

# PALLET DESIGN SYSTEM Version 4.1

## Pallet Structural Analysis

**Customer:**

Company Name of Customer

**Prepared by:**

Pallet Professional and NWPCA Member

PDS License: 50 Printed: December 02, 2008

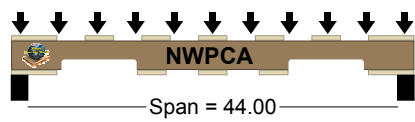
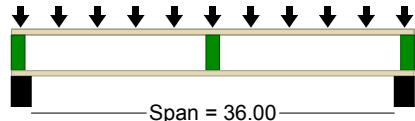
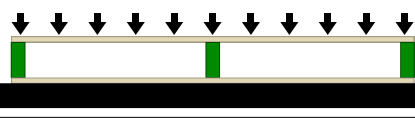
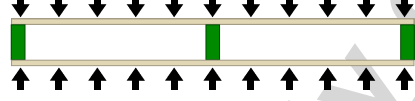
**Pallet ID:** Stringer-Class Pallet Example

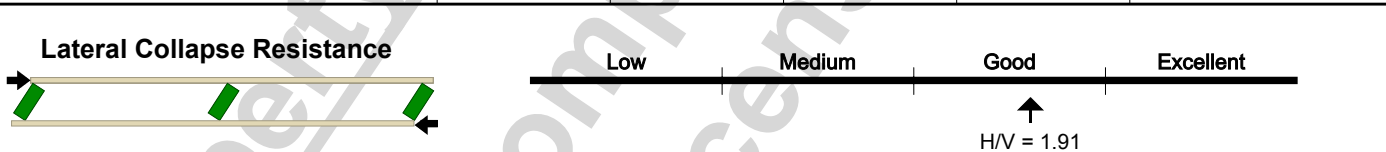
**Classification:** 48.00 x 40.00, Stringer-Class, Double-Face Non-Reversible, Partial 4-Way, Multiple-Use, New Manufacture

**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> 	1710 lbs.	0.46 in.	0.40 in.	1234 lbs.	Center Stringer
<b>Racked Across Width</b> 	1595 lbs.	0.76 in.	0.50 in.	770 lbs.	Bottom Deckboard
<b>Stacked 1 Unit Load High</b> 	4713 lbs.	0.19 in.	----	----	Top Deckboard
<b>Stacked 4 Unit Loads High</b> 	1813 lbs. (each pallet)	0.19 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.

Pallet Design System - Version 4.1 (C) Copyright 1985-2008  
 National Wooden Pallet and Container Association, 1421 Prince Street, Suite 340, Alexandria, Virginia 22314-2805  
<http://www.palletcentral.com>  
 All Rights Reserved

# PALLET DESIGN SYSTEM Version 4.1

## Pallet Durability Analysis

**Customer:**

Company Name of Customer

**Prepared by:**

Pallet Professional and NWPCA Member

PDS License: 50 Printed: December 02, 2008

**Pallet ID:** Stringer-Class Pallet Example

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



### 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 <= 19%)

**Predicted Service Life:** 9 Cycles

**Predicted Cycles until First Repair:** 3

#### 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)	3	5	1	Yes	[Progress bar]
Top InteriorBoards (5)					[Progress bar]
Bottom Leadboards (2)	3	5	1	Yes	[Progress bar]
Bottom InteriorBoards (3)					[Progress bar]
Exterior Stringers (2)	4	9			[Progress bar]
Interior Stringers (1)					[Progress bar]

Property of: Your Company PDS License:

# PALLET DESIGN SYSTEM Version 4.1

## Pallet Physical Property Analysis

**Customer:**

Company Name of Customer

**Prepared by:**

Pallet Professional and NWPCA Member

PDS License: 50 Printed: December 02, 2008

**Pallet ID:** Stringer-Class Pallet Example

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

	At Manufacture	At 25% MC	At 19% MC	At 15% MC	At 12% MC
<b>Average Pallet Weight</b>	59 lbs.	41 lbs.	39 lbs.	38 lbs.	37 lbs.



Component	Original Dimension	Shrinkage from Manufacture to 19% MC	Shrinkage from Manufacture to 15% MC
Top Deckboards	0.625 in. Thickness	0.014 in. (+/- 0.004 in.)	0.020 in. (+/- 0.006 in.)
	3.500 in. Width	0.078 in. (+/- 0.023 in.)	0.113 in. (+/- 0.033 in.)
	5.500 in. Width	0.123 in. (+/- 0.036 in.)	0.178 in. (+/- 0.052 in.)
Stringers	3.500 in. Height	0.078 in. (+/- 0.023 in.)	0.113 in. (+/- 0.033 in.)
	1.375 in. Width	0.031 in. (+/- 0.009 in.)	0.044 in. (+/- 0.013 in.)
Bottom Deckboards	0.625 in. Thickness	0.014 in. (+/- 0.004 in.)	0.020 in. (+/- 0.006 in.)
	3.500 in. Width	0.078 in. (+/- 0.023 in.)	0.113 in. (+/- 0.033 in.)
	5.500 in. Width	0.123 in. (+/- 0.036 in.)	0.178 in. (+/- 0.052 in.)

Property of:   
 Your Company Name   
 PDS License: ###