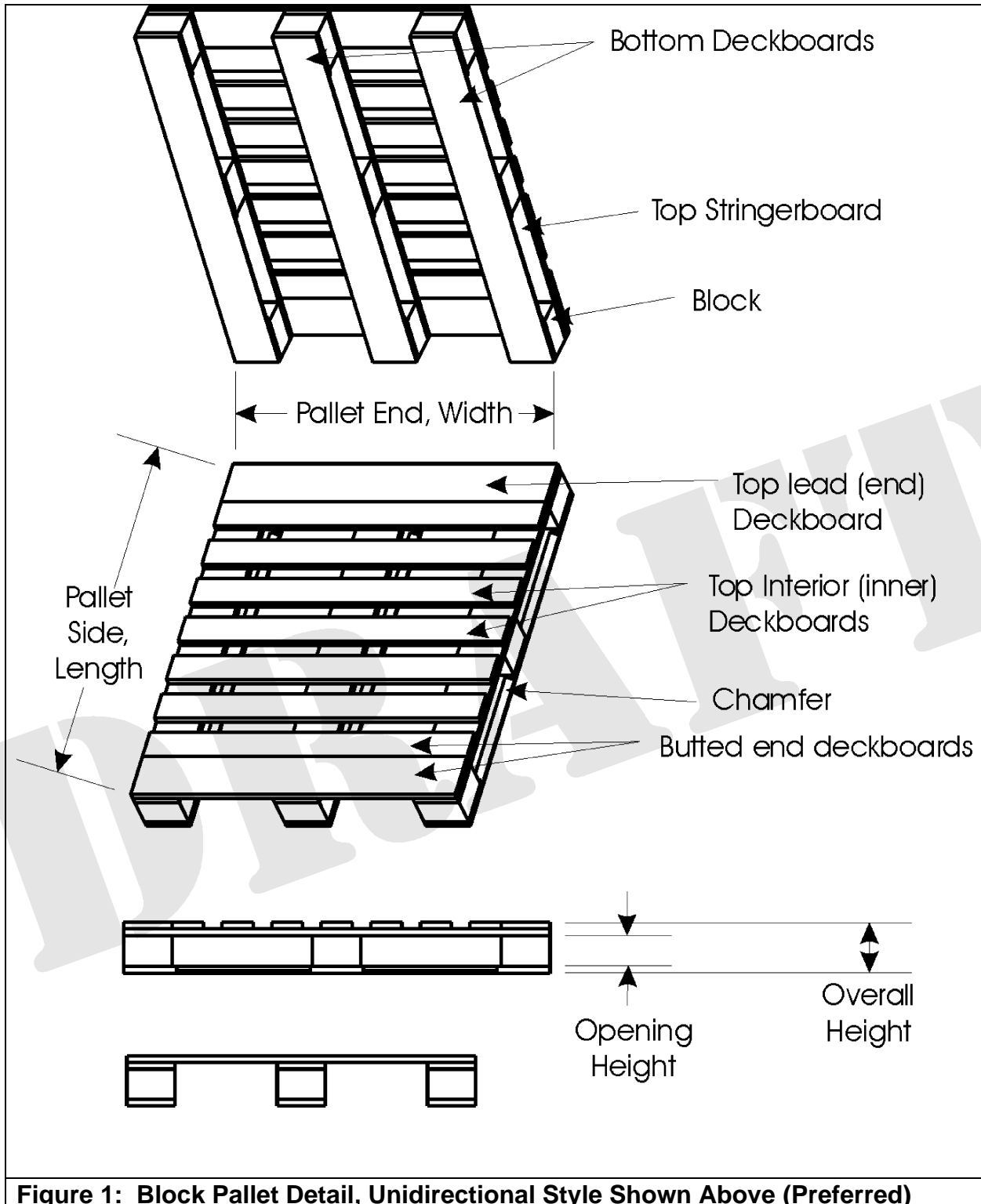
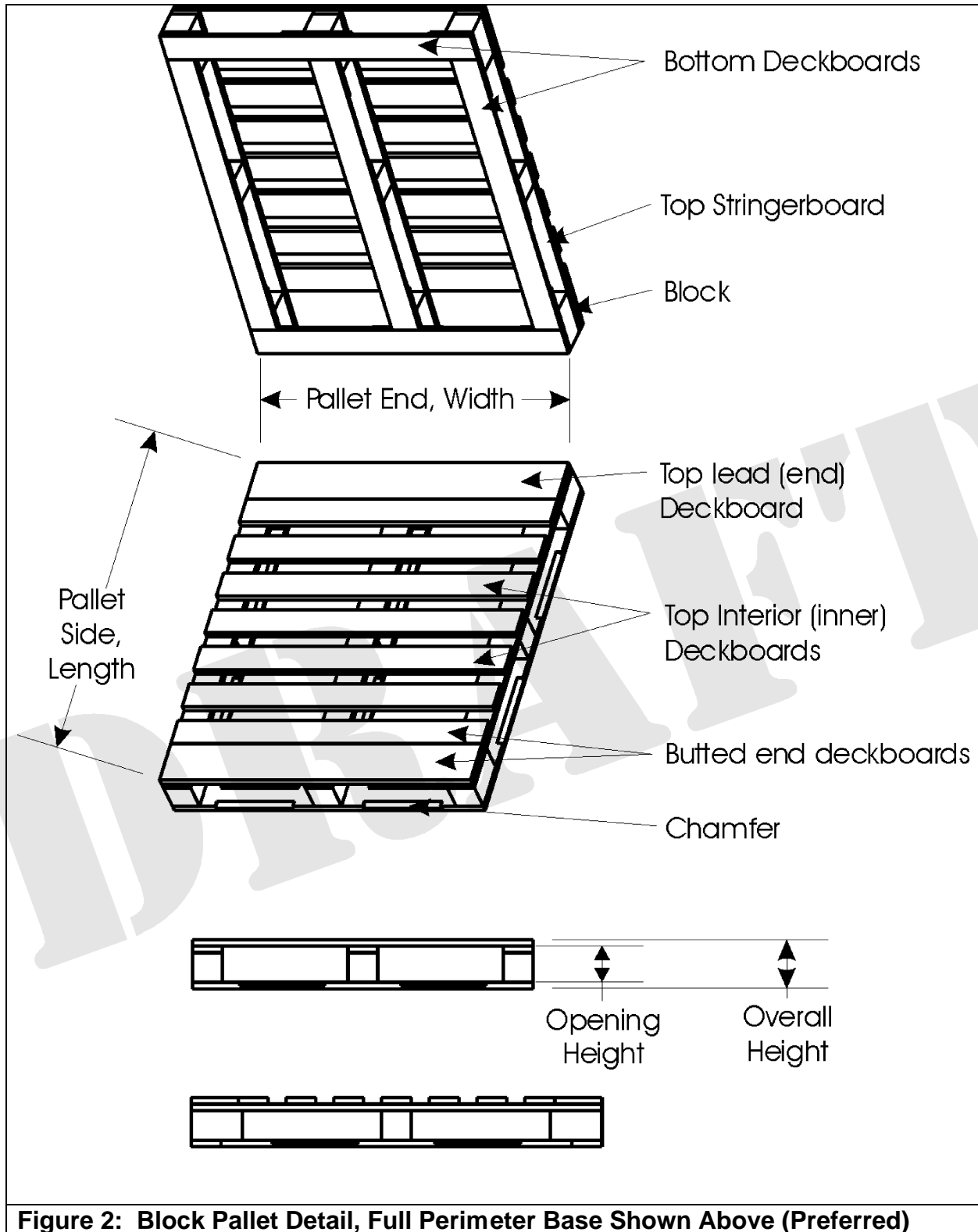
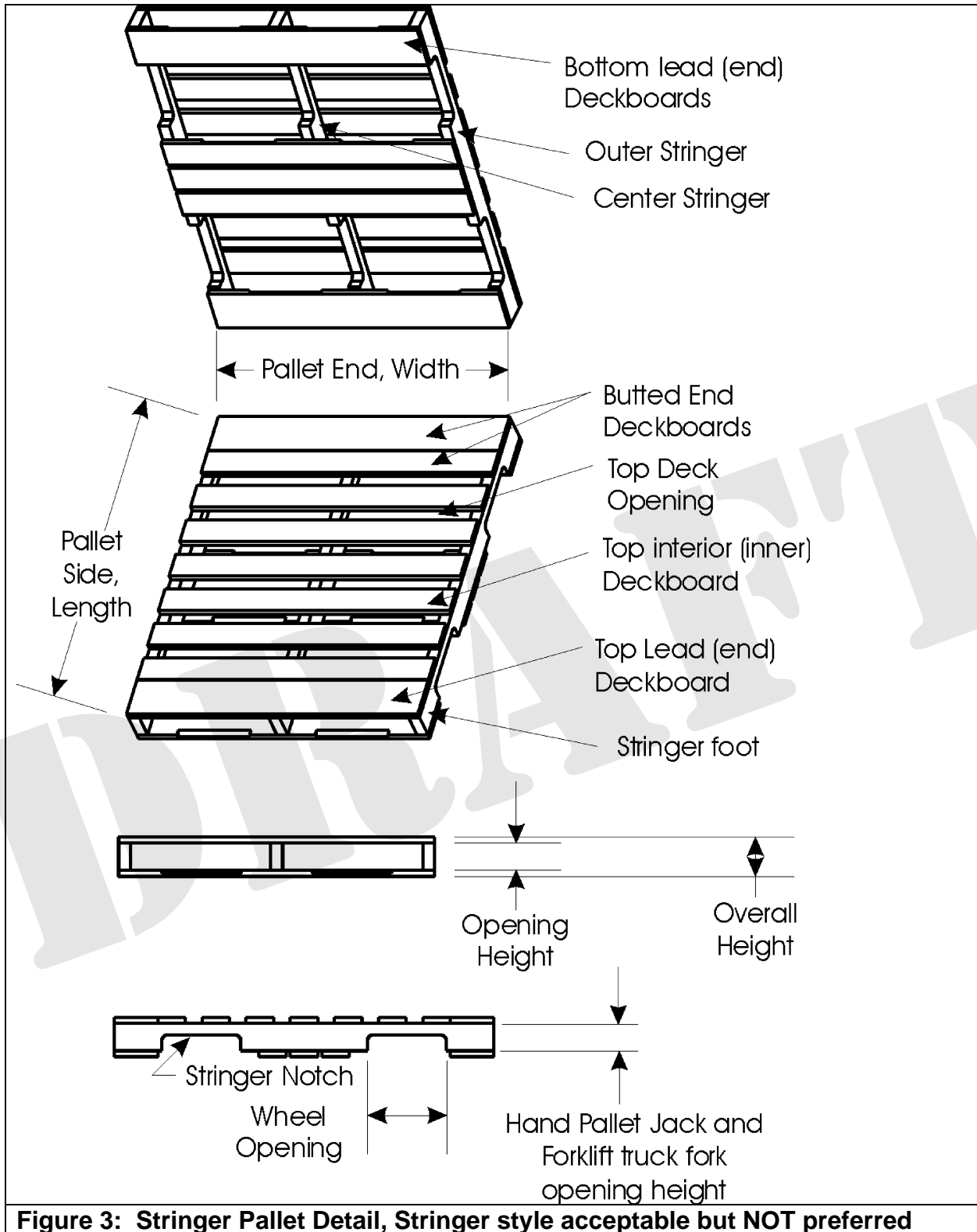


Figure 1: Block Pallet Detail, Unidirectional Style Shown Above (Preferred)



**Figure 2: Block Pallet Detail, Full Perimeter Base Shown Above (Preferred)**



**Figure 3: Stringer Pallet Detail, Stringer style acceptable but NOT preferred**

### **3.1 Minimum Access Dimensions for Lift Equipment**

Pallets should be designed to ensure maximum flexibility with regard to mechanical equipment used for lifting and moving the load. Fork lifts, motorized pallet jacks, and manual pallet jacks should all be able to lift and move the load.

### **3.2 Expendable vs. Reusable Pallets**

It is preferred that pallets be designed to ensure reusability. The pallet should be capable of surviving at least one complete cycle through the supply chain, not merely one trip to your customer. It is the intention of this committee that pallets be designed in such a manner that scrap pallets be minimized and that the vast majority of pallets be standard such that they can be reused with confidence. Arrangements for the return and reuse of standard and custom pallets should be made where economical and all partners to this effort should be willing to cooperate on a reverse logistics process where appropriate.

### **3.3 Preferred Materials**

While non-manufactured wood continues to be the economical choice there are compelling reasons to consider other types of materials for pallet construction. This becomes even more critical if we agree to a worldwide reusable pool system for our industry. Solid wood has many drawbacks including gaps in the decks, nails, splinters, infestation, moisture, mold, and so on. This committee prefers an alternative material that would otherwise meet all the objectives regarding quality and cost effective performance. We recognize that the purchase price of the pallet may be higher than a typical wood pallet but that the cost per use will be viewed as the key measure.

### **3.4 Treatment for Infestation Requirements**

If any amount of solid unprocessed wood is used in the construction of the pallet, it must meet the following minimum requirements in order to be certified for International use. These requirements may be superseded by International Regulations.

- **Coniferous Species (C)**, trade term "Softwood": If the pallet contains any amount of solid, unprocessed coniferous wood, those components must be heat treated to a minimum core temperature of 56C (133F) for a minimum of 30 minutes. **Note:** Pallets constructed in this way would also get the "C-HT" marking (ref. Appendix B).
- **Non-Coniferous Species (NC)**, trade term "Hardwood": If the pallet contains any amount of solid, unprocessed hardwoods they must be heat treated to a minimum core temperature of 56C (133F) for a minimum of 30 minutes. **Note:** Pallets constructed in this way would also get the "NC-HT" marking (ref. Appendix B) provided that no amount of heat treated conifer was used also.

### **3.5 Weight**

The minimum weight within the established performance criteria is the goal. 23 kg (50 lbs.) is a target maximum weight for the 1.0m x 1.2m and 0.8m x 1.2m sizes.

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## **4.0 Certification Process**

Pallets intended for general usage with the electronics industry which meet the design and performance parameters defined herein may be certified by the pallet manufacturers, and may be marked as such. Nonstandard pallets must not be marked as being certified.

Prior to usage of any certification markings on a given pallet design, detailed specifications, drawings, and test results for pallet to be certified shall be submitted to EIPS for approval.

Pallets should be submitted to one of the approved testing facilities recognized by the EIPS group. The bottom pallet of a pallet stack is often damaged during the rigors of transportation when shipping to test facilities, and therefore it is highly recommended that the bottom pallet of each stack be expendable or an extra sample.

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The following are the number of sample pallets recommended for testing;

### 4.1 Prototype Testing

Three (3) samples should be submitted for preliminary tests of racking, conveyor, and corner drop performance. These are typically the most severe tests for most pallet designs. It is suggested that successful prototype testing be completed before proceeding to certification testing.

### 4.2 Certification Testing

Thirty-five (35) samples should be submitted. This represents 3 replicate tests for each of the test procedures outlined in this protocol.

**NOTE: The Pallet Design System (PDS) is suggested in lieu of sample testing for all wooden pallets.**

### 4.3 Approved Testing Facilities

<b>Virginia Tech University</b> Center for Unit Load Design Blacksburg, Virginia  John Clarke, Director 540-231-5370 E-mail: <a href="mailto:unitload@vt.edu">unitload@vt.edu</a> <a href="http://www.unitload.vt.edu/">http://www.unitload.vt.edu/</a>	<b>Michigan State University</b> School of Packaging East Lansing, Michigan  S. Paul Singh, Ph.D.. 517-355-9580 E-mail: <a href="mailto:singh@msu.edu">singh@msu.edu</a> <a href="http://www.pkg.msu.edu">http://www.pkg.msu.edu</a>	<b>San Jose State University</b> College of Applied Sciences San Jose, California  Jorge Marcondes, Ph.D.. 408-377-3210 E-mail: <a href="mailto:marconde@sjsuvm1.sjsu.edu">marconde@sjsuvm1.sjsu.edu</a> <a href="http://www.sjsu.edu/depts/packtech/index.htm">http://www.sjsu.edu/depts/packtech/index.htm</a>
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## 5.0 Environmental Considerations

In concert with the generally accepted environmental hierarchy of "reduce, reuse, recycle" the pallets should incorporate a relatively high degree of recycled content, preferably post-consumer. Secondly, the designs should be capable of reuse. Lastly, the designs should consider the ultimate disposal and recycling of the materials used to construct the pallet. Avoid permanent commingling of dissimilar materials unless it can be demonstrated that it will not inhibit recycling of the pallet at the end of its useful life. Pallet manufacturers are expected to demonstrate "product stewardship" and be an active partner in the eventual recovery and recycling of the pallets.

Furthermore, the construction or manufacturing processes shall not include the use of CFC's, HCFC's, or halogenated flame retardants, or intentionally introduced heavy metals (mercury, lead, hexavalent chromium, or cadmium). The total composition must not include in excess of 100ppm (0.01%) of incidental amounts of these heavy metals.

Although Chemical Pressure Impregnation (CPI) is approved by international plant protection organizations to mitigate the threat of infestation, pallets constructed of such materials ARE NOT in compliance with this specification. The reason is that such treatment presents a secondary hazard to the environment since the chemicals used (usually copper chromated arsenate) in this process render the wood unsafe to burn or recycle.

## 6.0 Minimum Performance Requirements

Any pallet which otherwise meets the general objectives and the minimum requirements listed in this section will be considered acceptable for use within the electronics industry. We do not intend to exclude any materials or inhibit creative invention. These tests and performance criteria will ensure that the pallets used within the industry are rugged and capable of multiple uses without damage to the products carried on them or resulting in safety concerns. Independent laboratories listed on page 5 are available to conduct these tests at the expense of the pallet manufacturer. Only pallets meeting the test standards and certified are to be used where compliance with this voluntary specification is required.

**Table 2: Core Requirements: Applicable to all standard pallets**

		<b>1.0 x 1.2m</b>	<b>0.8 x 1.2m</b>
1	Pallet Size	<b>1.0 x 1.2m</b>	<b>0.8 x 1.2m</b>
2	Preferred Base Configuration	<b>Unidirectional</b>	Unidirectional
3	Reversible?	No	No
4	Rackable?	Yes	Yes
5	Accessibility (Fork Lifts, Pallet Jacks)	Full 4-way Entry	Full 4-way entry
6	Top Deck Coverage	60% min.	60% min.
7	Bottom Deck Coverage	35% min.	35% min.
8	Minimum Vertical Clearance Under Top Deck	<b>100mm (3.94")</b>	<b>100mm (3.94")</b>
9	Maximum Vertical Clearance Under Top Deck	156mm (6.14")	156mm (6.14")
10	Maximum Width of Center Posts or Stringers	160mm (6.3"), 100mm (4") preferred if possible)	160mm (6.3"), 100mm (4") preferred if possible)
11	Minimum Width between outer Posts/Stringers	720mm (28.3")	720mm (28.3") on 1.2m 590mm (23.2") on 0.8m
12	Maximum Overall Height	165mm (6.5")	165mm (6.5")
13	Target Maximum Gross Weight	22.7kg (50 lbs.)	22.7kg (50 lbs.)
14	Fasteners (if used)	Meet minimum criteria in ASME, MH1, part 3	Meet minimum criteria in ASME, MH1, part 3
15	Racking Performance per ASTM D1185	454kg (1000 lbs.), Max. Deflection 13mm (0.5")	454kg (1000 lbs.), Max. Deflection 13mm (0.5")
16	Forklift Tine Performance per ASTM D1185	454kg (1000 lbs.), Max. Deflection 13mm (0.5")	454kg (1000 lbs.), Max. Deflection 13mm (0.5")
17	Static Stacking Performance (Warehouse) per ASTM D1185	1800 kg (4000 lbs.), Max. Deck Deflection 6mm (0.25")	1800 kg (4000 lbs.), Max. Deck Deflection 6mm (0.25")
18	Conveyor Performance per ASTM D1185	454kg (1000 lbs.), Max. Deck Deflection 6mm (0.25")	454kg (1000 lbs.), Max. Deck Deflection 6mm (0.25")
19	Coefficient of Friction: Top Deck with Cartons	0.40 minimum	0.40 minimum
20	Coefficient of Friction: Under Deck with Forks	0.40 minimum	0.40 minimum
21	Coefficient of Friction: Bottom deck on Steel	0.40 minimum	0.40 minimum
22	Coefficient of Friction: Stacked Empty Pallets	0.40 minimum	0.40 minimum
23	Inertness (related to Infestation Problems): Preference is for constructions not requiring chemical treatments or APHIS certifications to comply with international pest regulations	Required	Required
24	Fire Safety (related to Fire Marshal Reqmts): Preference is for constructions not requiring unusual facilities requirements for fire safety. <b>This is often an issue with plastic pallets.</b>	Required	Required

Note: The suggested load for all strength tests is corrugated boxes (400x600mm) to fill out the pallet completely and stacked 5 layers high. Dead loads may be used for the stack test.

**Table 3: Durability Requirements for Reusable (Pool Type) Pallets**

Requirement	<b>1.0m x 1.2m</b>	<b>0.8m x 1.2m</b>
a. Corner Drop	12 drops at 1m (40"), Maximum Diagonal Deformation of 1.5%	12 drops at 1m (40"), Maximum Diagonal Deformation of 1.5%



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b. Tine Tip Impacts on Block or Stringer Ends	3 impacts at 30 cm (12"), no failures	3 impacts at 30 cm (12"), no failures
c. Tine Heel Impacts on Lead Edges	3 impacts at 120 cm (48"), no failures	3 impacts at 120 cm (48"), no failures
Note: The suggested load for all strength tests is corrugated boxes (400x600mm) to fill out the pallet completely and stacked 5 layers high. Dead loads may be used for the stack test.		

**Table 4: Durability Requirements for One-way Disposable Pallets**

Requirement	1.0m x 1.2m	0.8m x 1.2m
a. Corner Drop	3 drops at 1m (40"), Maximum Diagonal Deformation of 1.5%	3 drops at 1m (40"), Maximum Diagonal Deformation of 1.5%
b. Tine Tip Impacts on Block or Stringer Ends	3 impacts at 15 cm (6"), no failures	3 impacts at 15 cm (6"), no failures
c. Tine Heel Impacts on Lead Edges	3 impacts at 60 cm (24"), no failures	3 impacts at 60 cm (24"), no failures
Note: The suggested load for all strength tests is corrugated boxes (400x600mm) to fill out the pallet completely and stacked 5 layers high. Dead loads may be used for the stack test.		

**Table 5: Pallet Use Conditions, applicable to all standard pallets**

Requirement	1.0m x 1.2m	0.8m x 1.2m
Temperature (Distribution Environment) <sup>1</sup>	-25C to +45C (-13F to +113F)	-25C to +45C (-13F to +113F)
Stacking (Dynamic / In Transit)	2.5m (100 inches)	2.5m (100 inches)
Stacking (Static / Warehouse Storage)	5.0m (200 inches)	5.0m (200 inches)
Transportation Modes	Air, Ocean, Truck	Air, Ocean, Truck
Food Contact / Refrigerated Storage	No	No
Material Handling: Conveyors	Yes	Yes
Material Handling: Cranes / ASRS	Yes	Yes
Material Handling: Lift Equipment	Yes	Yes
Warehouse Storage: Open Racks	Yes	Yes
Note: Temperatures ranging from -25C to -40C (-13F to -40F) or from 45C to 60C (113F to 140F) may be encountered at rare times in the distribution network. However, for purposes of practicality we will not require testing to these extremes. Users requiring testing to those extremes must conduct those tests separate from EIPS Certification testing.		

## 7.0 Pallet Marking Procedures

**Table 6:** This marking procedure shall be used to mark pallets certified as meeting this specification.

<b>Scope</b>	Pallets made from any amount or any combination of manufactured or non-manufactured wood components. See also "EIPS Certification Logo" on page 13 for pallets meeting this specification but which are not made from wooden components.
<b>Objectives</b>	To implement a common marking procedure globally and to identify and use only approved and properly treated materials as required for exports to regulated countries.
<b>Marking Procedure</b>	The marking shall consist of the pest free symbol where justified (MWPM, C-HT, NC-HT only), the material classification, the country of manufacture, and the supplier designation. Mark the pallet, skid, crate, or other wooden packaging assembly a <b>minimum of two times on two opposite visible vertical surfaces</b> , using <b>19 mm (0.75")</b> minimum characters for the material classification and <b>13mm (0.50")</b> minimum characters for the other data elements. The characters may all be the same size (19 mm) if this allows for a one pass printing operation. <b>Under no circumstances should the material classification be smaller than the other data elements.</b> Printing may be done with ink jet printing, heat stamping, paint stencil, or other similar permanent and indelible method. <b>The default color should be black or other maximum contrasting color if appropriate. Do not use red or orange colors since these colors are used with labeling of dangerous goods.</b> If vertical surfaces provide insufficient space for the markings then scale the characters accordingly or apply them to a top horizontal surface provided that at a minimum the material classification is repeated on a vertical surface. It is also allowed to print the information on multiple lines or break up the information, for instance spread across three separate blocks on a block style pallet. See Figure 6 for an example.

### Material Classification Requirements and Markings

A given item shall only carry ONE classification regardless of how many different materials are included in the construction. Follow this list in sequence, the item should carry the marking of the first scenario that matches exactly. Very careful consideration must be given for assemblies which contain a mixture of materials as explained below. For instance, even if the majority of the construction consists of MWPM components, the marking shall relate to the **non-manufactured** wood component that exists (if any) and any permanent treatment (if any) that was done **to it**.


### 7.1 If Material Composition is Unknown

<b>XX</b>	<b>Material Composition Requirements</b>	<b>Example</b>
Must Contain	ANY amount of non-manufactured wood components (C or NC) in which the treatment history is unknown. Example: Old pallets or crates or those which have been refurbished with a variety of reused pallet components.	<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px; text-align: center;">No Symbol</div> <div style="font-size: 2em; font-weight: bold; margin-right: 10px;">XX</div> <div style="font-weight: bold;">US-000</div> </div> <p>The pest free symbol must NOT be used for materials in which the composition cannot be confirmed.</p>
May Contain	Any amount of treated wood (C or NC) and/or non-wooden material.	
Must <u>Not</u> Contain:	Not Applicable	
<p><b>Note:</b> <i>Preexisting markings may be covered up with the XX symbol or painted over entirely in lieu of the XX symbol. This symbol or painted over symbols or no symbols at all are signals that the particular item requires additional treatment prior to export.</i></p>		

### 7.2 Coniferous


<b>C</b>	<b>Material Composition Requirements</b>	<b>Example</b>

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Must Contain	ANY amount of non-manufactured, <u>untreated and unprocessed</u> conifer (e.g. "softwood") or needle bearing type species of wood. Examples: Pine, Spruce, Fir, Cedar. These are subject to pinewood nematode infestation.	 <b>C</b> <b>US-000</b>
May Contain	Any amount of MWPM and/or heat treated coniferous wood and/or non-wooden material..	
Must <u>Not</u> Contain:	Any amount of untreated non-coniferous wood	


The pest free symbol must not be used for untreated coniferous wood.

### 7.3 Non-Coniferous

<b>NC</b>	<b>Material Composition Requirements</b>	<b>Example</b>
Must Contain	ANY amount of non-manufactured, <u>untreated and unprocessed</u> non-coniferous wood (e.g. "hardwood") or leaf bearing type species of wood. Examples: Oak, Alder, Aspen, Maple, etc. . These are subject to Asian Long horned Beetle infestation.	 <b>NC</b> <b>US-000</b>
May Contain	Any amount of MWPM and/or any type of heat treated wood and/or non-wooden material..	
Must Not Contain:	Any amount of untreated coniferous wood	

The pest free symbol must not be used for untreated non-coniferous wood.


### 7.4 Coniferous, Heat Treated

<b>C-HT</b>	<b>Material Composition Requirements</b>	<b>Example</b>
Must Contain	ANY amount of non-manufactured and properly heat treated coniferous wood (e.g. "softwood"), or needle bearing type species of wood) which by definition has been heated to a core temperature of at least 56C (133F) for a minimum of 30 minutes and that documentation certifying that fact has been provided by the treatment facility to the package/pallet manufacturer and can be traced to the production of that specific package, pallet, and so on.	 <b>C-HT</b> <b>US-000</b>
May Contain	Any amount of MWPM and/or heat treated non-coniferous wood and/or non-wooden material.	
Must Not Contain:	Any amount of untreated wood (C or NC)	

The pest free symbol must be used for heat treated coniferous wood.

**Note:** Use of kiln dried lumber is acceptable provided that it meets the temperature and duration requirements (56C for 30 minutes) to meet the definition of "heat treated". Dry lumber alone is not a reliable indication of proper heat treatment.


### 7.5 Non-Coniferous, Heat Treated

<b>NC-HT</b>	<b>Material Composition Requirements</b>	<b>Example</b>
Must Contain	ANY amount of non-manufactured and properly heat treated non-coniferous wood (e.g. "hardwood"), or leaf bearing type species of wood) which by definition has been heated to a core temperature of at least 56C (133F) for a minimum of 30 minutes and that documentation certifying that fact has been provided by the treatment facility to the package/pallet manufacturer and can be traced to the production of that specific package, pallet, and so on.	 <b>NC-HT</b> <b>US-000</b>
May Contain	Any amount of MWPM and/or non-wooden material.	
Must Not Contain:	Any amount of coniferous wood or untreated non-coniferous wood (C, C-HT, or NC)	

The pest free symbol must be used for heat treated non-coniferous wood.

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### 7.6 Manufactured Wood Packaging Material

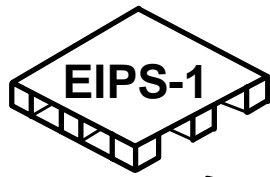
<b>MWPM</b>	<b>Material Composition Requirements</b>	<b>Example</b>
Must Contain	ANY amount of manufactured / processed wood components. Example: A pallet or crate made with any amount of Oriented Strand board (OSB), plywood, straw board, masonite, particle board, paper overlaid veneer (POV) or combination of these. These all meet the definition of manufactured wood packing materials as defined by the Animal and Plant Health Inspection Service (APHIS).	 <b>MWPM US-000</b>  The pest free symbol should be used for manufactured wood packing materials.
May Contain	Any amount of non-wooden material.	
Must <u>Not</u> Contain:	Any amount non-manufactured wood of any type whether treated or not (C, NC, C-HT, NC-HT).	
<b>Note:</b> Plywood/OSB/Masonite, and so on are considered "manufactured wood" because it has been processed under extreme heat and pressure. Assembling a pallet from cut lumber is not considered "manufactured" with regard to pest migration regulations.		

*Note:* There is no marking for fumigation since this is a temporary treatment. Fumigation, if done must be documented with certificates of fumigation generally issued by the fumigator and endorsed by a Government approved Agency. Also, there is no marking for Chemical Impregnation since this material is not approved by the EIPS task group.

<b>Supplier / Mfg. Facility Designation</b>	<p><b>Required:</b> To identify the final assembly supplier of the pallet, package, crate and so on .:</p> <p>An official facility registration number (3 characters) provided by the National Plant Protection Organization (a Govt. Authorized Agency) must be used if available. If this process is not yet established in your country or location then one of the following should be used instead.</p> <ol style="list-style-type: none"> <li>1. A minimum 5 character abbreviation of the supplier's name... -or-</li> <li>2. A minimum 3 digit abbreviation followed by 2 numeric digits to distinguish unique manufacturing facilities of that supplier. -or-</li> <li>3. The supplier's logo if this can be easily distinguished. The logo can also be followed with a two (2) digit number to identify a specific facility of that supplier. -or-</li> <li>4. The full name of the supplier if this can be accommodated in the space available.</li> </ol> <p>The name shall be that of the final assembly location which built the pallet or package and shipped it for use. Take care to ensure that the code chosen does not resemble one of the material classifications.</p>
<b>Part Number</b>	<p><b>Required:</b> The alphanumeric part number of the pallet (usually seven characters) which is specified by the pallet purchaser/user. The Part number should be 19 mm (0.75") characters.</p>
<b>Engineering Change Number</b>	<p><b>Optional:</b> The six digit alphanumeric "EC" number which may distinguish a different design for items with the same part number. This may be important to some locations and it is their prerogative to specify it if they wish. If the EC level is included, use the prefix "EC" in front of the number to identify it. <b>The EC number may be smaller in size using 13mm (0.50") characters.</b></p>
<b>Reusable Pool System Symbol</b>	<p><b>Optional / Restricted:</b> For instance, the familiar "EUR" symbol associated with the European pool system pallets (such as "Euro Pallets") or any other similar program previously established or future program. This marking to be placed as specified by that system. Only pallets meeting the design and construction requirements of the marked pool system are to carry that symbol. Note: Unless the material type is marked on a "Euro Pallet" it should not be exported to a regulated country.</p>

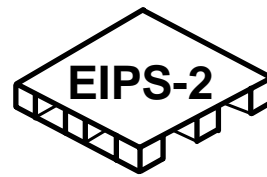
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**EIPS Certification Symbol / Logo** *Required:* Graphical symbol provided by the EIPS committee of the Institute of Packaging Professionals (IoPP). This applies to all pallets tested and certified to this specification regardless of material composition. *Note:* The words are not part of the symbol.



For Economy, One-Way Type

Figure 4: EIPS-1



For Multi-Use Pool Type Pallets

Figure 5: EIPS-2

## Example Marking of a Wooden Pallet

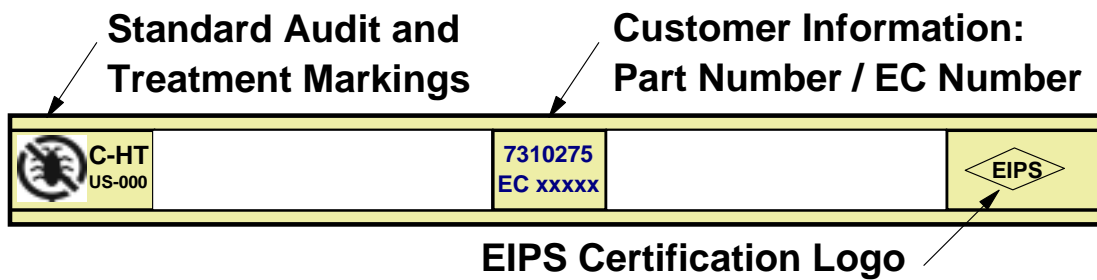


Figure 6: Repeat information on 2 opposite sides.

# Electronics Industry Pallet Specification

## Draft Updated June 18, 2001

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### Pest Free Symbol

The following symbol is the universally approved marking for wooden materials that are inert due to their construction or treatment. It's appearance on a pallet indicates full compliance to ALL international regulations aimed at preventing pest migration. It shall be printed as large as practical but at least **38 mm** square (equivalent to the total height of the text portion of the markings). The design has been optimized for stenciling purposes but the same artwork should be used regardless of the method of application.



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### Points of Emphasis

1. **Aside from the EIPS symbol**, do not mark pallets which are clearly not of wooden origin unless that assembly does have wooden components somewhere else in the assembly. For instance, if a package consisted of a plastic pallet and a plywood crate on top of it then the appropriate wood classification marking should be placed on a vertical surface of the wooden crate portion, not the plastic base pallet. It is not necessary to mark corrugated or plastic items.
2. Use the "XX" material classification marking or completely paint over preexisting markings if the species, origin, or treatment cannot be affirmed. By default, anything marked this way or unmarked cannot be used for export to a regulated country.
3. If refurbishing a pallet which has already been marked, obliterate, cover up, or remove the original marking and then instruct suppliers to turn this side to the inside so that it will not likely be observed. Any marking appearing on an inside surface is not to be used for inspection or operational purposes.
4. Every wooden assembly would get some type of marking regardless of composition at the time of manufacture.

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### References

USDA's APHIS Web site: <http://www.aphis.usda.gov/ppq/swp>  
National Wooden Pallet and Container Association <http://www.nwpc.com>

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## 8.0 References and Related Publications

This list is provided only for convenience and does not necessarily imply that any individual document is a part of this specification unless otherwise specified herein.

Document Number	Description / Title
ISO 3676	Packaging -- Unit Load Sizes -- Dimensions
<b>ISO 3166</b>	<b>Abbreviations for Country Names</b>
ISO 3394	Dimensions of Rigid Rectangular Packages, Transport Packages
ISO 6780	Flat Pallets for Materials Handling - Principle Dimensions and Tolerances
JIS Z 0161	Dimensions of Unit Load Sizes
UIC 435-2	Euro Pallet Specification (Copyright by Intl. Union of Railways 16, rue Jean Rey 75015 Paris France)
ASTM D1185	Pallets and related structures Employed in Materials Handling and Shipping
ASME MH1	Pallets, Slip Sheets, and Other Bases for Unit Loads
ASME MH1, Part 1	Definitions of Terminology Covering Pallets and Related Structures
ASME MH1, Part 2	Sizes of Wood Pallets
ASME MH1, Part 3	Wood Pallets
ASME MH1, Part 4	Export Pallets
ASME MH1, Part 8	Slip Sheets
ASME MH1, Part 9	Wood Pallets for US Government Use
<b>Legend / Sources:</b>	
<p>ISO = International Organization for Standardization (<a href="http://www.iso.ch">http://www.iso.ch</a>),            ASTM = American Society of Testing and Materials (<a href="http://www.astm.org">http://www.astm.org</a>), 610-832-9585            ANSI = American National Standards Institute, (<a href="http://www.ansi.org">http://www.ansi.org</a>),            ASME = The American Society of Mechanical Engineers, (<a href="http://www.asme.org">http://www.asme.org</a>),            JIS = Japanese Industrial Standard, 1-24, Akasaka 4, Minato-ku, Tokyo 107 Japan            DIN = Deutschland Institute for Normalization (Germany)</p>	

## 9.0 Terminology

Following are common terms used in the pallet industry which may or may not be included in this specification.

Term	Definition
Banding Notch	See "strap slot"
Block	Rectangular, square, or cylindrical deck spacer, often identified by its location within the pallet -- corner block, end block, edge block, inner block, center or middle block
Block Pallet	A type of pallet with blocks between the pallet decks or beneath the top deck
Butted Deck board	An inner deck board placed tightly against an adjacent lead deck board.
Bottom Deck	Assembly of deck boards comprising the lower, load bearing surface of the pallet.
Captive Pallet	A pallet intended for use within the confines of a single facility, system or ownership; not intended to be exchanged.
Chamfered Deck boards	Deck boards with edges or one or two faces beveled, either along the full or specified length of board or between the stringers or blocks, allowing easier entry by pallet jack wheels.
Closed Distribution System	Shipping system restricted to moving goods between specified plants and facilities.
Coniferous Wood	Derived from coniferous species of wood which are needle bearing trees such as Pine, Spruce, and Fir. These are also known in the trade as "softwoods" even though it has nothing to do with wood density. Many coniferous species are susceptible to infestation by the pinewood nematode.
Non-Coniferous Wood	Derived from non-coniferous (deciduous) species of wood which are broadleaf bearing trees such as Oak, Aspen, Maple, Alder, and Poplar. These are also known in the trade as "hardwoods" even though it has nothing to do with wood density. Many hardwoods are susceptible to infestation by wood boring insects such as the Asian Long horned Beetle.
Deck	One or more boards or panels comprising the top or bottom surface.
Deck Mat	Assembly of deck boards and stringer boards, forming the deck of a block pallet.

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Deck board	Element or component of a pallet deck, oriented perpendicular to the stringer or stringboard.
Deck board Spacing	Distance between deck board supports (stringers, stringer boards, or blocks)
Deflection	The amount of deformation or bending in a pallet or pallet component under load
Double Face Pallet	A pallet with top and bottom decks
Drive Screw Nail	Helically threaded pallet nail
Engineered Wood	Products made from processed or manufactured wood. For instance, plywood and oriented strand board. Although made from wood these are not considered "solid wood" with regard to quarantine regulations.
Exchange Pallet	A pallet intended for use among a designated group of shippers and receivers where ownership of the pallet is transferred with the ownership of the unit load; common pool pallet.
Expendable Pallet	A pallet designed for a single trip to the receiver wherein it is disposed ("one way").
Fastener	A mechanical device for joining pallet components such as nails, screws, bolts, or staples.
Flush Pallet	A pallet with deck boards flush with the stringers or blocks along the sides of the pallet.
Fork Entry	Opening between the decks, beneath the top deck or beneath the stringer notch to admit forks.
4-Way Block Pallet	A pallet with openings at both pallet ends and along pallet sides sufficient to admit hand pallet jacks; full four-way entry pallet.
Free Span	The distance between supports in a warehouse rack.
4-way Entry (Full)	Implies that it is a block style vs. Stringer style pallet.
4-way Entry (Partial)	Implies that is a stringer style pallet with fork notches in the stringers.
Full Perimeter Base	A pallet which has bottom deck boards on all four sides on the outside edges of the pallet. See also Unidirectional base.
Hand (wheel) jack opening	Space provided in the bottom deck to allow pallet jack wheels to bear on the floor.
Hardened Steel Nail	Heat treated and tempered steel pallet nail with a MIBANT angle between 8 and 28 degrees.
Hardwood	An industry term meaning wood from non-coniferous or broad leaved species of trees. This does not mean that it is always harder than some coniferous (softwood) species.
Heat Treated	Implies that the wood has been heated to a specific core temperature and duration. 56C for 30 minutes is typically the minimum temperature and duration in order to be considered "heat treated". Note: "Kiln Dried" may or may not have achieved minimum temperature requirements to be considered heat treated; conversely, something that is heat treated is not necessarily "dry" (< 20% moisture).
Helically Threaded Nail	Helically (continuous spiral) threaded pallet nail. See also drive screw nail
Joint	Intersection and connection of components, often identified by location within the pallet as the end joint, center joint, and corner joint.
Kiln Dried	Implies that the wood has been dried in a kiln to a moisture content of less than 20% by weight. Usually this also means that the temperature achieved also meets heat treatment requirements but not necessarily.
Pallet Length	Refers to the stringer or stringboard (in block pallets) length; it also refers to the first dimension given to describe the pallet. I.e. 48" x 40", where 48" is the pallet stringer / stringboard length.
MIBANT Angle	The bend angle in a fastener shank when subjected to a MIBANT test.
MIBANT Test	Morgan Impact Bend Angle Nail Tester: a tool used in the lumber industry as an indication of impact bend resistance of nails and staples.
Non-Reversible Pallet	A pallet with bottom deck board configuration different from the top deck and therefore should not be inverted for use.
Notch	Cutout in lower portion of the stringer to allow entry for the fork tine, usually 9" in length and 1-1.5" in depth.
Notched Stringer	A stringer with two notches spaced for fork-tine entry. A pallet made with these is considered a partial 4-way entry pallet.
Opening Height	The vertical distance measured between decks, or from the floor to the underside of the top deck, or from the floor to the top of the stringer notch.
Overall Height	The vertical distance measured from the floor to the top of the pallet.
Pallet Jack	Hand-propelled, wheeled platform, equipped with a lifting device for moving palletized unit loads.



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Racked Across Deck boards	Maximum load carrying capacity and deflection of a pallet where the rack frame supports the pallet only at the ends of the deck boards.
Racked Across Stringers	Maximum load carrying capacity and deflection of a pallet where the rack frame supports the pallet only at the ends of stringers.
Recycling / Refurbishment	The process of repairing a discarded and salvaged pallet.
Returnable / Reusable Pallet	A pallet designed for multiple cycles requiring infrequent maintenance (Pool Pallets are returnable / reusable).
Reversible Pallet	A pallet with identical top and bottom decks.
Skid	A pallet having no bottom deck.
Softwood	An industry term meaning wood from coniferous or needle bearing species of trees. These are not necessarily softer or lower density than some hardwood species.
Solid Deck Pallet	A pallet constructed with no deck board spacing.
Solid Wood	Implies that the wood is raw lumber and the processing done to it has been limited to one or more of the following -- dimensional cutting, debarking, heat treatments, chemical treatments, and kiln drying.
Span	The distance between stringer or block supports.
Strap Slot	Recess or cutout on the upper edge of the stringer or the bottom of the top deck board to allow tie-down or a unit load to the pallet deck with strapping / banding. Also called the banding notch.
Stringer	Continuous longitudinal solid or notched beam component of the pallet used to support deck components.
Stringer board	In block pallets, the solid board member extending for the full length of the pallet perpendicular to deck board members and placed between deck boards and blocks. The length of the stringer board defines the length dimension of the pallet.
Two-way Entry Pallet	A pallet with unnotched solid stringers allowing entry only from two opposite ends.
Unidirectional Base	A pallet with bottom deck boards on two parallel outside edges and perhaps in the center and open to the floor on the adjacent sides. (typical of the "Euro Pallet").
Wing Pallet	A pallet which has deck boards which extend beyond the edge of the stringer.

See Separate File for Appendix A: EIPS Test Report Form (File Name: EIPS Spec Appendix A .doc)