

PALLET DESIGN SYSTEM Version 6.1

Pallet Specification Sheet

All dimensions in millimeters

Customer:

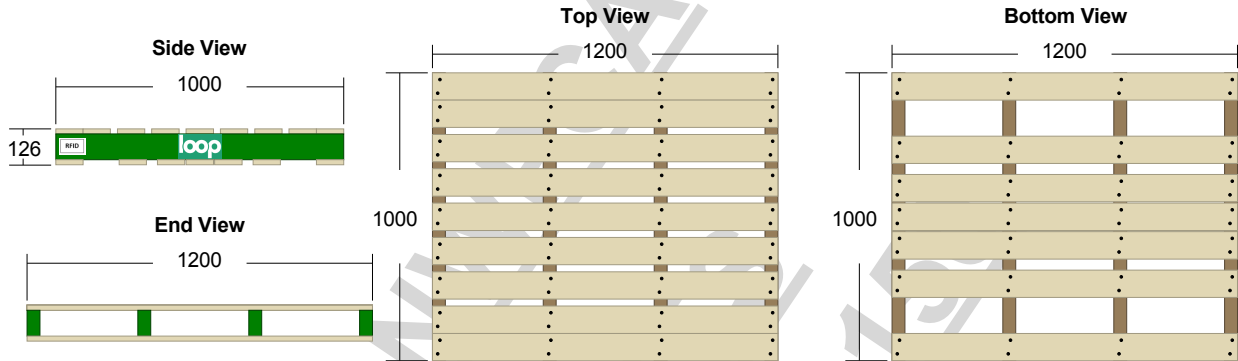
Prepared by:

Scott Pallets
Halbeath Interchange Business Park
Kingseat Rd
Halbeath, Dunfermline
KY11 8RY
PDS License: 150 Printed: July 02, 2020

Pallet ID: 1000 x 1200

Drawing Number: Pallet No 1 **Specification Date:** July 02, 2020

Classification: 1000 x 1200, Stringer-Class, Double-Face Non-Reversible, 2-Way, Reusable, New Manufacture



Components

Materials

Top Deck:

Style: Deckboard **Type:** New Lumber

Number	Thickness	Width	Length
9	18	95	1200

Volume: 0.0185 cubic meters

Staggered Top Deck Fastener Placement

Bottom Deck:

Style: Deckboard **Type:** New Lumber

Number	Thickness	Width	Length
7	18	95	1200

Volume: 0.0144 cubic meters

Staggered Bottom Deck Fastener Placement

Stringers:

Type: New Lumber

Number	Width	Height	Length
4	45	90	1000

Volume: 0.0162 cubic meters

Fasteners:

Fastener ID: 60 X 3.00
Fastener Type: Annularly Threaded Nail
Fastener Length: 60
Thread Length: 42
Thread Diameter: 3.3
Wire Diameter: 3.1
Head Diameter: 7.0
Rings: 34
Pitch: 1.2
MIBANT Angle: 24
FWC: 3.69
Total Number: 128

New Lumber:

Lumber ID:	Species Class	Grade	Lumber Mix
	Common European Softwoods	Standard &BTR	70 %
	Dense European Softwoods	Standard &BTR	30 %

Moisture Content(at manufacture and assembly): Green

Total New Lumber Volume: 0.0490 cubic meters

Spec Sheet Notes:

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Pallet Structural Analysis

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General Load Type: Uniformly Distributed - Full Pallet Coverage

Custom Load Specification: Bags, Interlock Stacked

Load Stabilizers: Stretch Wrap

Load Weight Variability: Medium

Service Environment: Wet Environment (EMC > 19%)

Support Condition		Safe Maximum Load	Deflection at Maximum Load	User Specified Deflection Limit	Maximum Load for Deflection Limit	Critical Member or Connection	
Side View	End View						
<p>Warehouse Storage Stacked 1 Unit Load High</p>		7542 kg	6 mm	---	---	Interior Top Deckboard	
<p>Stacked 3 Unit Loads High</p>		3224 kg per pallet	5 mm	---	---	Interior Bottom Deckboard	
<p>Lateral Collapse Resistance</p>		0.5	1.0	2.0	3.0	4.0	
		Horizontal Acceleration during transit (G-force)	7391	3182	1482	966	716
		Vertical Load on Pallet (kg)					

Pallet Design System (PDS)

Developed and owned by:

National Wooden Pallet and Container Association (NWPCA)

Research and development for early versions of PDS were conducted in cooperation with:

Center for Unit Load Design, Virginia Tech Department of Wood Science and Forest Products;

U.S.D.A. Forest Service and Forest Products Laboratory; APA - The Engineered Wood Association;

Software Technologies Laboratory, Virginia Tech Department of Industrial and Systems Engineering

The results from PDS are based on the NWPCA's continuing program of laboratory and field research. While the engineering outcomes reflected in the results are based on sound science, the quality of workmanship, the input data, and the conditions in which pallets are used may vary widely. Therefore, the Association cannot accept responsibility for pallet performance or design as actually constructed, and specifically disclaims any responsibility for such. Notwithstanding the history of the PDS system, users of the PDS system are strongly encouraged to undertake individual, unique analysis of the results as they then pertain to specific applications and the production process. Wood pallets manufactured to this PDS design are for the sole purpose of storing and/or transporting material. Under no circumstance should any person stand, step, or lean upon them or otherwise use them for support.

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National Wooden Pallet and Container Association, 1421 Prince Street, Suite 340, Alexandria, Virginia 22314-2805, United States

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Pallet Durability Analysis

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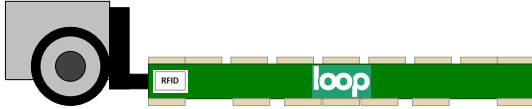
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Pallet Service Life Analysis

The **Pallet Service Life Analysis** simulates a series of forces and impacts applied to the pallet during each handling cycle. The frequency and severity of these impacts are estimates based on laboratory measurements, warehouse observations, and the Virginia Tech FasTrack Handling Cycle. The resistance to damage and the damage level requiring component repair or replacement are based on laboratory testing and the NWPCA Uniform Standard for Wood Pallets.

Service Environment Conditions:

Average Handling and Treatment, Heavy-Duty Loads, Wet Environment (EMC > 19%)

Predicted Service Life: 6 Cycles

Predicted Cycles until First Repair: 2

Results from Handling Cycle Simulation

Pallet Components	Cycles To First Repair	Cycles To First Replacement	Number of Times Replaced	Limits Pallet Service Life	Relative Component Damage during Simulation
Top Leadboards (2)		2	2	Yes	
Top Butted Boards (2)	5				
Top Interior Boards (5)					
Bottom Leadboards (2)		2	2	Yes	
Bottom Interior Boards (5)					
Exterior Stringers (2)	6				
Interior Stringers (2)					

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PALLET DESIGN SYSTEM Version 6.1
Pallet Physical Property Analysis

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	At Manufacture	At 25% MC	At 19% MC	At 15% MC	At 12% MC
Average Pallet Weight	28.5 kg	23.8 kg	22.7 kg	22.0 kg	21.4 kg



Component	Original Dimension	Shrinkage from Manufacture to 19% MC	Shrinkage from Manufacture to 15% MC
Top Deckboards	18 mm Thickness	0.4 mm (+/- 0.1 mm)	0.5 mm (+/- 0.1 mm)
	95 mm Width	1.9 mm (+/- 0.5 mm)	2.7 mm (+/- 0.8 mm)
Stringers	90 mm Height	1.8 mm (+/- 0.5 mm)	2.5 mm (+/- 0.7 mm)
	45 mm Width	0.9 mm (+/- 0.3 mm)	1.3 mm (+/- 0.4 mm)
Bottom Deckboards	18 mm Thickness	0.4 mm (+/- 0.1 mm)	0.5 mm (+/- 0.1 mm)
	95 mm Width	1.9 mm (+/- 0.5 mm)	2.7 mm (+/- 0.8 mm)

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2-D Pallet Drawings

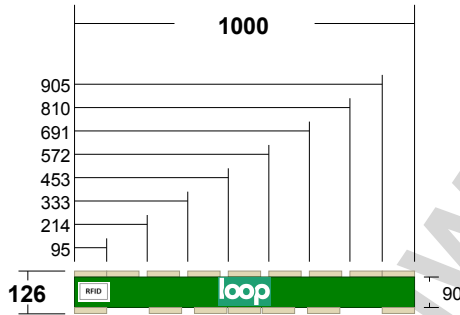
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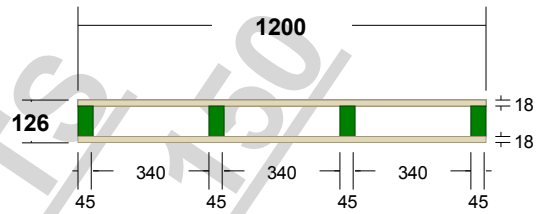
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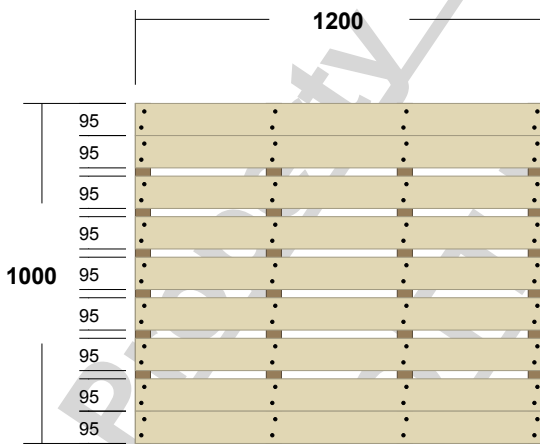
Side View



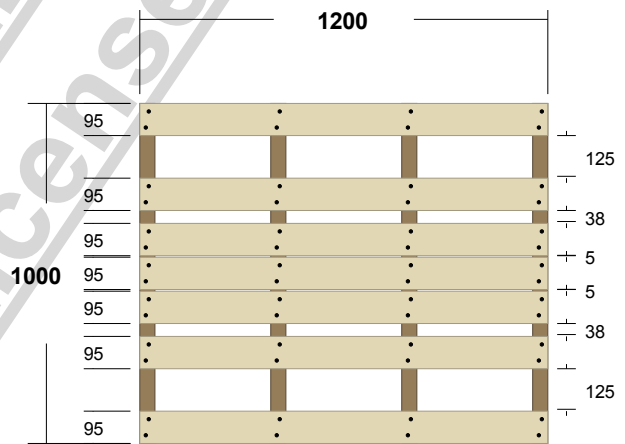
End View



Top View



Bottom View



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Pallet Drawing - Side and End View

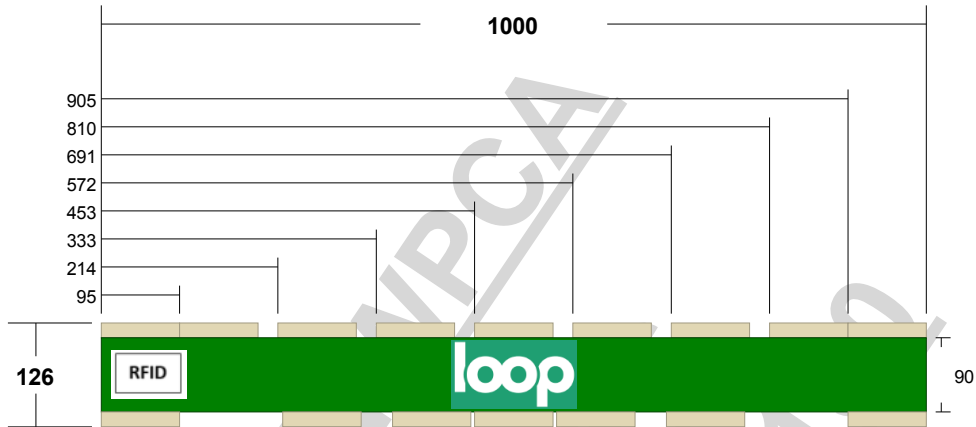
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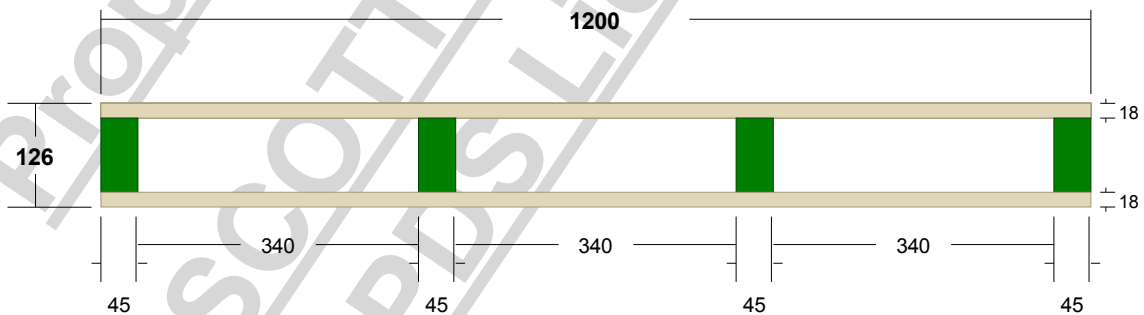
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Side View



End View



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Pallet Drawing - Top View

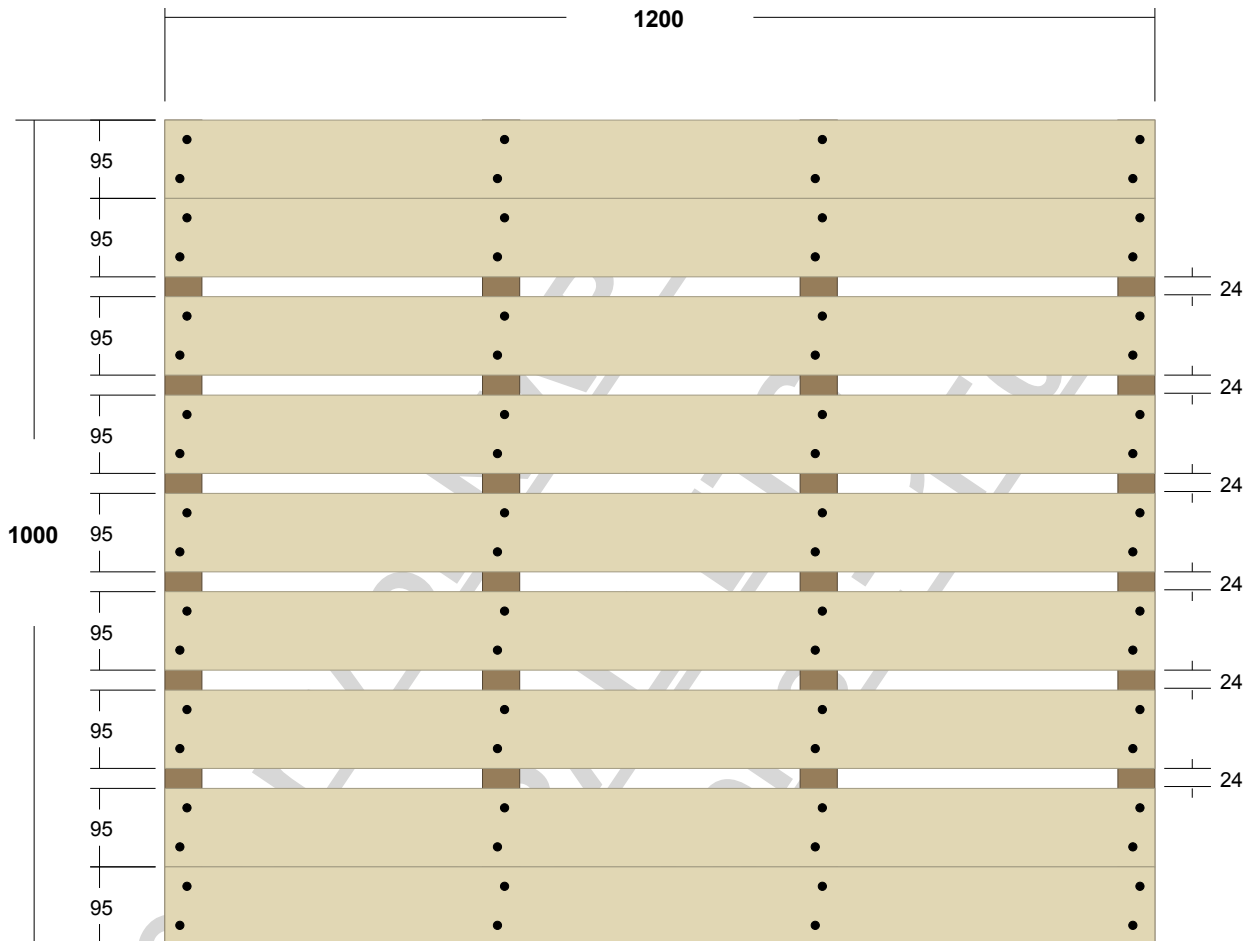
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Pallet Drawing - Bottom View

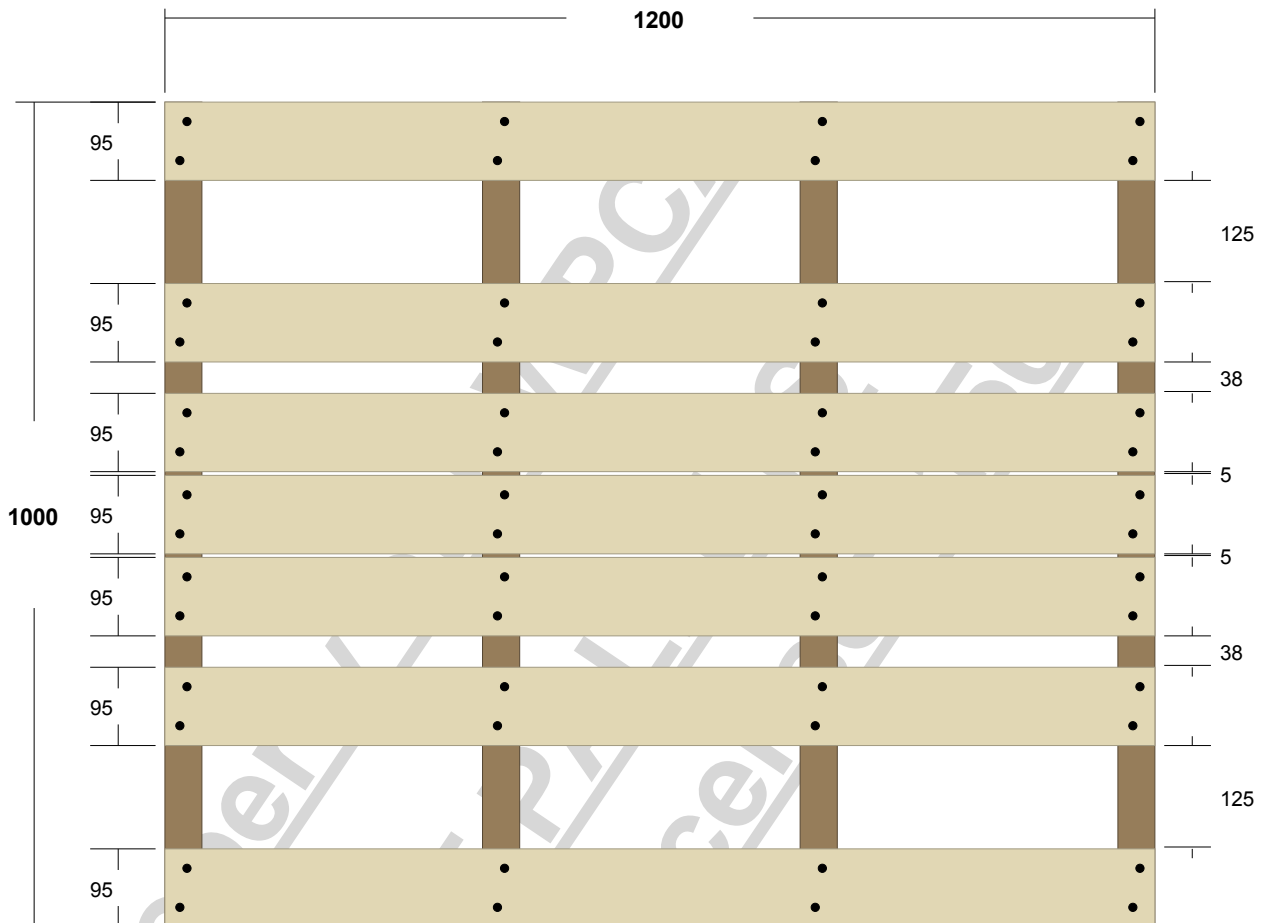
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Bottom View



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3-D Pallet Drawings

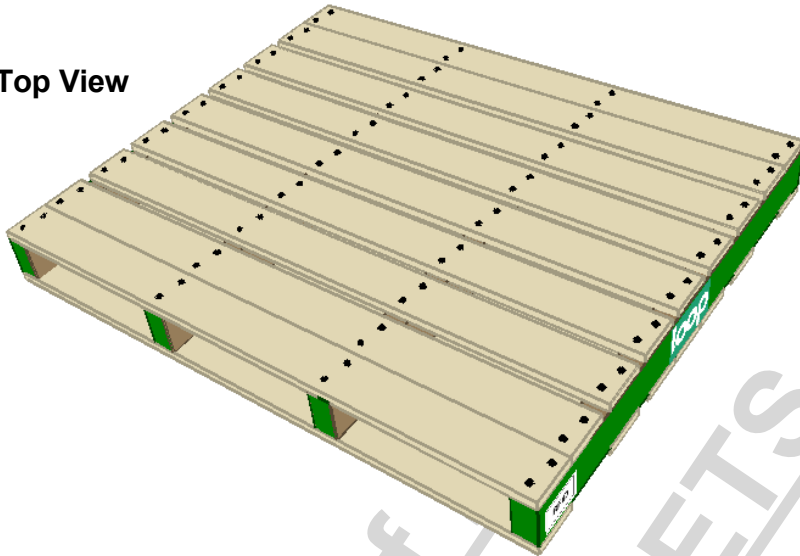
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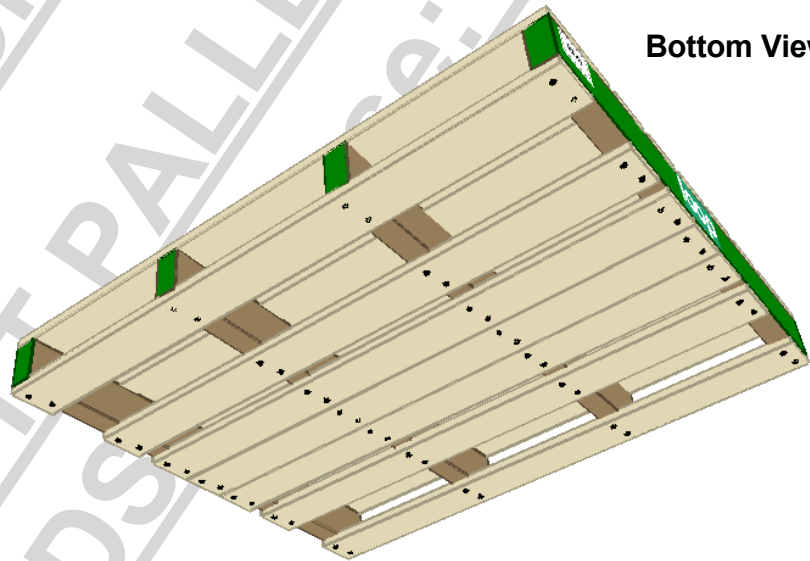
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Top View



Bottom View



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