

# PALLET DESIGN SYSTEM Version 4.1

## Pallet Specification Sheet

All dimensions in inches

### Customer:

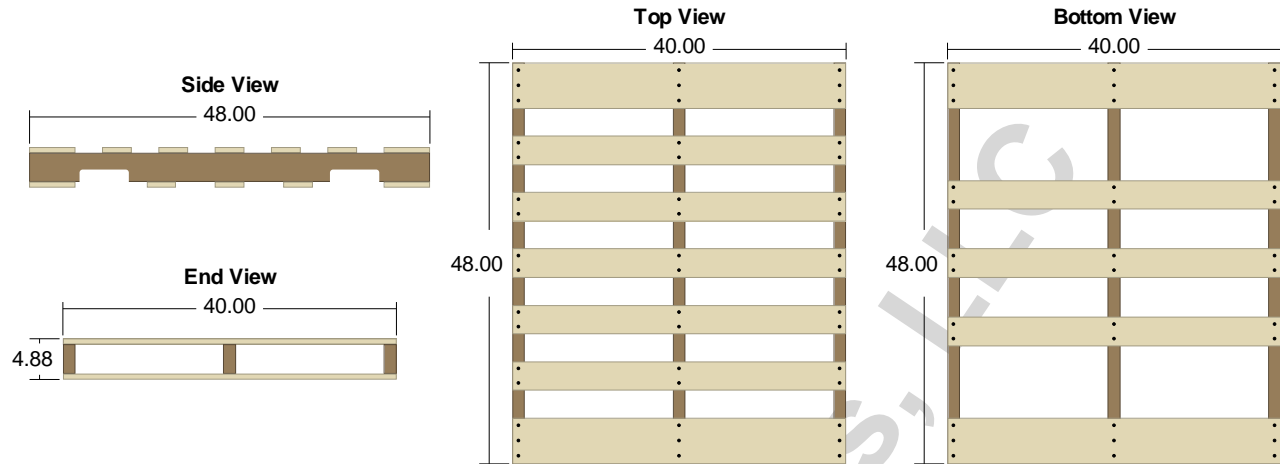
XYZ Company  
1234 1st Street  
Anywhere, USA

### Prepared by:

WestWind Logistics, LLC  
190 SE 34th Street  
Des Moines, IA 50317  
Prepared By: Shane Thompson  
Cell: 515-971-0184  
PDS License: 453 Printed: March 15, 2011

**Pallet ID:** 48x40 4-way pallet

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



### Components

### Materials

#### Top Deck:

Style: Deckboard Type: New Lumber

Number	Thickness	Width	Length
5	0.688	3.500	40.00
2	0.688	5.500	40.00

Volume: 5.4 bd ft

#### Bottom Deck:

Style: Deckboard Type: New Lumber

Number	Thickness	Width	Length
3	0.688	3.500	40.00
2	0.688	5.500	40.00

Volume: 4.1 bd ft

#### Stringers:

Type: New Lumber

Number	Width	Height	Length
3	1.500	3.500	48.00

Volume: 5.3 bd ft

Partial 4-way Entry Notch:

Depth: 1.500 Length: 6.00 Location: 6.00 Radius: 0.75

#### Fasteners:

Fastener ID:	2-1/4 x .112 SS
Fastener Type:	Helically Threaded Nail
Fastener Length:	2.25
Thread Length:	1.25
Thread Diameter:	0.128
Wire Diameter:	0.112
Head Diameter:	0.280
Helixes:	5.4
Flutes:	4
Thread Angle:	67
MIBANT Angle:	36
FWI:	71
FSI:	67
Total Number:	84

#### New Lumber:

Lumber ID: SPF

Species Class	Grade
Hem-Fir	Standard &BTR

Moisture Content (at manufacture and assembly): Kiln Dry - 15%

Total New Lumber Volume: 14.8 bd ft

### Spec Sheet Notes:

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## Pallet Structural Analysis

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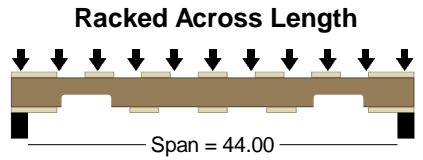
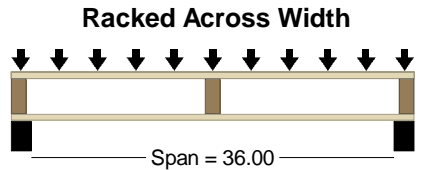
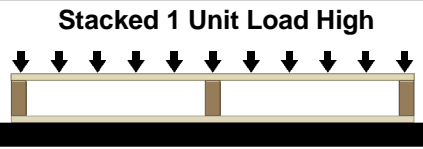
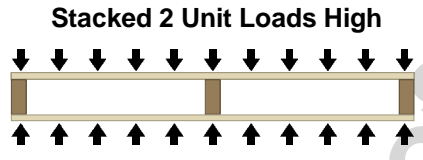
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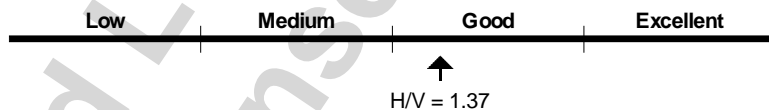
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**Unit Load Type:** Uniformly Distributed - Full Pallet Coverage

**Unit Load Weight Variability:** Medium

**Service Environment:** Dry Environment (EMC <= 19%)

Support Condition	Safe Maximum Load	Deflection at Maximum Load	User Specified Deflection Limit	Maximum Load for Deflection Limit	Critical Member
<b>Racked Across Length</b> 	1300 lbs.	0.17 in.	1.00 in.	NA	Center Stringer
<b>Racked Across Width</b> 	1586 lbs.	0.40 in.	1.00 in.	NA	Bottom Deckboard
<b>Stacked 1 Unit Load High</b> 	5154 lbs.	0.10 in.	----	----	Top Deckboard
<b>Stacked 2 Unit Loads High</b> 	3221 lbs. (each pallet)	0.10 in.	----	----	Top Deckboard



### Pallet Design System (PDS)

Developed by:

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

In cooperation with:

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

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# PALLET DESIGN SYSTEM Version 4.1

## Pallet Durability Analysis

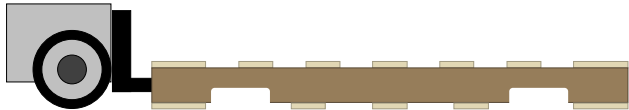
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### Pallet Service Life Analysis

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, Medium-Duty Loads, Dry Environment (EMC &lt;= 19%)

**Predicted Service Life:** 8 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	3	2		
Top InteriorBoards (5)					
Bottom Leadboards (2)	2	4	2		
Bottom InteriorBoards (3)					
Exterior Stringers (2)	2	4	1	Yes	
Interior Stringers (1)	6				

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WestWind Logistics  
PDS License: 453

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## Pallet Physical Property Analysis

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XYZ Company

**Prepared by:**

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Average Pallet Weight	At Manufacture				At 12% MC
	34 lbs.				33 lbs.

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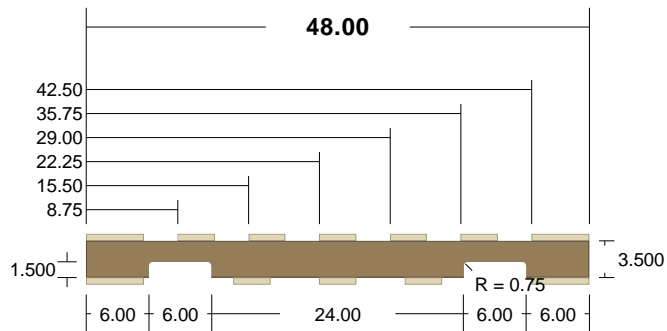
## 2-D Pallet Drawings

All dimensions in inches

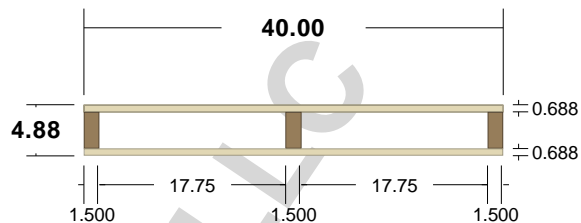
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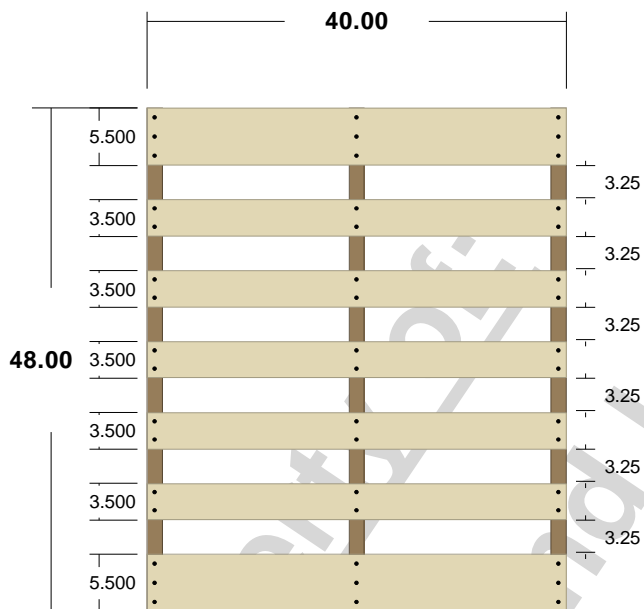
### Side View



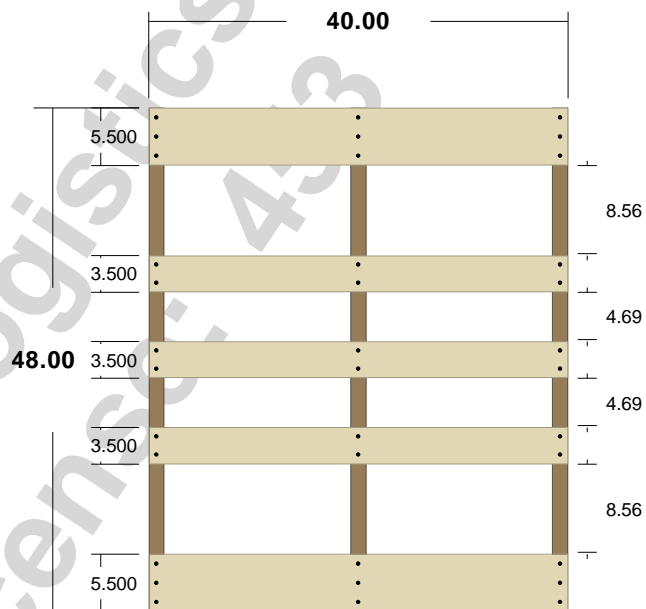
### End View



### Top View



### Bottom View



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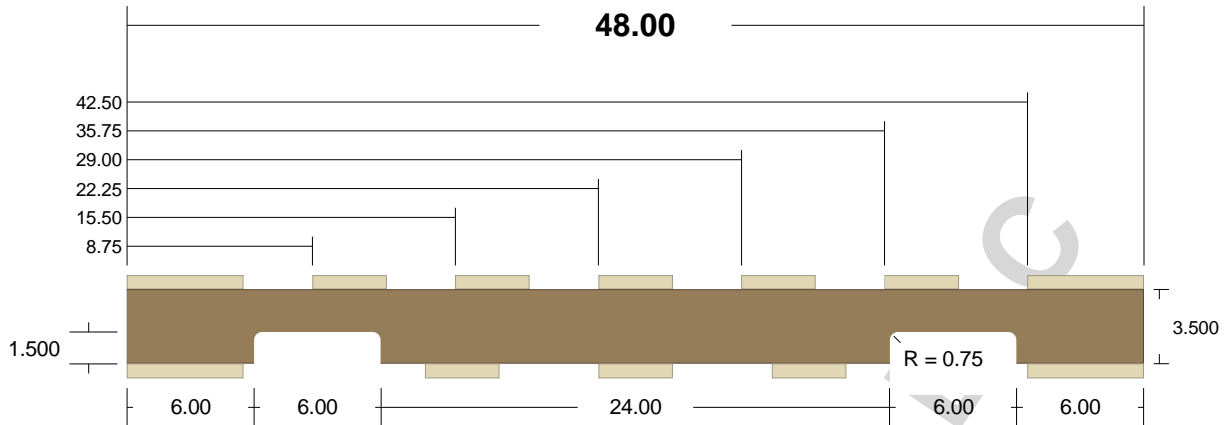
## Pallet Drawing - Side and End View

All dimensions in inches

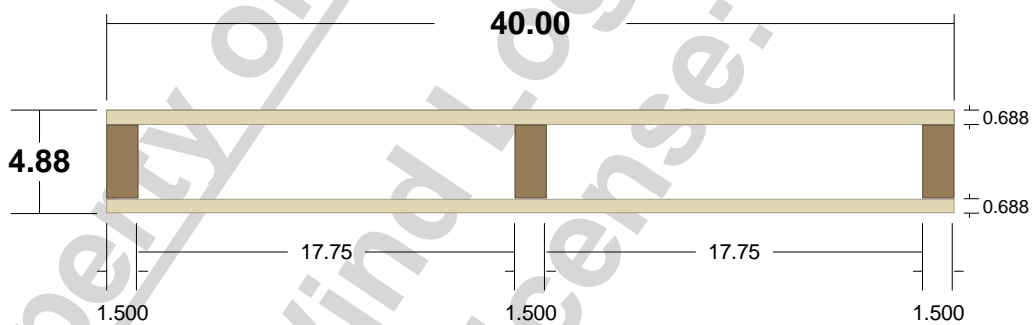
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### Side View



### End View



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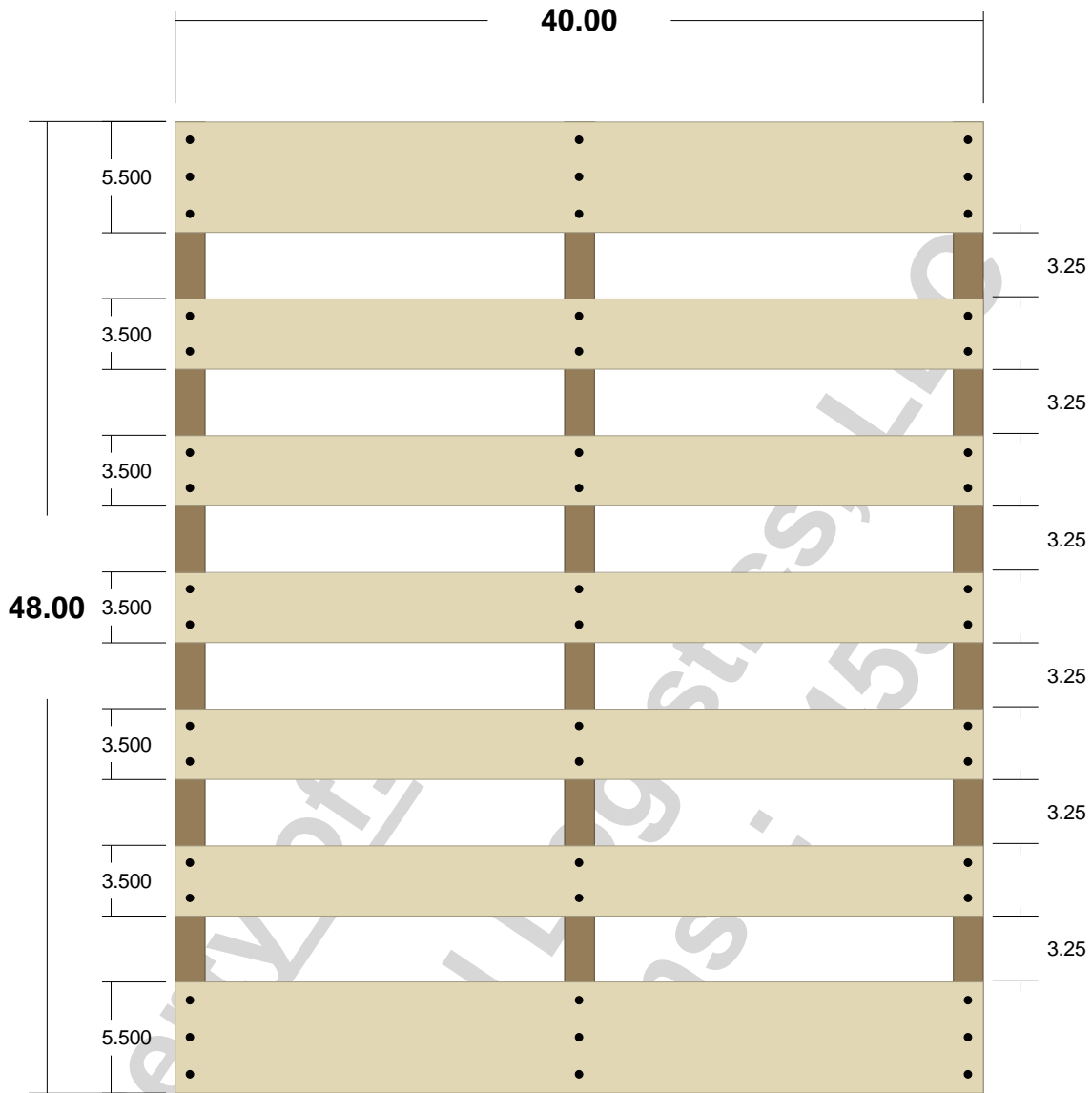
## Pallet Drawing - Top View

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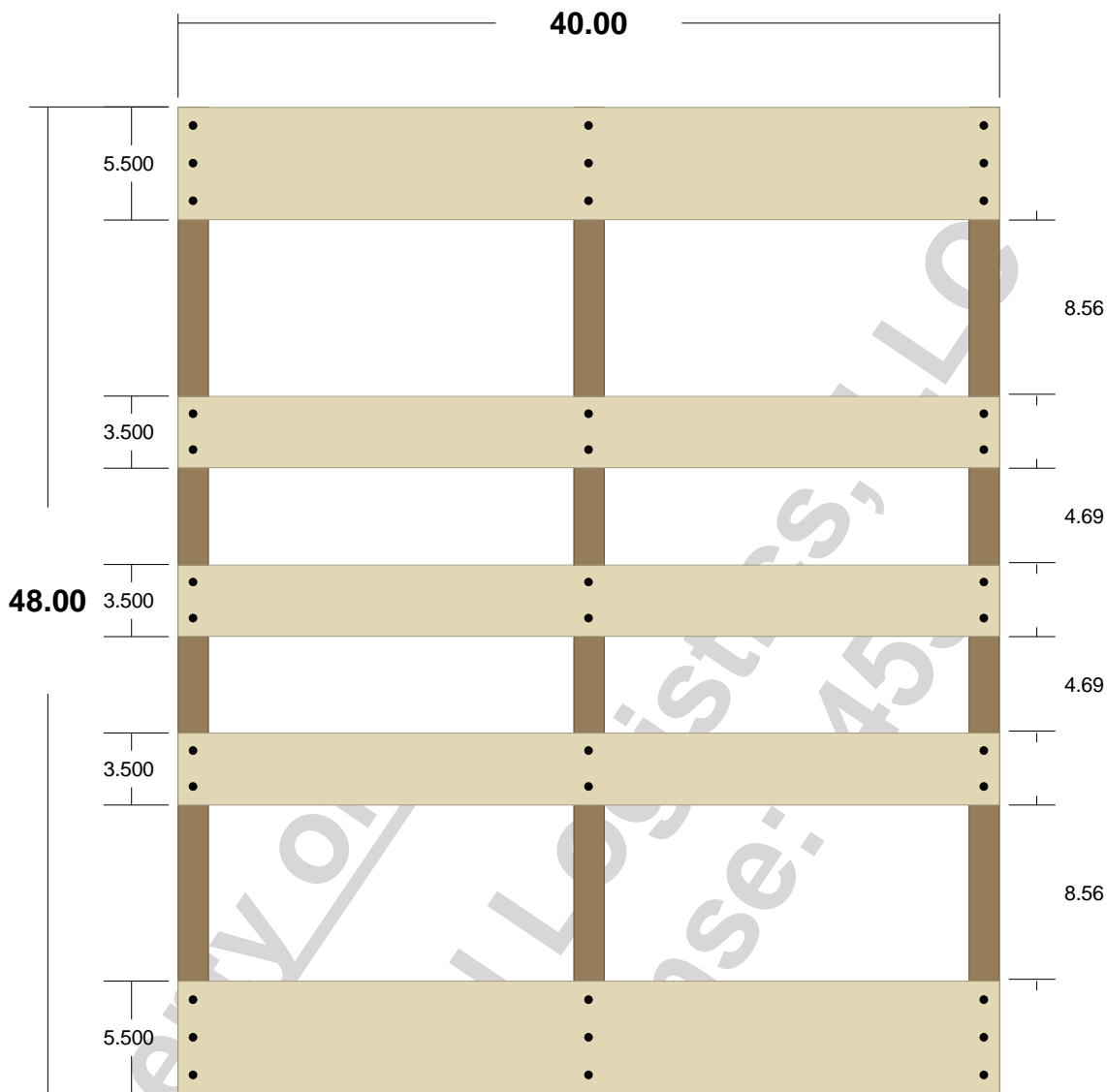
## Pallet Drawing - Bottom View

All dimensions in inches

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### Bottom View



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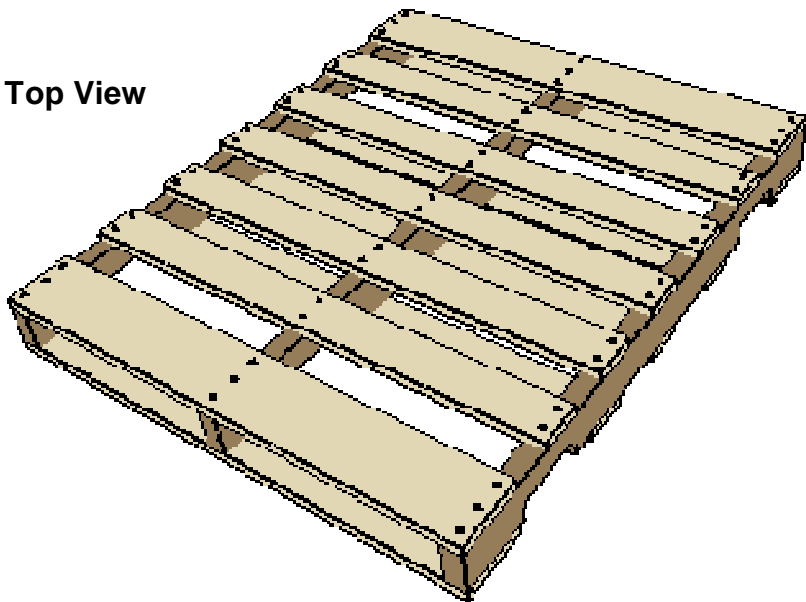
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## 3-D Pallet Drawings

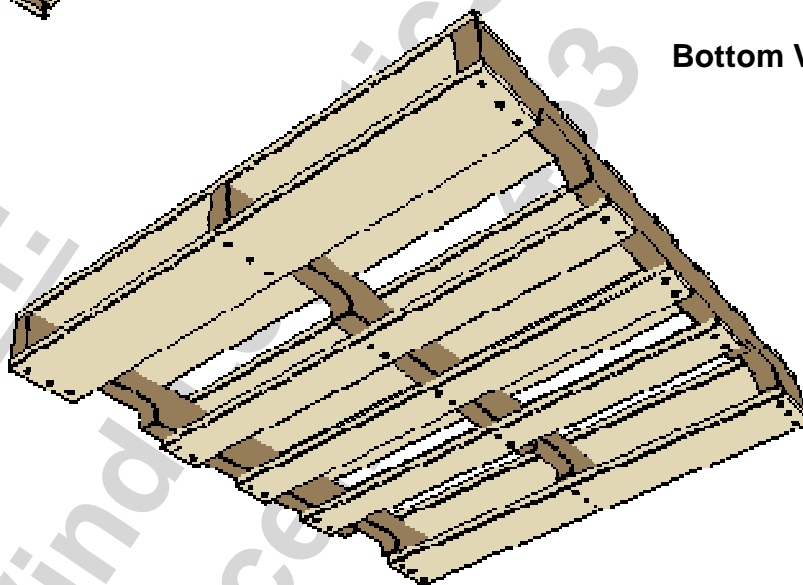
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Top View



Bottom View



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