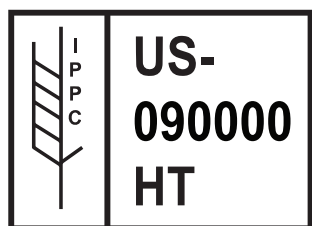




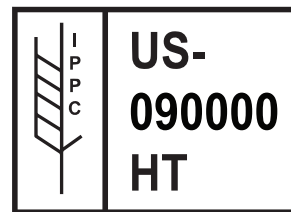
Northeastern Lumber  
Manufacturers Association

# Heat Treatment & Wood Packaging Material Compliance Procedures Manual



NELMA®

HT 000  
NELMA®



DUNNAGE  
NELMA®







# NELMA®

**E**stablished in 1933, the Northeastern Lumber Manufacturers Association (NELMA) is a non-profit trade association headquartered in Cumberland Center, Maine. NELMA is accredited by the American Lumber Standard Committee (ALSC) as a lumber rules writing agency and as a provider of inspection services for lumber, timbers, and Wood Packaging Materials (WPM). NELMA has provided WPM inspection services to facilities located throughout New England, Mid-Atlantic, Great Lakes and Upper Midwest Regions of the U.S. since 2001.



# Heat Treatment & Wood Packaging Material Compliance Manual

## The International Standard for Wood Packaging

ISPM 15 Approved Treatments	1
ISPM 15 Exempt Wood Products	1
About This Manual	1
NELMA Facility Certification Programs	2

## NELMA Licensed Marking Equipment

Ordering Marking Equipment	2
Marking Equipment Security	2
Marking Equipment & Maintenance	3
Marking Equipment Replacements	3

## Section 1: Wood Packaging Facility

1.1 Purchase of HT Materials	4
1.1.1 Pressure Treated Lumber	5
1.2 HT Material Documentation	5
1.3 Wood Packaging Material (WPM)	5
1.3.1 Debarking Requirements	5
1.3.2 Stamping	6
1.3.3 Stamping Documentation	6
1.4 Dunnage (DUN) Blocking/Bracing Material	7
1.4.1 Dunnage Usage	7
1.4.2 Debarking Requirements	7
1.4.3 Stamping Requirements	7
1.4.4 Dunnage Documentation	7

## Section 2: Heat-Treated Material Re-manufacturing Facility

2.1 Purchase of HT Materials	8
2.1.1 Pressure Treated Lumber	9
2.2 HT Material Documentation	9
2.3 Heat-Treated Re-manufactured Lumber	9
2.4 Stamping Requirements	9
2.5 HT Stamping Frequency Exception	9
2.6 HT-REMAN Documentation	9

## Section 3: Heat Treatment Facility

3.1 Heat Chamber Requirements	10
3.2 Temperature and Time Requirements	10
3.3 Temperature Recording Devices	11
3.4 Heat Treatment Schedules	11
3.5 Thermocouples	11
3.5.1 Heat Chamber Thermocouple Locations	11
3.5.2 Thermocouple Probing	11
3.5.3 Thermocouple Monitoring and Recording	12
3.6 Debarking Requirements	12
3.7 Stamping Requirements	12
3.8 HT Stamping Frequency Exception	12
3.9 Re-Heat Treating Previously Marked IPPC Material	12
3.10 Heat Treatment Facility Documentation	12
3.11 HT Charge Failure	12

## Section 4: Reuse & Repair of IPPC Stamped Wood Packaging

4.1 Reusing IPPC-Stamped Wood Packaging	13
4.2 Repairing IPPC-Stamped Wood Packaging	13
4.3 Repair of IPPC-Stamped Wood Packaging for Domestic Use	13
4.4 Repair Exception	13

## Section 5: Inspection Procedures and Disciplinary Action

5.1 NELMA Inspections & Frequency	13
5.2 ALSC Inspections	13
5.3 Inspection Discrepancies	14
5.4 Corrective Actions and Holds	14
5.5 Inspection Reports	14
5.6 NELMA Disciplinary Actions	14

## NELMA Form Examples

HT Lumber Purchases Form	I
Reman / Dunnage Log Sheet	II
WPM Stamped Usage Report	III

# The International Standard for Wood Packaging

The “International Standard for Phytosanitary Measures (ISPM) – Guidelines for Regulating Wood Packaging Material in International Trade, Publication Number 15”, otherwise known as ISPM 15, is the official name of the global standard for export wood packaging. This Standard applies to export packaging, such as pallets, skids, crates, boxes, dunnage, etc. manufactured from solid hardwood or softwood lumber components. ISPM 15 was developed to reduce the global transport of non-native, invasive forest pests through wooden export packaging to which numerous examples of environmental and economic loss can be associated.

ISPM 15 was adopted by more than 150 countries at the International Plant Protection Convention (IPPC) in March 2002, with each country allowed to choose their own date for actual implementation and enforcement. More than 75 countries have implemented the Standard, which includes all major U.S. worldwide trading partners.

The U.S. WPM inspection program system in place today is a result of a cooperative agreement between the United States Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (APHIS) and the American Lumber Standard Committee (ALSC).

## ISPM 15 Approved Treatments

The IPPC ISPM 15 Standard currently allows three types of treatments to eradicate harmful organisms in wooden packaging:

- **Heat Treatment (HT)**
- **Fumigation with Methyl Bromide (MB)**
- **Dielectric Heating (DH)**

These treatments must be applied to all solid wood materials within a completed shipping unit (crate, box, pallet, skid, etc.), and applies to both hardwood and softwood species of wood.

NELMA does not offer Fumigation Certification. Dielectric Heating methods are, as of the date of this publication, a newly approved technology that is not widely used. Procedures in this manual cover only Heat Treatment and the use of Heat-Treated materials to comply with the IPPC ISPM 15 Standard.

## ISPM 15 Exempt Wood Products

Several wood-based materials and products used in the manufacture of packaging are exempt from the ISPM 15 standard. These items include:

- Wood packaging material made entirely of wood 6 mm (15/64 in) or less in thickness.
- Wood packaging made solely of processed wood material, such as plywood, particleboard, oriented-

strand board, or veneer that has been created using glue, heat, or pressure, or a combination thereof.

- Barrels for wine and spirit that have been heated during manufacture.
- Gift boxes for wine, cigars and other commodities made from wood that has been processed and/or manufactured in a way that renders it free of pests.
- Sawdust, wood shavings, and wood wool.
- Wood components permanently attached to freight vehicles and containers

While laminated beams consisting entirely of processed material (such as plywood) are exempt, solid wood Glulam beams are not exempt and require heat treatment and HT markings for use in IPPC marked packaging.

## About This Manual

Throughout the compliance manual, the following helpful indicators and icons have been added to assist in the comprehension of the material:



A compliance critical section all involved with the program should be aware of and trained on.



Important disclaimer that needs attention



Useful information and tips

## NELMA Facility Certification Programs

NELMA certifies and inspects three types of manufacturing facilities that require ISPM 15 auditing services:

- **Wood Packaging Materials Facility**  
Purchases HT lumber from a supplier and manufactures ISPM 15 compliant packaging that is then marked with the IPPC or IPPC-DUNNAGE quality mark.
- **Re-Manufacturer of HT Materials**  
Purchases HT lumber from a supplier and -

manufactures resized ISPM 15 compliant lumber that is then marked with the HT quality mark.

- **Heat Treatment Facility**  
Heat treats completed wood packaging, individual components, or lumber with on-site equipment to ISPM 15 and NELMA compliance standards that is then marked with the IPPC, DUN or HT quality mark.



*A facility may be certified as one or more types of manufacturing facilities dependent upon their overall operation and variety of solid wood products manufactured for use in export packaging.*

## NELMA Licensed Marking Equipment

All licensed stamps, stencils, brands and stamping equipment used by a certified facility are the legal property of NELMA as detailed in the “Agreement to Provide Service” signed by a facility representative upon certification. Upon receipt, the facility takes full responsibility for the security, accounting and maintenance of all NELMA issued marking equipment. Failure to do so can result in audit failure, facility removal from the ISPM 15 program, and potential legal action in severe cases of negligence or malicious intent.

### Ordering Marking Equipment

All stamps, stencils, and stamping equipment must be ordered through the NELMA office to ensure quality, consistency, and overall stamp inventory control. The initial stamp and stamping supplies will be ordered by a NELMA Inspector as a final step in the facility certification process. NELMA will invoice the facility for the cost of the stamps, supplies, and shipping and handling charges following receipt of the order.

In addition to permanent-ink stamps or stencils, a facility may also “brand” an exact replica of an official IPPC stamp onto their certified wood packaging materials. Because of variations and specific requirements in branding machinery, facilities are permitted to source brands ONLY with approval from NELMA first.

The facility must consult with NELMA prior to mock-up and production of the brand and final approval must be obtained from the NELMA office before ordering.



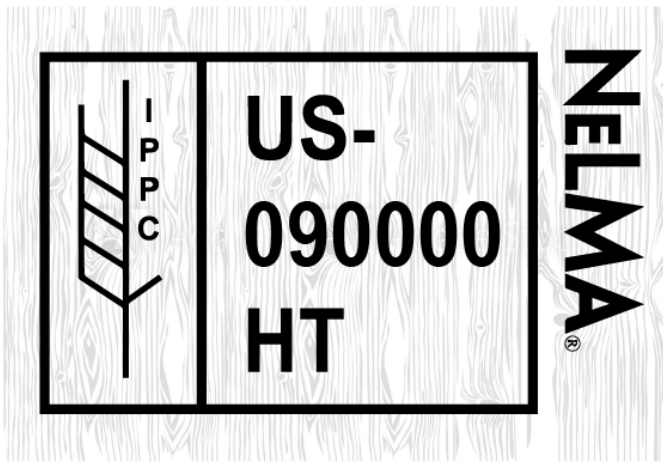
### Marking Equipment Security

Upon receiving NELMA issued marking equipment and brands, the facility takes full responsibility for the security of these items. These items are only allowed for use by designated, trained personnel and staff. A NELMA approved process and procedures plan will be developed and detailed by the facility to document accountability of all stamps.

The facility management must contact NELMA immediately when a NELMA stamp is lost, destroyed, or used for malicious purposes by staff.

Marking equipment shall not be altered in any way by facility personnel. Damaged or worn stamps must never be discarded by staff. Any items that need to be replaced or removed must be done so by contacting NELMA. NELMA inspectors will verify damage or wear and remove the item from the facility.

Marking equipment shall only be used at the specific wood packing facility location to whom they were officially issued and are not to leave the premises. The marking equipment is numbered to account for the location in which the product is made. Movement of this equipment to a non-authorized facility is a serious violation of the NELMA agreement.



*fig. 1 : A clean impression of a compliant IPPC stamp.  
Note that all information is present and legible.*

## Marking Equipment & Maintenance

Proper ink quality and quantity, careful application, and periodic cleaning are the keys to stamp legibility. Rubber stamps should only be used with NELMA approved ink and should be cleaned frequently to ensure a clear stamp impression (*fig. 1*) with each application. An indelible ink should be used to ensure stamp impression permanence on units that may be exposed to weathering.

**!** *The use of Red or Orange ink for ISPM 15 markings is prohibited. These colors are used in the identification of hazardous materials during shipment and can falsely flag shipments for holds and inspections.*



*fig. 2 : Non-compliant stamp impressions created by using too much/little ink or a dirty stamp.*

Rubber Stamps and Mylar Stencils should be cleaned frequently with warm water and a mild soap product, such as dish soap, applied with a soft bristled brush such as a toothbrush. Failure to maintain these items can lead to non-compliant impressions. (*fig. 2 and fig. 3*)

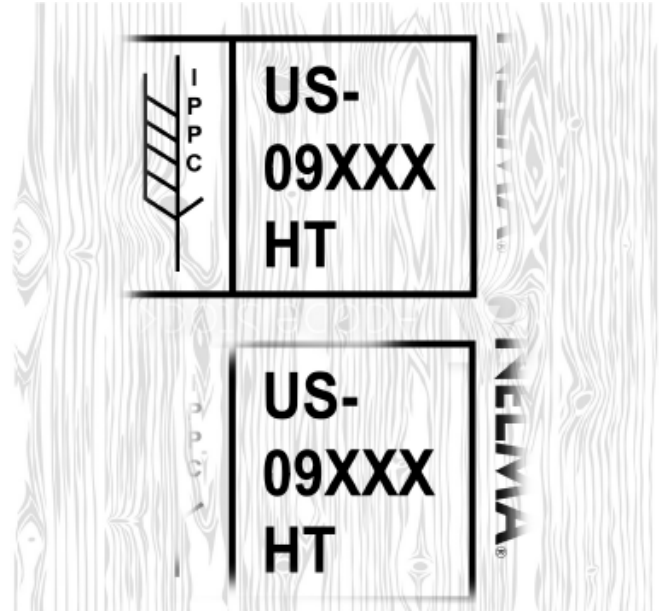
If the ink has been allowed to build up on the stamps, isopropyl alcohol may be used as a cleaner, applied with a soft toothbrush. Avoid soaking the stamp in harsh chemicals or cleaners. This may warp the stamp and weaken the glue that bonds the rubber to the handle or Velcro.

If spray paint is used on Mylar Stencils, use paint thinner to remove the built-up paint.

## Marking Equipment Replacements

Marking equipment showing signs of wear or damage (*fig. 3*) should be replaced promptly! Replacement or additional items may be ordered at any time by contacting the NELMA office or through a NELMA Inspector. Worn marking equipment that needs replaced shall be saved for retrieval by the NELMA inspector for review and pickup.

**!** *Do not discard worn stamps, stencils or brands under any circumstances! Stamps, stencils, and brands must be returned to the NELMA office or to the NELMA inspector for proper disposal. Stamp inventories must be accurately maintained to ensure that stamps have not been lost or stolen.*



*fig. 3 : Non-compliant stamp impressions created by a worn, warped stamp or bad application practice.*



# Section 1: Wood Packaging Facility

A Wood Packaging Facility is defined by NELMA as a facility that produces Wood Packaging Materials (WPM) such as pallets, skids, boxes, crates or custom packaging and/or Dunnage. These items can be produced and sold to customers or created to ship separate goods. Certification and operational requirements for a Wood Packaging Facility consist of several core components:

- Purchasing and Inventorying Certified Heat-Treated Solid Wood Materials
- Manufacturing, Debarking and Marking Certified Wood Packaging Correctly and Clearly
- Documenting Activities and Processes to Ensure Traceability and Accountability

The following sections outline the Wood Packaging Facility compliance requirements from start to finish. If you are unsure about any procedures or methods described in this document, consult NELMA or a NELMA Inspector for clarification.



## 1.1 Purchase of HT Materials

Purchased HT lumber must be properly stamped with a certified Heat-Treated (HT) mark for it to be used in compliant wood packaging. A certified HT mark requires that EACH PIECE be mark with a stamp that includes 3 verifiable items:

### 1. HT Mark

Denotes that the item has met the minimum sterilization treatment requirement

### 2. HT Facility ID

An identifying marking of where the material is produced. This may be a name, number or alphanumeric value. Do not confuse this number with a grade number

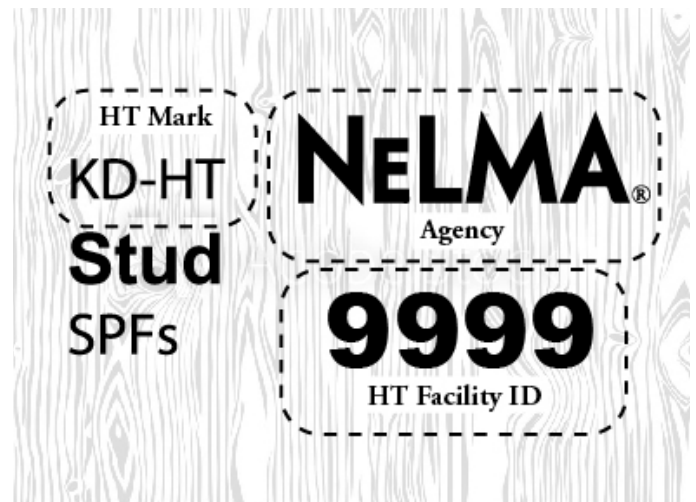
### 3. Agency Logo

The registered logo of the certifying agency responsible for HT verification at the Treatment Facility. Do not confuse this number with the wood species identifier, i.e. “SPF”.

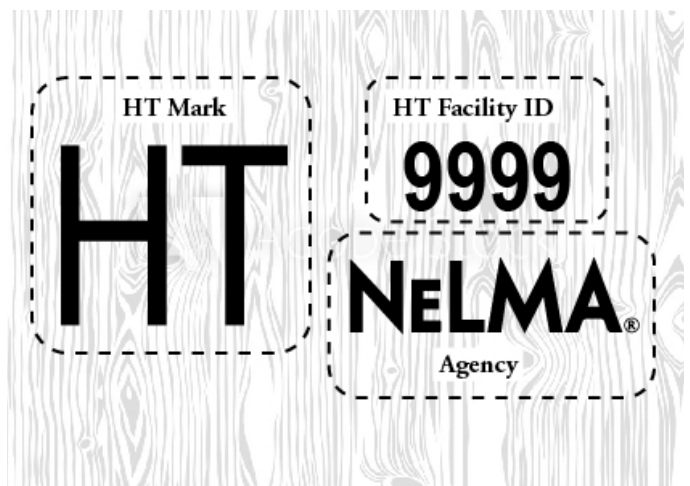


*A facsimile of registered agency logos can be found in the NELMA records binder or by contacting NELMA directly.*

These items may be contained within a lumber grade stamp (fig. A) or separate HT stamp (fig. B) on the face or end of each piece. Upon delivery of the lumber to the facility, designated facility personnel must conduct an inspection of the material to ensure the required information is present before acceptance into inventory. Any questionable material should be rejected and/or verified with NELMA immediately.



*fig. A : Example of a lumber Grade Stamp containing the heat-treatment (HT) verification information.*



*fig. B : Example of a verifiable HT stamp.*



### 1.1.1 Pressure Treated Lumber

Preservative-treated wood such as pressure treated lumber IS NOT an approved method of treatment under ISPM 15. In order to be utilized in ISPM 15 compliant packaging, any preservative-treated wood product must also be Heat Treated and bear an HT stamp on each piece.

### 1.2 HT Material Documentation

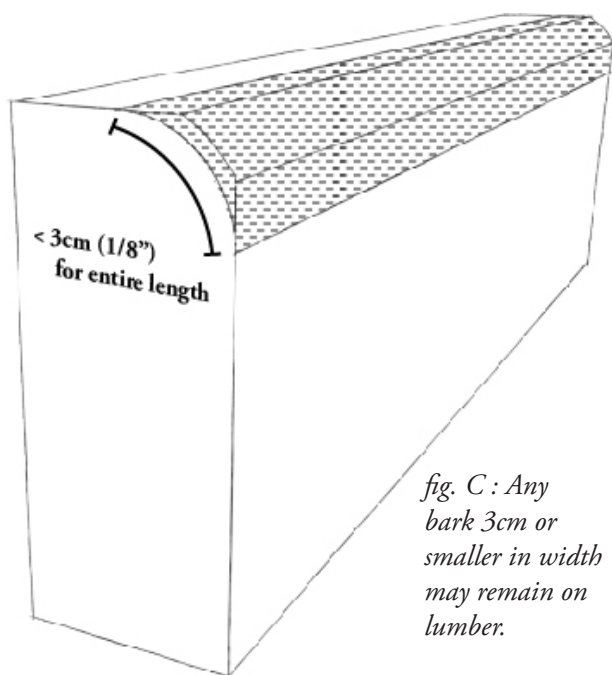
The following forms and records must be maintained by the facility for the 3 years prior to the current calendar year for purchased HT material:

- **Invoices/Bills of Lading**

A supplier provided invoice and/or bill of lading for each purchase of HT material which itemizes the sizes and quantities of the materials provided in the transaction between the supplier and the facility.

- **HT-Lumber Purchases Form**

A log sheet maintained by facility personnel to record each purchase of certified HT-stamped lumber and components by the facility. The date of delivery, lumber/component size, and quantity will be added to the form after each purchase. A separate form must be used for each size of solid material purchased. See page I for a report sample.



*fig. C: Any bark 3cm or smaller in width may remain on lumber.*

### 1.3 Wood Packaging Material (WPM)

Wood Packaging Materials (WPM) are defined as completed pallets, skids, boxes, crates or custom packaging used to contain or carry products from their point of origin to the final destination. WPM must be manufactured using certified, Debarked HT Lumber as well as any exempt wood products (e.g. plywood, OSB, etc.), and/or fasteners necessary. WPM must be marked with multiple IPPC stamps (see 1.3.2 Stamping) to identify it as compliant export packaging.



#### 1.3.1 Debarking Requirements

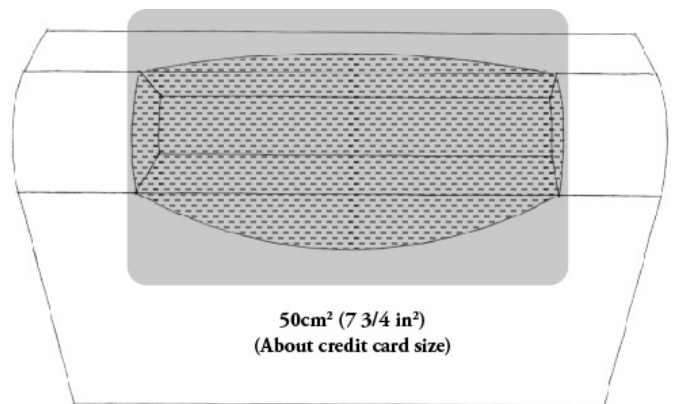
HT lumber may contain bark upon purchase and receipt at a facility. However, ISPM 15 restricts the amount of bark permitted on wood used in WPMs. For bark to remain on WPM it must either:

- Be less than 3 cm (approximately 1-1/8 in) in width regardless of length (*fig. C*), or
- If greater than 3 cm in width, the total surface area of an individual piece must be less than 50 cm<sup>2</sup> (approximately 7-3/4 in<sup>2</sup>) (*fig. D*).

It is critical to debark any HT material before WPM is assembled to meet the minimum ISPM 15 debarking requirements.



*NELMA highly recommends removing all bark in excess of 3 cm in width (approximately 1-1/8 in) from HT material before use.*



*fig. D: Bark wider than 3cm may only remain if the total area of the bark does not exceed 50cm<sup>2</sup>*

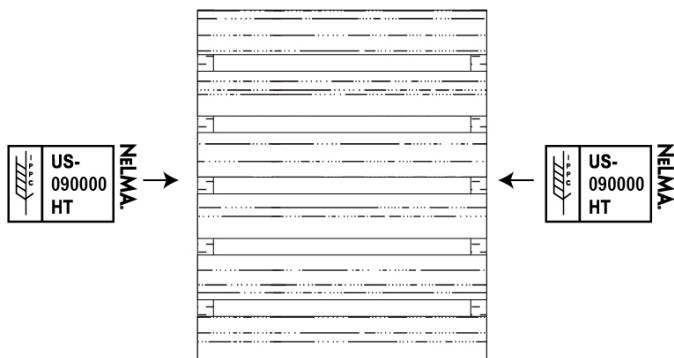


### 1.3.2 Stamping

In general, completed WPM must be stamped with the IPPC Stamp and be visible and clearly legible on a minimum of two opposing faces (*fig. E*) on the WPM. All information including IPPC and agency logos, country designation, facility registration numbers, and the border lines containing the stamp information must be complete (*fig. E.1*). Failure to do so renders the marking non-compliant.



*NELMA highly recommends stamping all faces of the completed packaging to ensure a full view of the stamps by foreign port authorities.*



*fig. E : Stamps must be applied to WPM a minimum of 2 opposing faces in order for it to be compliant.*

There are many different variations of WPM and packaging methods and some may cause confusion when attempting to apply the IPPC stamp. Below are a few common examples that often need further clarification. Always contact NELMA or a NELMA Inspector if you have a question on stamping.

- **Individual pieces used within a box or crate used for internal blocking and bracing**

These pieces must be manufactured from certified HT material. While no additional stamp is required on these individual pieces, it is acceptable to stamp cut-to-size bracing and blocking pieces with the IPPC stamp.

IPPC stamped, finished WPM units that are shipped to a customer for export use should never have any solid lumber materials added to them by the customer, unless the customer is also an IPPC ISPM 15 certified facility, or if the material is supplied with the unit as part of a kit and the customer is instructed on the proper use of such material.

- **Cardboard or Plywood/OSB covered wood packaging units**

The IPPC Stamp should be applied to both the interior wood framing and the covering material on a minimum of two opposite sides.

- **Wood Packaging Kits**

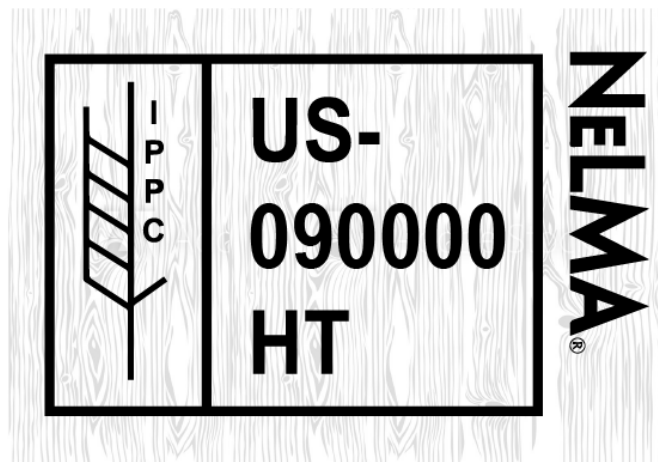
Under specific circumstances it is permissible to ship a completed wood packaging unit to a customer in kit or in a partially disassembled state (aka Knock-down Kit). A kit must be stamped to conform to all completed WPM requirements as it would be in its final assembled form. Specific steps must be taken in order to maintain the integrity of a kit; due to the numerous variables associated with kits, NELMA highly recommends discussing the process with your inspector and customer prior to proceeding, to ensure that the kits will conform to regulations.

### 1.3.3 Stamping Documentation

The following forms and records must be maintained by the facility for the 3 years prior to the current calendar year for IPPC stamped packaging:

- **WPM Stamped Usage Report**

A log sheet maintained by designated facility personnel to record the certified HT lumber from the facility's inventory used to manufacture completed wood packaging units. The information to include: date of manufacture, material sizes used, quantity, and specific facility identification information (job number, order number, customer name, etc.) See page III for a report sample.



*fig. E.1: A compliant IPPC stamp displaying all information clearly and legibly.*

## 1.4 Dunnage (DUN) Blocking/ Bracing Material

Dunnage is defined as individual solid lumber material that will be used in securing wood packaging units (boxes, crates, pallets, skids, etc.) within a shipping container or vehicle for transit via truck, ship, or air. These items generally do not continue with the shipment beyond the port of entry. Dunnage must be manufactured using certified, debarked HT lumber and/or any fasteners necessary. Dunnage must be marked with a single or multiple Dunnage (DUN) stamps to identify it as compliant material.

### 1.4.1 Dunnage Usage

Dunnage material may be used at a variety of facilities within the export wood packaging community:

- at a wood packaging facility that also loads export shipping containers on-site,
- at a freight forwarding company that loads export shipping containers on-site, or
- at a seaport and /or airport cargo facility where the final loading of shipping containers takes place.

Blocking and bracing of goods inside a certified IPPC stamped box or crate is not considered Dunnage. These pieces cut from certified HT wood material used internally within a wood packaging unit are covered by the IPPC stamp placed on the exterior of the completed unit.



### 1.4.2 Debarking Requirements

The same requirements for Wood Packaging debarking also apply to the removal of bark on Dunnage. Please refer to sub-section 1.3.1 “Debarking Requirements” for guidance.



### 1.4.3 Stamping Requirements

The Dunnage stamp contains the same information as the IPPC stamp with the addition of the word “DUNNAGE” or “DUN” on the right-hand exterior of the stamp impression (*fig. F*). This designation reflects its specific usage for external blocking and bracing in shipping containers or vessels.

Specific criteria apply to the stamping and usage of Dunnage and is dependent upon the manufacturing facility and how used. There are two methods to stamp Dunnage:

- **Every 2 Feet for Full Length Dunnage**  
Applies to lumber that will or has the potential to be cut down and resized before loading into a container or vessel. A Dunnage stamp must be present every 2 feet down the length of the board to ensure it is not cut off and removed when the item is resized.
- **A Single Stamp for Cut-To-Size Dunnage**  
Items that have been cut-to-size and will be used as-is with no alterations require only a single, legible stamp on a prominent face. Be sure to verify with the end user if a certain face needs to be stamped so it is visible when put in place.

### 1.4.4 Dunnage Documentation

The following forms and records must be maintained by the facility for the 3 years prior to the current calendar year for Dunnage stamped materials:

- **Dunnage Log Sheet**  
A form to be used by designated facility personnel to record specific information on components manufactured from certified heat-treated lumber stamped HT or KD HT and stamped with the DUN stamp. The information will include the date, the original HT or grade stamp information (name of inspection agency and mill number), size and quantity of lumber, and the final size and quantity of components re-stamped with the facility’s DUN stamp. See page II for a Report sample.



*fig. F: A clean impression of a compliant IPPC Dunnage stamp. Note that all information is present and legible.*



## Section 2: Heat-Treated Material Re-manufacturing Facility

A Heat-Treated Materials Re-manufacturing (HT-REMAN) Facility is defined by NELMA as a facility that purchases certified and properly stamped Heat Treated (HT) lumber and re-manufactures the material into components or specialty-sized items for use in packaging or sale. Certification and operational requirements for a Heat-Treated Materials Re-manufacturing Facility consist of several core components:

- Purchasing and Inventorying Certified Heat-Treated Solid Wood Materials
- Manufacturing and Marking Certified Heat-Treated Lumber Correctly and Clearly
- Documenting Activities and Processes to Ensure Traceability and Accountability

The following sections outline the Heat-Treated Materials Re-manufacturing Facility compliance requirements from start to finish. If you are unsure about any procedures or methods described in this document, please consult NELMA or a NELMA Inspector for clarification.



### 2.1 Purchase of HT Materials

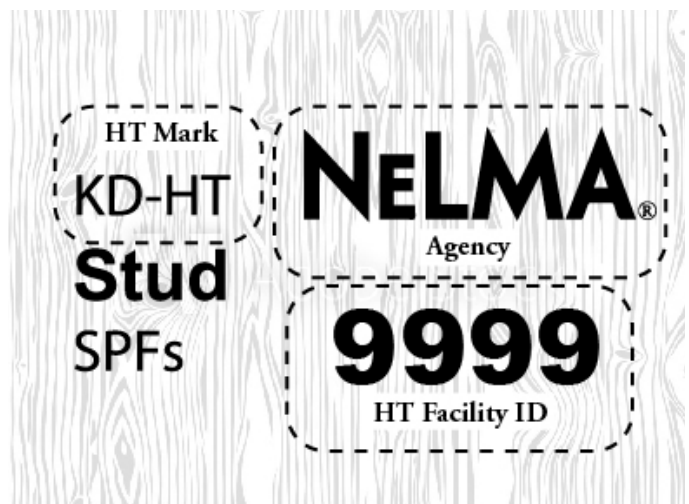
Purchased HT lumber must be properly stamped with a certified Heat-Treated (HT) mark for it to be used in compliant wood packaging. A certified HT mark requires that EACH PIECE be marked with a stamp that includes 3 verifiable items:

- **HT Mark**  
Denotes that the item has met the minimum sterilization treatment requirement.
- **HT Facility ID**  
An identifying marking of where the material is produced. This may be a name, number or alphanumeric value. Do not confuse this number with a grade number.
- **Agency Logo**  
The registered logo of the certifying agency responsible for of the Treatment Facility. Do not confuse this number with the wood species identifier, i.e. “SPF”.



*A facsimile of registered agency logos can be found in the NELMA records binder or by contacting NELMA directly.*

These items may be contained within a lumber grade stamp (fig. G) or separate HT stamp (fig. H) on the face or end of each piece. Upon delivery of the lumber to the facility, designated facility personnel must conduct an inspection of the material to ensure the required information is present before acceptance into inventory. Any questionable material should be rejected and/or verified with NELMA immediately.



*fig. G: Example of a lumber Grade Stamp containing the heat-treatment (HT) verification information.*



*fig. H: Example of a verifiable HT stamp.*

### 2.1.1 Pressure Treated Lumber

Preservative-treated wood such as pressure treated lumber IS NOT an approved method of treatment under ISPM 15. In order to be utilized in ISPM 15 compliant packaging, any preservative-treated wood product must also be Heat Treated and bear an HT stamp on each piece.

## 2.2 HT Material Documentation

The following forms and records must be maintained by the facility for the 3 years prior to the current calendar year for purchased HT material:

- **Invoices/Bills of Lading**

A supplier provided invoice and/or bill of lading for each purchase of HT material which itemizes the sizes and quantities of the materials provided in the transaction between the supplier and the facility.

- **HT-Lumber Purchases Form**

A log sheet maintained by facility personnel to record each purchase of certified HT-stamped lumber and components by the facility. The date of delivery, lumber/component size, and quantity will be added to the form after each purchase. A separate form must be used for each size of solid material purchased. See page I for a report sample.

## 2.3 Heat-Treated Re-manufactured Lumber

Heat-Treated Re-manufactured (HT-REMAN) Lumber is defined as resized and/or reshaped solid wood HT materials that will be used as components. HT-REMAN lumber IS NOT considered to be a finished packaging product under ISPM 15. Please refer to the “Wood Packaging Facility” section for definitions of completed wood packaging products. HT-REMAN lumber must be manufactured using certified Heat-Treated (HT) Lumber. HT-REMAN lumber must be marked with an HT stamp to identify it as compliant HT material.



## 2.4 Stamping Requirements

Completed HT-REMAN lumber must be stamped with the HT Stamp (*fig. 1*) on a minimum of one face clearly and legibly. This must occur on every piece of material.

## 2.5 HT Stamping Frequency Exception

The ALSC Enforcement Regulations provide an alternative to the standard stamping requirements when working with large volumes of small material. To take advantage of this exception, material must meet at least one of these criteria:

- 30 inches or less in length, or
- 1/2 inch nominal or less in thickness, or
- 2 inches nominal or less in width

If the material matches any one of these criteria, the HT stamp must be applied to no less than 25% of the individual pieces in the unit. The units then must be bundled and stenciled with an approved HT stencil on the outside of the package. HT stencils must be obtained through NELMA.

## 2.6 HT-REMAN Documentation

The following forms and records must be maintained by the facility for the 3 years prior to the current calendar year for HT-REMAN materials:

- **HT-REMAN Log Sheet**

A form to be used by designated facility personnel to record specific information on components manufactured from certified HT-stamped lumber. The information will include the date, the original HT or grade stamp information (name of inspection agency and mill number), size and quantity of lumber, and the final size and quantity of components re-stamped with the facility's HT stamp. See page III for a report sample.



*fig. 1 : Example of an HT stamp applied after the HT-Reman process.*

## Section 3: Heat Treatment Facility

A Heat Treatment Facility is defined by NELMA as a facility that applies an approved, verifiable Heat Treatment (HT) sterilization process to solid wood materials such as lumber, timbers, or components and/or Wood Packaging Materials (WPM) such as pallets, skids, and crates. Certification and operational requirements for a Heat Treatment Facility consist of several core components:

- Operating and Maintaining Approved Heat Treatment Equipment, Processes, and Monitoring Tools to Ensure Materials Meet Required Standards
- Marking HT Materials and/or Certified Wood Packaging Correctly and Clearly
- Documenting Activities and Processes Accurately to Ensure Traceability and Accountability

The following sections outline the Heat Treatment Facility compliance requirements from start to finish. If you are unsure about any procedures or methods described in this document, please consult NELMA or a NELMA Inspector for clarification.

### 3.1 Heat Chamber Requirements

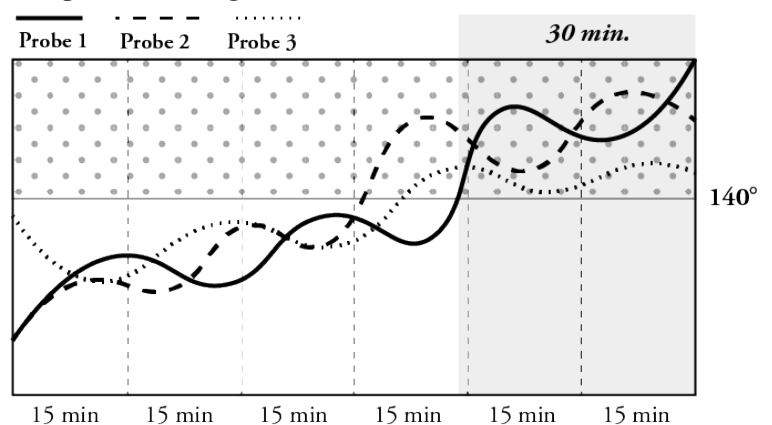
Heat Chambers are any machinery, vessels or structures designed to heat solid wood components or products to the ISPM 15 minimum requirements or above. Examples are dry kilns, steam vats, or specialty chambers designed for heat treating materials. A Heat Treatment Facility must be able to prove that their chamber and equipment are capable of meeting minimum temperature requirements before it can be used. Heat Chamber operational staff must demonstrate their capability of maintaining the equipment, heat and air supply, and recording devices.



### 3.2 Temperature and Time Requirements

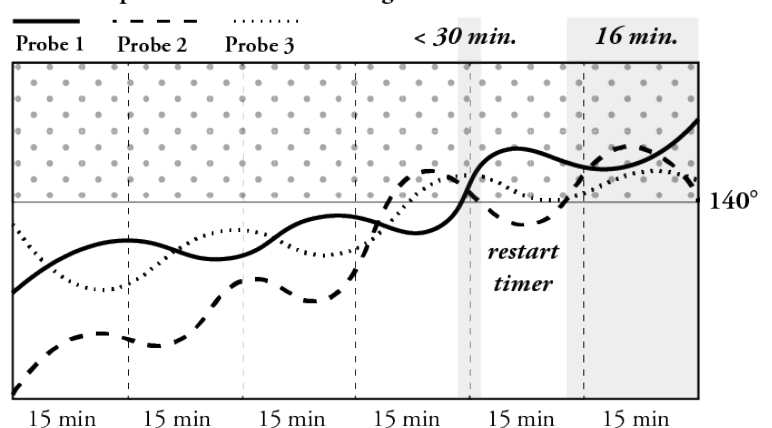
A Heat Chamber must be designed to provide auxiliary heat and air flow to raise the core temperature of solid wood to a minimum temperature of 140°F (60°C) or higher for 30 consecutive minutes (when using thermocouples) or more (*fig. J*). Failure to meet these minimum standards (*fig. K*) renders the charge invalid and the process must be started over. It should be noted that NELMA's requirements exceed that of the ISPM 15 standard to ensure ISPM 15 minimums will always be met and to account for the many variables in the heat treating process. (*continued next page*)

#### Compliant HT Charge



*fig. J: 3 probes stay above the 140° consecutively for 30 minutes. Note that the 30 minute countdown does not start until all 3 probes reach the sterilization temperature.*

#### Non-Compliant / Invalid HT Charge



*fig. K: Probe 2 has dipped below the 140° mark during the sterilization process. The 30 minutes countdown timer resets and restarts when all probes reach 140°. This charge has not met the minimum temperature requirement.*



Such variables include mixed species and moisture contents, irregular size uniformity, configuration and stacking of materials in the chamber, and lastly recording instrumentation volatility that can occur during a charge. This exceeding precautionary requirement is intended to further ensure that non-compliant material does not get shipped and henceforth would eliminate the costly process of recalling shipped material which can be extremely difficult to organize.

### 3.3 Temperature Recording Devices

Devices for reading temperature may include a combination of dry and wet bulbs for the monitoring of ambient chamber conditions and thermocouples for the direct reading of wood core temperature. Any devices used for monitoring and recording temperature must be approved by NELMA. The facility is responsible for supplying proof of periodic calibration of its temperature monitoring devices and recording equipment.

### 3.4 Heat Treatment Schedules

Standard heat-treating schedules utilizing the wet and dry bulb monitoring method may only be used if approved by NELMA. Schedules will be based on scientific laboratory schedules or by proven, verified NELMA observation.

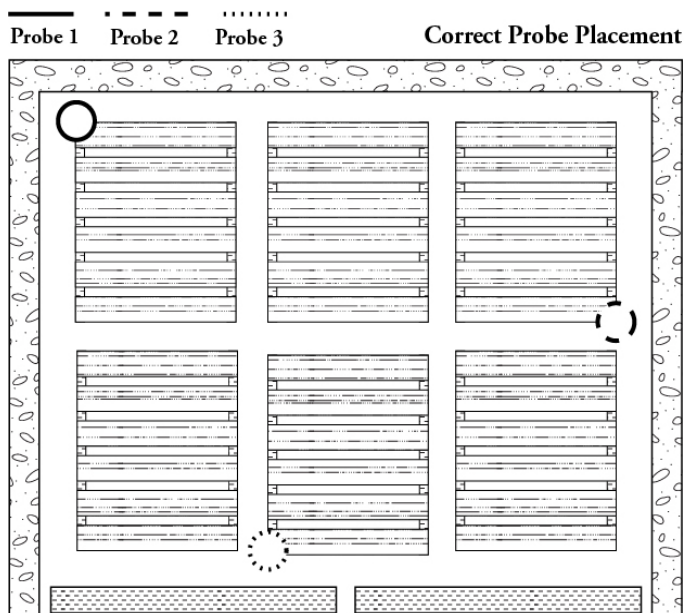


fig. L : Thermocouple probes readouts should be representative of the temperature throughout the entire heat chamber.

## 3.5 Thermocouples

Thermocouples record solid wood material temperature at its core and is the NELMA preferred method of monitoring the HT process. When used properly, these devices provide an accurate, continuous reading that is easily verifiable and helps identify cold/hot spots in a heat chamber.



### 3.5.1 Heat Chamber Thermocouple

#### Locations

Thermocouples are only effective if readings are taken in several locations throughout the heat chamber. In general, a minimum of 3 thermocouples must be placed throughout the heat chamber (*fig. L*) to account for hot and cold spots. Certain heat chambers may require more or less thermocouples than the minimum requirement depending on the size and operational parameters. NELMA will provide guidance on thermocouple requirements when reviewing the equipment for use.

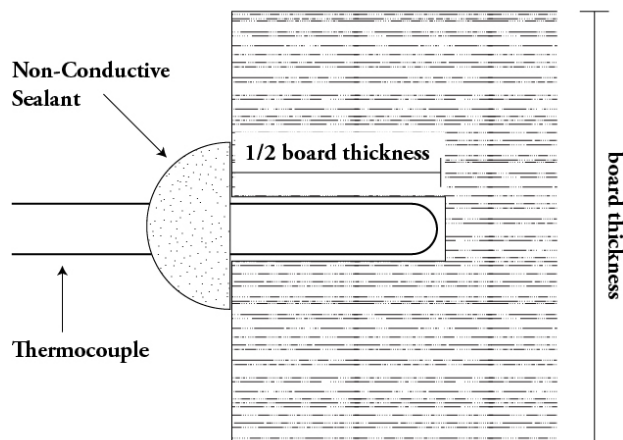


fig. M : Required drill depth, location and probe sealing.



### 3.5.2 Thermocouple Probing

Thermocouples must be inserted in the thickest lumber in the heat chamber as well as any “cold spots” that are present. A drill bit slightly larger than the thermocouple is used to bore a hole to one-half the thickness of the largest piece so that the tip of the thermocouple is in the direct center of the thickness of the material (*fig M*). Once the thermocouple is inserted, a non-heat conducting substance shall be used to block the entrance of air into the hole and around the inserted thermocouple.



### 3.5.3 Thermocouple Monitoring and Recording

Each thermocouple in use during the heat treatment process, or charge, must meet the minimum heat treatment temperature and time requirements without exception. If any thermocouple reading fails to meet both requirements, the reason for failure must be identified and corrected, and the entire charge must be re-heat treated.



*To reduce the potential for re-heat treatment due to probe failure, duplicate thermocouples (two thermocouples placed in very close proximity to each other) can be used as a backup. This process should be clarified and approved by a NELMA inspector before implementation.*



### 3.6 Debarking Requirements

Wood Packaging Material and Dunnage must be constructed of debarked lumber in order for it to be considered compliant under ISPM 15. Please refer to “Debarked Lumber Requirements” in the Wood Packaging Material (WPM) section for guidance. HT stamped lumber is exempt from debarking requirements.



### 3.7 Stamping Requirements

Stamping requirements are dependent on whether the product is Wood Packaging Material (WPM), Dunnage (DUN), or Heat Treated (HT) material. Please refer to the “Stamping” sections in their respective category for further guidance.

### 3.8 HT Stamping Frequency Exception

Refer to “HT Stamping Frequency Exception” in the Heat-Treated Re-manufacturing Facility section for guidance.



### 3.9 Re-Heat Treating Previously Marked IPPC Material

Re-Heat Treating IPPC marked WPM or DUN not originally produced at the facility requires that all previous stamps and markings be obliterated. After treatment, the IPPC stamp can be applied to the WPM or DUN as per NELMA requirements.

## 3.10 Heat Treatment Facility Documentation

The following forms and records must be maintained by the Heat Treatment Facility for the 3 years prior to the current calendar year:

- **HT Chart**

A computer or recording device created document that details the entire charge from beginning to end. This document should contain a unique identifying number for the charge, the date and time the charge started and ended, an incremental record (such as spreadsheet or line graph) representing the temperature readings of the charge over time, the items in the charge, and the thickest piece(s) of material in the charge. The HT chart must also include the quantity of the material heat treated in board feet with a distinction being made between items stamped with the IPPC stamp, the HT stamp, and the Dunnage stamp.



*HT chart items such as usage may also be contained on separate documentation used in conjunction with the HT chart. Consult your NELMA inspector for documentation options and approval.*

### 3.11 HT Charge Failure

If the thermocouples are not sealed and/or the monitoring data and documentation does not indicate a proper HT treatment, all lumber components and/or completed units cannot be considered heat treated. The HT facility will be held responsible for the return of the material in the offending charge to the facility and/or proof of obliteration of any marks on the material that identify it as heat treated.

NELMA will periodically verify the operational capabilities of a facility’s heat treatment chamber(s) using Association recording devices by measuring the temperature conditions in the chamber and wood to assure the requirements for heat treating are being met. Any variances found as a result of NELMA’s monitoring process will be addressed and corrected by the facility to maintain certification.

## Section 4: Reuse & Repair of IPPC Stamped Wood Packaging

### 4.1 Reusing IPPC-Stamped Wood Packaging

Previously used and properly IPPC-stamped wood packaging units received by a facility may be re-used for export shipments only if no repair or alterations of the unit take place. Reused IPPC-stamped items must comply with current NELMA and IPPC standards. A thorough inspection of all reused WPM is recommended.



### 4.2 Repairing IPPC Stamped Wood Packaging

Damaged IPPC-stamped wood packaging units (pallets, skids, boxes, crates, etc.) can be repaired for reuse as ISPM 15 compliant packaging only if ALL of the following conditions are met:

- All existing IPPC marks on the unit must be obliterated,
- The unit must be re-treated with an approved ISPM 15 treatment method by an ALSC certified facility and re-stamped with that facility's IPPC stamp, and
- The unit must meet all NELMA compliance requirements.

Any repair with solid wood material, no matter how significant, is NOT ACCEPTABLE to the U.S. Standard and may not be used as ISPM 15 compliant packaging.

### 4.3 Repair of IPPC-Stamped Wood Packaging for Domestic Use

All IPPC-stamped wood packaging units that are repaired for domestic use must have the original IPPC stamps obliterated. This prevents non-compliant packaging from reentering the global supply chain.

### 4.4 Repair Exception

In the case of a box or crate that is constructed of distinguishable, completed components such as an individual box or crate side, top, or bottom, an IPPC compliant repair may be made to the unit when the entire completed component is replaced. This replacement component must meet all NELMA and ISPM 15 standard requirements. In addition, only the replaced completed component is to be stamped with facility's IPPC stamp. The IPPC marks on the remaining components remain on the unit.

## Section 5: Inspection Procedures and Disciplinary Action

### 5.1 NELMA Inspections & Frequency

A NELMA Inspector will conduct an unannounced inspection at each certified facility no less than 12 times per year, as required by the ALSC Enforcement Regulations. A complete audit of the records, HT lumber inventory, and a random sampling inspection of the available quality- marked products will be performed during each inspection, as well as an inventory of the stamps issued to the facility. NELMA inspectors will conduct additional or more frequent inspections if they find discrepancies during any audit, and must follow up on corrective actions, as required by NELMA and ALSC.

### 5.2 ALSC Inspections

NELMA certified wood packaging facilities are subject to random, unannounced inspection visits by the Inspection staff of the American Lumber Standards Committee (ALSC), as noted in the signed NELMA Agreement. These inspections are conducted to ensure that NELMA is performing the required inspection procedures prescribed by IPPC ISPM 15 and ALSC. ALSC inspectors maintain the authority to find and oversee the correction of discrepancies and hold non-conforming items on site.



ALSC will notify the NELMA Office of any requests to facility personnel to hold non-conforming wood packaging material items in need of corrective action. These ALSC held items **MUST** remain at the facility for NELMA's Inspector to review and release. A facility's failure to hold items held for correction will result in immediate disciplinary action at NELMA's discretion.

### 5.3 Inspection Discrepancies

All Discrepancies are considered serious in nature and may be subject to disciplinary actions. The inspector's findings during each visit will be discussed with the designated facility personnel. All discrepancies require immediate correction by the facility to maintain certification. Some examples of discrepancies include but are not limited to:

- Use of non-HT material in IPPC marked packaging or Dunnage,
- Illegible or improper IPPC/DUN/HT marking,
- Altering, removing, destroying, or misusing NELMA issued marking equipment,
- Lost and missing stamps,
- Unmaintained, missing or incomplete documentation, or
- Failure to implement corrective actions or shipping materials placed on hold by a NELMA or ALSC inspector

### 5.4 Corrective Actions and Holds

NELMA and ALSC inspectors reserve the authority to issue a hold or stop shipment on any non-compliant material or packaging found at the facility, and request items to be corrected. While many discrepancies can be resolved during the inspection, some require material holds or actions after the inspection has taken place. It is important that any corrective actions be acted upon in a timely manner and that these corrections be communicated to the inspector. Held items must remain at the facility until they are inspected by the inspector and the inspector releases them for shipment. A facility's failure to hold items held for correction by an inspector will result in immediate disciplinary action at NELMA's discretion.

### 5.5 Inspection Reports

A copy of all previous inspections will be available to the facility through the NELMA inspector and are normally kept with the facilities compliance documentation. It may be reviewed by facility personnel at any time.

### 5.6 NELMA Disciplinary Actions

Any discrepancies found by a NELMA or ALSC inspector can warrant a Failed Audit. Discrepancies found during the inspection must be corrected immediately or holds can be issued. Failed audits require follow-up inspections that may affect the frequency of NELMA inspector visits.

Inspection findings that report ongoing serious discrepancies at a certified facility will result in NELMA issuing either a **WARNING** or **SUSPENSION OF SERVICE**. These conditions will result in notification to ALSC and the inability by the facility to obtain supervisory services from any ALSC accredited agency for:

- **60 days with a WARNING**
- **180 days with a SUSPENSION OF SERVICE**
- **Discovery of blatant misuse of the NELMA stamps or severe lack of cooperation with NELMA and its Inspectors will result in IMMEDIATE SUSPENSION OF SERVICE.**

NELMA may reinstate inspection services only after the facility management and designated personnel fully demonstrate the ability and willingness to maintain the requirements of NELMA's Certification Program.

# NELMA® HT Lumber Purchases Form

**Facility Name:** \_\_\_\_\_ **ID #:** \_\_\_\_\_

**Item Size:** \_\_\_\_\_

*Instructions: Enter any and all received shipments of HT lumber purchased for use in Wood Packaging. Please use one sheet per size.*

[illegible]

# NE<sup>®</sup>LMA Reman / Dunnage Log Sheet

**Facility Name:** \_\_\_\_\_ **ID #:** \_\_\_\_\_

*Instructions: Fill out form for any Re-Manufactured HT lumber or Dunnage produced and stamped at the facility.*

[illegible]



# NELMA® WPM Stamped Usage Report

**Facility Name:** \_\_\_\_\_ **ID #:** \_\_\_\_\_

*Instructions: Fill out this form for any IPPC stamped Wood Packaging produced at this facility.*

[illegible]









**NELMA<sup>®</sup>**

**Northeastern Lumber  
Manufacturers Association**

**PO Box 87A Cumberland Center, ME 04021**

**Phone: (800) 819-6040 • Fax: 207-829-4293**

**[info@nelma.org](mailto:info@nelma.org)**