

PALLET DESIGN SYSTEM Version 5.1

Pallet Specification Sheet

All dimensions in inches

Customer:

GMA User

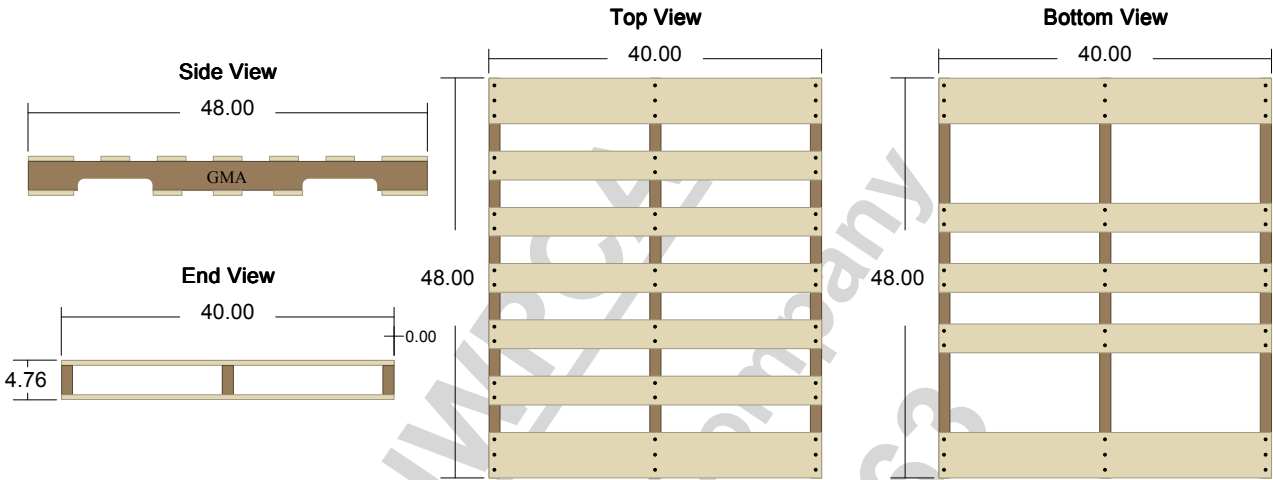
Prepared by:

Hinchcliff Products Co.
13477 Prospect Rd.
Strongsville, OH 44136
Phone: 440-238-5200 Fax: 440-238-5202
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PDS License: 63 Printed: November 19, 2014

Pallet ID: 48x40 GMA

Classification: 48.00 x 40.00, Stringer-Class, Double-Face Non-Reversible, Partial 4-Way, Reusable, New Manufacture

Pallet Treatments: ISPM-15 Compliance: Heat Treatment (HT)



Components

Top Deck:

Style: Deckboard Type: New Lumber

Number	Thickness	Width	Length
5	0.630	3.500	40.00
2	0.630	5.500	40.00

Volume: 5.0 bd ft

Bottom Deck:

Style: Deckboard Type: New Lumber

Number	Thickness	Width	Length
3	0.630	3.500	40.00
2	0.630	5.500	40.00

Volume: 3.8 bd ft

Stringers:

Type: New Lumber

Number	Width	Height	Length
3	1.380	3.500	48.00

Volume: 4.8 bd ft

Partial 4-way Entry Notch:

Depth: 1.380 Length: 9.00 Location: 6.00 Radius: 1.50

Materials

Fasteners:

Fastener ID:	2" Machine Nail
Fastener Type:	Helically Threaded Nail
Fastener Length:	2.00
Thread Length:	1.33
Thread Diameter:	0.137
Wire Diameter:	0.120
Head Diameter:	0.281
Flutes:	4
Helixes:	8.0
Pitch:	0.166
Thread Angle:	57
MIBANT Angle:	28
FWC:	3.25
Total Number:	84

New Lumber:

Lumber ID: Mixed Hardwood

Species Class	Grade	Lumber Mix
High Density Eastern Hardwoods	Standard &BTR	30 %
Yellow Poplar	Standard &BTR	10 %
Eastern Oaks	Standard &BTR	60 %

Moisture Content (at manufacture and assembly): Green

Total New Lumber Volume: 13.6 bd ft

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: Boxes, Interlock Stacked

Load Stabilizers: Stretch Wrap

Load Weight Variability: Low

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
<p>Racked Across Length <u>2 Beam Support</u></p>	1757 lbs.	0.53 in.	----	----	Center Stringer
<p>3 Beam Support</p>	4571 lbs.	0.19 in.	----	----	Interior Top Deckboard
<p>Racked Across Width <u>2 Beam Support</u></p>	2221 lbs.	1.03 in.	----	----	Interior Bottom Deckbd
<p>Forklift Support <u>Enter and Lift from Pallet End</u></p>	3500 lbs.	0.42 in.	----	----	Interior Top Deckboard
<p>Warehouse Storage <u>Stacked 1 Unit Load High</u></p>	6842 lbs.	0.21 in.	----	----	Interior Top Deckboard
<p>Stacked 2 Unit Loads High</p>	4276 lbs. per pallet	0.21 in.	----	----	Interior Top Deckboard

Lateral Collapse Resistance



The recommendations from PDS are based on the NWPCA's continuing program of laboratory and field research. They represent the best available engineering information compiled to date. However, 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. 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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Pallet Durability Analysis

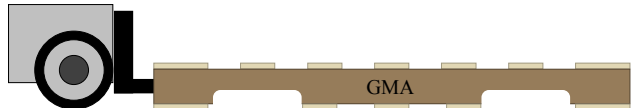
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Pallet Damage Rate Analysis

The **Pallet Damage Rate 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, Medium-Duty Loads, Wet Environment (EMC > 19%)

Results from Handling Cycle Simulation

Pallet Components		Cycles Until Damage Level to Components Warrants Repair or Replacement	Cycles Until Damage Level to Connections Warrants Repair
Top Leadboards	(2)	38.2	2.9
Top InteriorBoards	(5)	42.9	
Bottom Leadboards	(2)	16.0	3.8
Bottom InteriorBoards	(3)	> 50	12.0
Exterior Stringers	(2)	6.0	
Interior Stringers	(1)	26.9	

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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	59 lbs.	43 lbs.	41 lbs.	39 lbs.	38 lbs.



Component	Original Dimension	Shrinkage from Manufacture to 19% MC	Shrinkage from Manufacture to 15% MC
Top Deckboards	0.630 in. Thickness	0.015 in. (+/- 0.005 in.)	0.022 in. (+/- 0.007 in.)
	3.500 in. Width	0.084 in. (+/- 0.027 in.)	0.122 in. (+/- 0.039 in.)
	5.500 in. Width	0.132 in. (+/- 0.043 in.)	0.191 in. (+/- 0.062 in.)
Stringers	3.500 in. Height	0.084 in. (+/- 0.027 in.)	0.122 in. (+/- 0.039 in.)
	1.380 in. Width	0.033 in. (+/- 0.011 in.)	0.048 in. (+/- 0.016 in.)
Bottom Deckboards	0.630 in. Thickness	0.015 in. (+/- 0.005 in.)	0.022 in. (+/- 0.007 in.)
	3.500 in. Width	0.084 in. (+/- 0.027 in.)	0.122 in. (+/- 0.039 in.)
	5.500 in. Width	0.132 in. (+/- 0.043 in.)	0.191 in. (+/- 0.062 in.)

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2-D Pallet Drawings

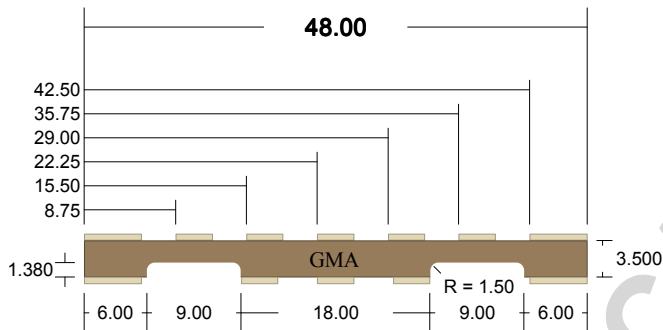
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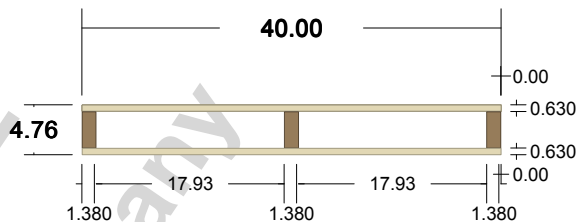
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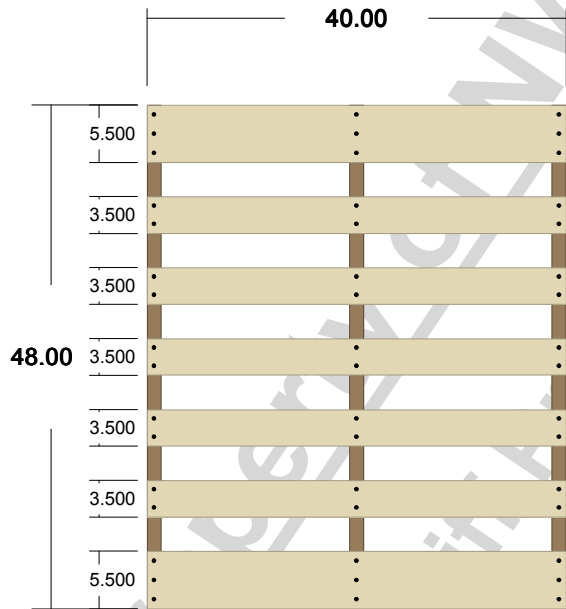
Side View



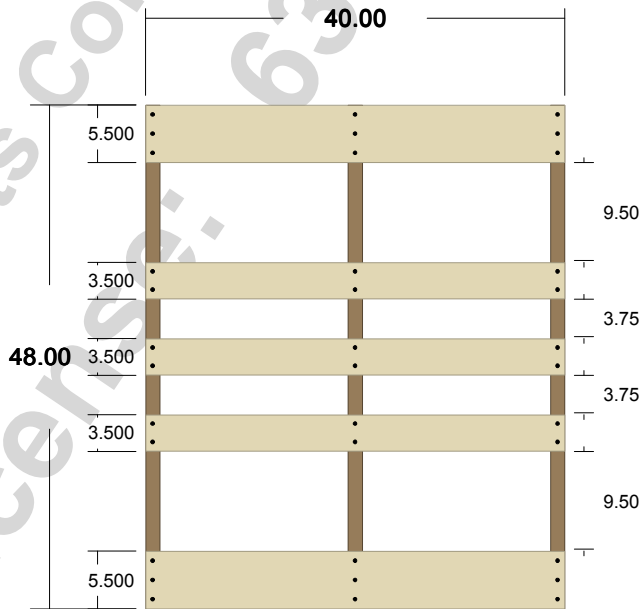
End View



Top View



Bottom View



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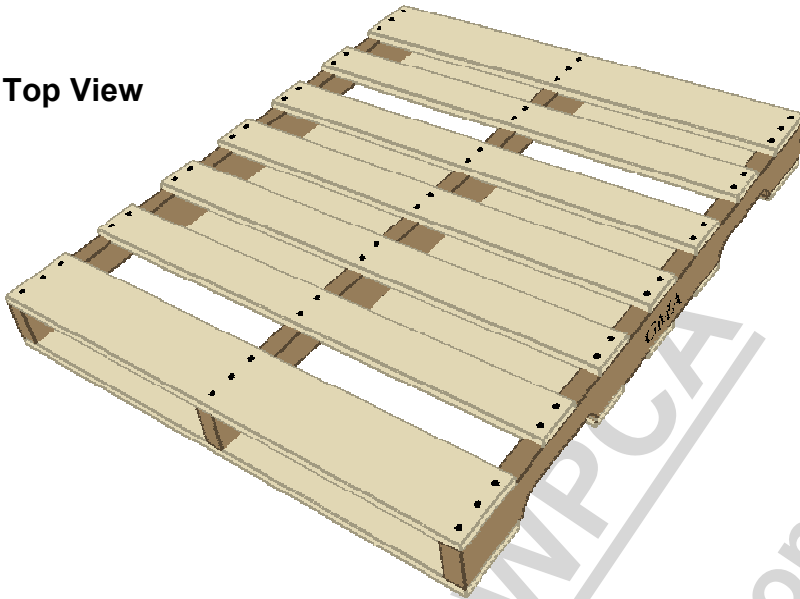
3-D Pallet Drawings

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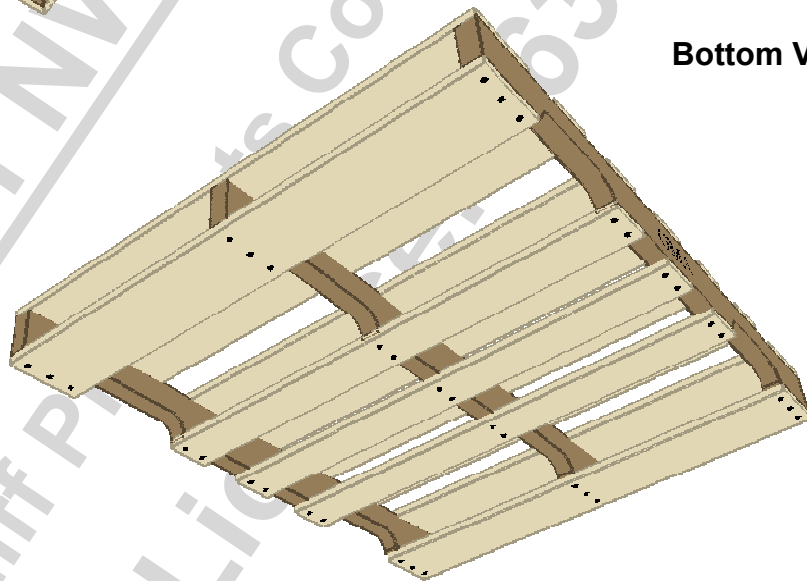
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Top View



Bottom View



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PALLET DESIGN SYSTEM Version 5.1

Unit Load Specification and Drawings

All dimensions in inches, weights in lbs.

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Container Type: Corrugated Box

Box Style: Regular Slotted Container (RSC) #0201

Combined Board Type: Singlewall

Flute Profile: C-Flute

Caliper: 0.156

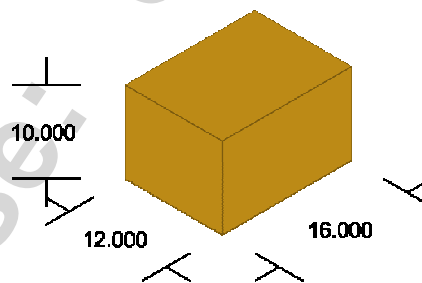
ECT: 32.000

Outside Dimensions:

Length: 16.000

Width: 12.000

Depth: 10.000 *



Weight per Box: 20 lbs.

Number of Boxes per Layer: 9

Number of Layers per Unit Load: 4 Column Stacked

Number of Boxes per Unit Load: 36

Total Weight of Load: 720 lbs.

Total Height of Load: 40.000 in.

Load Stabilizers

Wrap

Type: Stretch Wrap

