



# Lenovo Packaging Specification 41A0609

## Wooden Packaging

### *Material Selection, Treatment, & Marking Requirements*

Written by: Benson Li                      03APR2018    Worldwide Package Engineering  
Checked by: KK Chen                      04APR2018    Worldwide Package Engineering  
Reviewed by: Yuhji Takizawa            04APR2018    Worldwide Package Engineering  
Approved by: Royal Bai                    09APR2018    Manager, WW Packaging PE

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**REVISION HISTORY**

Rev	Revision Description	Date	Approved by
A0	Creation	22MAY2006	Mo Shayesteh
A1	1. Add the Prohibited Treatment (methyl bromide) 2. Add the CARB compliance as preferred	15MAY2010	Sarah Yu
A2	Update the template with new logo	9APR2018	Royal Bai

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***“Guidelines for Regulating Wood Packaging in International Trade”***

[Http://www.ippc.int/IPPC/En/default.jsp](http://www.ippc.int/IPPC/En/default.jsp) (Click on ISPM-15)

The above referenced document is also known as the “IPPC Standard”.

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## 1.0 Introduction

This specification provides the requirements for selection, treatment and marking wooden packaging in response to regulatory activities affecting exports of materials capable of harboring destructive pests; in particular non-indigenous insects such as the Asian long-horned beetle and the pinewood nematode.

### 1.1 Scope

All packing materials made from any amount or any combination of solid non-manufactured wood and/or processed manufactured wood components. This is generally in the form of shipping pallets or crates.

### 1.2 Purpose

To minimize delays or rejected shipments associated with compliance checks due to International Phytosanitary regulations designed to combat pest migration.

### 1.3 Applicability

All Lenovo operations worldwide including Original Equipment Manufacturers (OEM's) and other vendors performing work for Lenovo or under contract by Lenovo are applicable. It also includes packing for procured parts from suppliers bound for Lenovo Manufacturing, OEM, other vendors, or Field Service locations worldwide. For simplicity, the term Lenovo used in this document implies any or all of these entities which are part of the Lenovo global supply chain.

### 1.4 Objectives

To implement a common marking procedure globally and to identify and use only approved and properly treated materials as required due to international phytosanitary requirements and related quarantine controls.

**Note:** Regulators continue to change their preferred terminology. Non-manufactured wood packing (NMWP) is technically the same as Solid Wood Packing Materials (SWPM). These terms may be used interchangeably in this document and in other official regulations. See section 6 for additional terminology.

## 2.0 Requirements

All *non-manufactured* wood packaging (NMWP or SWPM) of any type used for shipments on behalf of Lenovo worldwide must be selected, treated and marked per this specification regardless of origin or destination.

All *manufactured* wood packaging (MWPM) must be marked regardless of origin or destination. MWPM becomes immune to infestation as it is created and therefore does not require secondary treatments. **MWPM is not regulated** and is not in scope for the ISPM-15 related regulations but is in scope for the requirements of this specification.

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## 2.1 Materials Selection, Preparation and Treatment

- All wooden packaging **must** be free of bark and apparently free of live plant pests. This is the baseline requirement for all wood. Although ISPM-15 does not mandate bark free wood except for dunnage, many countries still have regulations requiring bark free wood for all packaging materials. This is commonly inspected.
- All non-manufactured wood packaging (NMWP or SWPM) must be heat treated to a (wood) core temperature of min. 56°C (133°F) for min. 30 minutes. If heat treatment facilities do not exist then avoid this type of material (NMWP or SWPM) altogether.
- **Prohibited Treatments: Chemical Fumigation is not allowed for packaging purposes.**
- **CARB (California Air Resources Board) compliance is preferred, not mandatory, since California Exempts Packaging from Formaldehyde Emissions Rules.**

### Exceptions:

- Materials made and marked per the previous editions of this specification may still be used provided that they comply with current regulations. However, all newly built wooden packaging must be made and marked as described herein.
- “Do Not Export” or “Not for Export” could be marked on untreated non-manufactured wooden packaging materials that may be in use for internal warehousing purposes or other domestic shipping situation previously excepted.
- Future Treatments: New wood treatment technologies are being developed and may be used in lieu of heat treatment but only if they are proven effective and accepted globally by the IPPC.

**Important:** *Exceptions to the requirements of this specification must be approved in writing by the responsible Lenovo Procurement Representative after gaining concurrence from all affected Lenovo Depts. (Pkg. Engineering, Global Logistics, Manufacturing, etc.).*

## 2.2 Marking Procedure

- Lenovo requires some markings which are technically not required by International regulations at this time (Example: “MWPM” and part numbers). The purpose is so that operations personnel can identify compliant materials as regulations change.
- These and all other markings to be superseded only by regulatory requirements, accepted international standards, or a subsequent revision to this specification.
- For regulated materials only, the ISPM-15 compliant marking shall consist of the treatment initials (Heat Treat), the material classification, the country of manufacture, and the supplier designation (see 2.3 for further details). Mark the pallet, skid, crate, or other wooden packaging assembly a minimum of **two times on each of two opposite exterior vertical surfaces**. ISPM-15 specifies the “preference” of dual markings, but in some countries, it’s a **mandatory minimum requirement**.
- Use **19mm (0.75”) minimum characters**. Printing may be done with ink jet printing, heat stamping, paint stencil, or other similar permanent and indelible method.
- 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.

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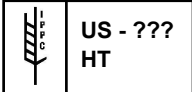
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- The ISPM-15 compliance symbol, the country of manufacture, the supplier designation and the treatment initials must be kept together as shown in the example of section 3.
- Client specific information such as Part Number, EC level and so on should appear separately from the ISPM-15 related markings.
- Crates with removable sides and top must be marked on each panel as well as the base pallet. See section 3.0 for examples.

### 2.3 Material Classifications 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 manufactured wood (MWPM) components, the marking shall relate to the non-manufactured wood packaging (NMWP) component that exists (if any) and any treatment that was done to it. Manufactured wood (MWPM) has typically been processed under heat and pressure such as plywood, particle board, oriented strand board, and so on. Manufactured wood is not regulated.

Solid Wood Packing Material (SWPM or NMWP), Heat Treated		
H T	Material Composition Requirements	Example
Must Contain	ANY amount of properly heat treated non-manufactured wood which by definition has been heated to a wood core temperature of at least 56°C / 133°F 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.	
May Contain	Any amount of MWPM and/or non-wooden material.	
Must Not Contain:	Any amount of untreated non-manufactured wood.	
<p><b>Note:</b> The “???” is to be replaced by the officially assigned facility code (see section 2.4 for additional details). Do not actually mark “???”.</p> <p><b>Important:</b> Use of kiln dried lumber is acceptable <u>provided</u> that it meets the temperature and duration requirements (56°C / 133°F for 30 minutes) to meet the definition of “heat treated” per ISPM-15. Such materials are usually mill stamped “KD-HT” or “HT”. Dry lumber alone is not a reliable indication of proper heat treatment nor is lumber mill stamped with just “KD”.</p>		

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Manufactured Wood Packaging Material (MWPM)		
MWPM	Material Composition Requirements	Example
Must Contain	ANY amount of manufactured / processed wood components. Example: A pallet or crate made with any amount of Oriented Strandboard (OSB), plywood, strawboard, masonite, particle board, paper overlaid veneer (POV), laminated veneer lumber (LVL) 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). Such materials are NOT regulated. Usually the assembly will be 100% processed wood components aside from hardware items (nails, etc.)	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <b>US MWPM</b> </div> <p>The MWPM mark is a Lenovo and EIPS specified mark; not an official regulatory mark and therefore does not get an IPPC symbol or facility code.</p>
May Contain	Any amount of non-wooden material (e.g. metal or plastic cleats on a crate).	
Must <u>Not</u> Contain:	Any amount of non-manufactured wood (NMWP or SWPM) of any type whether treated or not.	
<p><i>Plywood/OSB/Masonite, and so on are considered "manufactured wood" because it has been processed under extreme heat and pressure. It is irrelevant what wood species is used in the manufacture of these materials (can be coniferous and/or non-coniferous). Assembling a pallet from cut lumber is <u>not</u> considered "manufactured" with regard to pest regulations.</i></p>		

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## 2.4 Supplier or Facility Code Designation

**Required:** To identify the final assembly supplier of the pallet, package, crate and so on which contains treated wood. This may be done only per following specification:

The facility code assigned to the producer of the wooden packaging material by the authorized National Plant Protection Organization (NPPO). This code must be used if this system is established in the origin country.

**Important:** The facility code shall be that of the final assembly location which built the regulated and treated pallet or package; not the source of the raw wood from which the assembly was made. If an authorized NPPO process is not established in the origin country to provide the facility code and therefore, a proper ISPM-15 compliant marking is not possible, then an alternative non-regulated packaging material must be used.

Thus, it is no longer acceptable to mark supplier names, logo's, or initials in lieu of the authorized facility codes on regulated articles. NPPO Agency logo's are permitted and may be required in some countries as part of the audit trail.

## 2.5 Country of Manufacture of the Wooden Assembly

**Required:** This is the 2 character abbreviation as defined by ISO-3166 and precedes the facility code. The country that is marked is that which built the wooden packaging assembly (pallet, crate, etc.), not necessarily the source of the raw wood or the contents on the pallet or in the wooden packaging. The NPPO audit process will generally be done on the Manufacturer's premises and will involve inspection of raw wood sources and certifications from those sources regarding their treatment facilities. It is possible that lumber from multiple sources may be included in a given package assembly.

## 2.6 Part Number of the Wooden Assembly

The 7 digit alphanumeric Lenovo part number of the package assembly. This is **required** for Lenovo designed and specified items, and is **recommended** for supplier's pallets and their part number for it.

## 2.7 Engineering Change (EC) Level of the Wooden Assembly

**Optional:** 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.

## 2.8 Reusable Pool System Symbol

**Optional / Restricted:** For instance, the "EUR" symbol associated with the European pool system pallets (such as "Euro Pallets") or any other similar program previously established or future program (example: EIPS qualified pallets). These markings are to be used only as specified by that system. Only pallets meeting the design and construction requirements of the marked pool system are to carry that symbol.

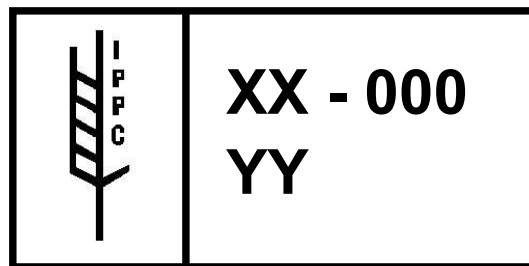
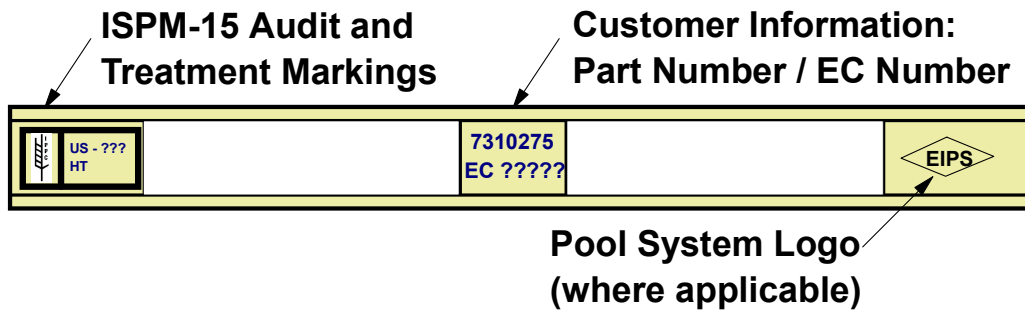
**Note:** Unless the treatment type is marked on a "Euro Pallet" it should not be exported to regulated countries except within EU countries.

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### 3.0 Example Marking of a Wooden Pallet



**Important:** This stamp / marking shown above has been adopted by the International Plant Protection Convention (IPPC), an organization with over 115 member countries. The IPPC symbol on the left side of the marking is the officially licensed mark that will be used for all properly treated regulated materials (NMWP or SWPM) to indicate compliance with global phytosanitary standards. The right side of the marking provides an audit trail to the source of the materials:

- **XX** = The 2 character ISO 3166 country of origin of the wooden package assembly, not necessarily the raw wood within the assembly. Don't mark "XX".
- **000** = The unique facility code assigned to that manufacturer by the NPPO (National Plant Protection Organization or Govt. Authorized lumber grading agency). Don't mark "000".
- **YY** = The 2 character abbreviation of the treatment method (HT or MB). Don't mark "YY"

Placing the IPPC symbol on the regulated articles implies that the treatment process has met Governmental standards and has been audited by authorized parties. Typically, this would be the lumber grading agencies or other group acting as an agent for the National Plant Protection Organization (NPPO). **Caution:** Use of the IPPC symbol PRIOR to that audit being conducted is not allowed. Contact your local pallet supplier or NPPO for specific rules in that respect.

**Conversely, the IPPC symbol must NOT be used for materials which are not regulated even if they are inherently pest-free; for instance, plastics, manufactured wood (MWPM), corrugated fiberboard, metals, other composites, and so on.**

**Lenovo reserves the right to audit, request a 3rd party audit, or request documentation of a supplier's IPPC certification and on-going compliance.**

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## 4.0 Points of Emphasis

### 4.1 **What to do if the Material Classification cannot be affirmed**

Paint over existing marks or simply do not mark items if the origin or treatment cannot be affirmed. By default, anything marked this way or unmarked cannot be used for export to a regulated country or shipped to or from Lenovo. Untreated pallets that are used for internal handling or warehousing purposes may be marked "Do not Export".

### 4.2 **What to do with refurbished components that are already marked**

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.

### 4.3 **Refurbished Pallets**

Use of refurbished pallets is encouraged. However, refurbished pallets containing any amount of NMWP or SWPM must be entirely retreated and remarked even if all of the components of the refurbished pallet were previously treated.

### 4.4 **What NOT to Mark**

- Do NOT mark items which are clearly not of wooden origin unless that assembly does have some wooden components somewhere else in the assembly. For instance, if a package consisted of a plastic pallet and a wood 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. No pest related markings are required for corrugated or plastic items since these are not regulated items.
- It is not necessary to mark each piece of lumber in an assembly, nor is it absolutely necessary for the required marking to be placed only on the regulated material portion of the assembly. For instance, if an assembly was made from a permanent combination of heat treated wood and plywood, the HT marking could appear on the plywood surface if this made it more visible. However, despite this, some inspectors have expressed a preference that the marking should appear on the regulated portion of the assembly. So if there is otherwise no difference then it would be *recommended* to put the marking on the NMWP portion if feasible.
- Do NOT mark items as being treated if the composition or treatment history is unknown or cannot be verified.
- Reminder: Do NOT use the pest free symbol shown below. This symbol is now obsolete for international compliance marking purposes due to a previous trademark issue. It is provided here for reference purposes only.



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## 5.0 References

### 5.1 *Lenovo Procurement*

<http://www.pc.ibm.com/ww/lenovo/procurement/index.html>

### 5.2 *United States Department of Agriculture (USDA / APHIS)*

<http://www.aphis.usda.gov>

### 5.3 *National Wooden Pallet and Container Association (NWPCA)*

<http://www.nwpc.com>

### 5.4 *Lenovo Import / Export Country Import Shipping Instructions (CISI's)*

Internet: <http://www.lenovo.com/procurement/cisi>

Internet: <https://www-03.ibm.com/lenovoinfo/procurement/cisi/lglobalspis.nsf>

Note: The above site is password protected, access approved for Lenovo suppliers via Lenovo Procurement. This process provides country specific import requirements.

### 5.5 *Electronics Industry Pallet Standard (EIPS) Task Group*

<http://packaging.hp.com/eips>

### 5.6 *International Standard for Phytosanitary Measures, ISPM-15*

"Guidelines for Regulating Wood Packaging Material in International Trade", also known as "the IPPC Standard".

Internet: <https://www.ippc.int/IPP/En/default.jsp> (IPPC Web site, click on ISPM No. 15)

Are you reading this file hard copy? Find it soft copy at this Lenovo Internet accessible URL:

<http://www.pc.ibm.com/ww/lenovo/procurement/index.html>

## 6.0 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"
Bark Free Wood	From the IPPC Standard: "Wood from which all bark excluding the vascular cambium, ingrown bark around knots, and bark pockets between rings of annual growth has been removed." It is Lenovo policy to use bark free wood meeting this definition. Note: "Bark free" (the Lenovo requirement) is more stringent than "debarked". Also, S4S lumber (or "surfaced four sides") generally meets the requirement of "bark free".

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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 (or deciduous) species of wood which are broadleaf bearing trees such as Oak, Aspen, Maple, Alder, and Poplar. Non-Coniferous trees lose their leaves during autumn. 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..
Debarked	From the IPPC Standard: "the removal of bark from round wood (debarking does not necessarily make the wood "bark free"!)"
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.
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 "non-manufactured 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 it 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 leafed 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

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IPPC	International Plant Protection Convention
ISPM	International Standards for Phytosanitary Measures. ISPM-15 is pertinent to this.
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.
Manufactured Wood Packing Materials (MWPM)	Materials which by virtue of the way they are made are not pathways for pest migration. Examples: Plywood, oriented strand board (OSB), paper overlaid veneer (POV), masonite, and particle board. Such materials are not regulated and are therefore compliant with international regulations aimed at preventing pest migration. MWPM is not an officially recognized acronym, it is used by Lenovo to mark materials of this type for our own convenience so that self declarations are accurate.
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. See ASTM F680 "Standard Test Methods for Nails."
Non-Coniferous Wood	See definition moved up next to Coniferous Wood for convenience.
NPPO	National Plant Protection Organization. This is an agency affiliated with the IPPC and has jurisdiction within a given country. Example: APHIS for the United States.
Non-Manufactured Wood Packing (NMWP)  (Same as SWPM)	All packing materials (pallets, crates, dunnage, etc.) that are made from any amount of dimensional lumber whether treated or not. Many countries require such materials to be heat treated, chemically treated, or fumigated to prevent pest migration. NMWP is equivalent to SWPM (solid wood packing material).
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.
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.
Refurbishment	The process of repairing and reusing 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 Packing Material (SWPM)  (Same as NMWP)	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. Same as Non-Manufactured Wood Packing (NMWP). Regulations may use these designations interchangeably.
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.

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## Engineering Specification

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 (or first) dimension of the pallet.
Two-way Entry Pallet	A pallet with unnotched solid stringers allowing entry only from two opposite ends.
Thin Wood	Wood which has been cut to 6 mm or less thickness. Such wood, although meeting the definition of non-manufactured wood, is not considered a major risk or pathway for pests and therefore is not subject to the treatment requirements of the IPPC standard.
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".
Wane	A defective beveled or slanting edge on a board, denoted by bark or a lack of wood. Note: Inspectors, upon observing wane will assume that the wood has bark on it. This can cause delays in some countries.

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