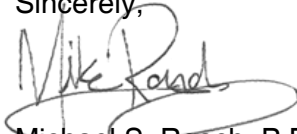


The result of our analysis, as outlined on the attached chart, suggests that a wood truss having a span of **30 ft or greater** is suitable to accommodate a 2,000 lb total pallet load subject to the specific project criteria outlined above. In addition, smaller truss spans also bear suitability for the maximum loads indicated on the attached which is compatible to the expected area served for such spans. Please contact our firm should the roof framing or spans vary from that as noted as an altering condition may be subject to further review.

We appreciate the opportunity to work with you on this project. If you have any questions regarding this report, or if we may be of further service to you, please contact us.

Sincerely,



Michael S. Roach, P.E.
Complete Structural Consulting, Inc.



Complete Structural Consulting, Inc.



Comparative Analysis Engineering Services

Prepared by:
Complete Structural Consulting, Inc.

Submitted to:
Peaked Pallets Inc.

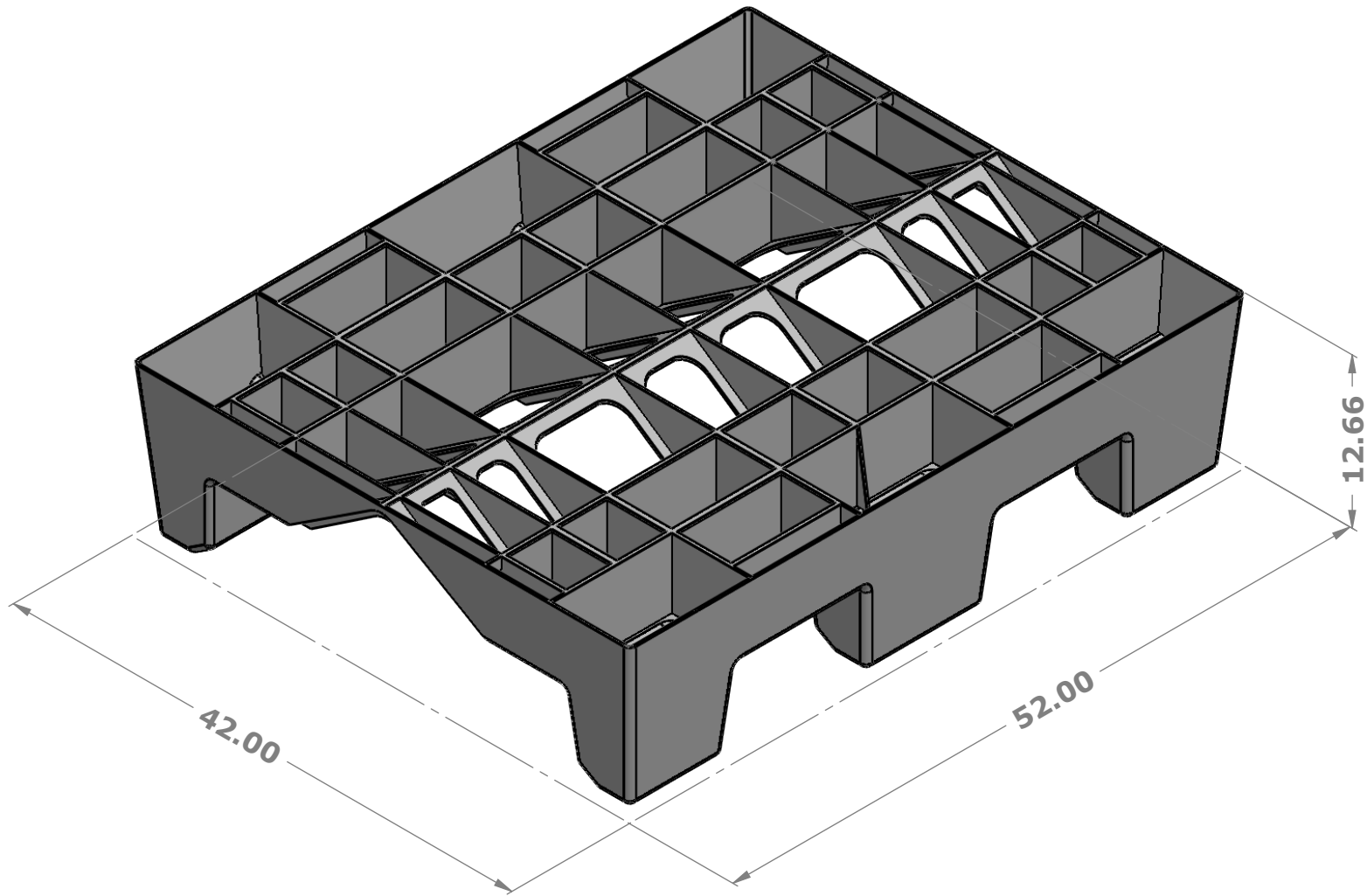
Submittal:
December 18, 2018

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Section 1

PALLET INFORMATION



UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES:
 LINEAR: $\pm .12$
 ANGULAR: $\pm 3'$

TITLE:

8:12 PEAK SHINGLE PALLET

	NAME	DATE
DRAWN	DMW	11/1/18
CHECKED	DMW	11/1/18
APPVD	C Grobbel	11/1/18

INTERNAL SIZE

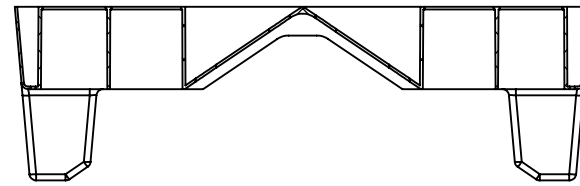
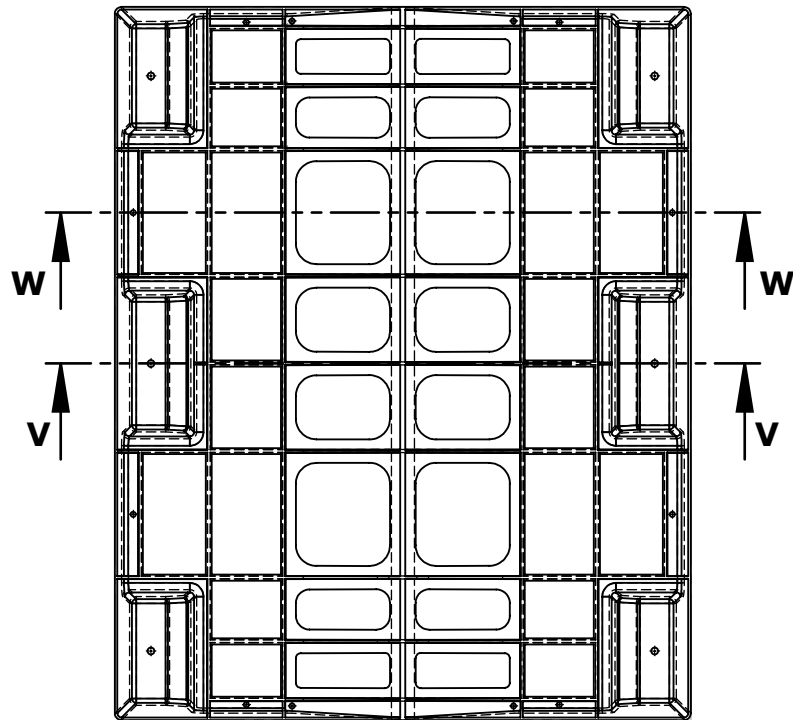
REV

A

CAGE CODE

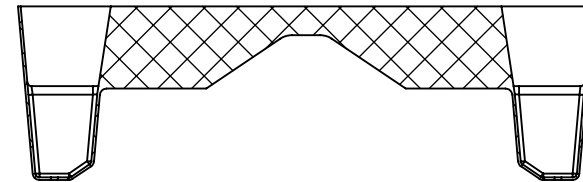
DO NOT SCALE DRAWING

SHEET 1 OF 2



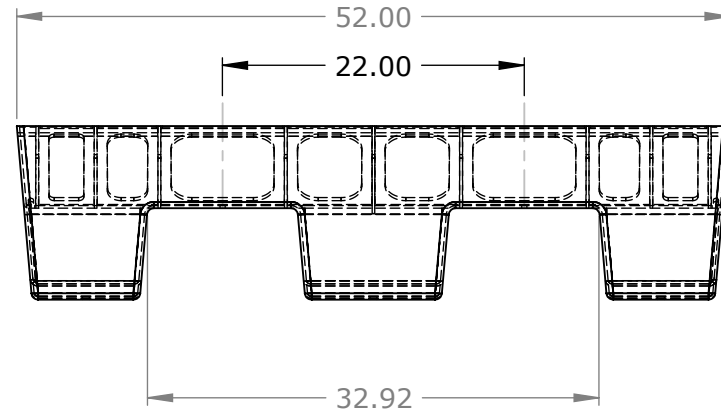
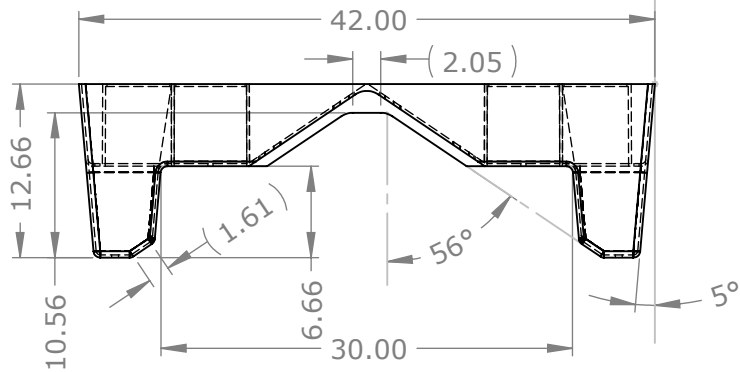
SECTION W-W

SCALE 1 : 14



SECTION V-V

SCALE 1 : 14



UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES:
 LINEAR: $\pm .12$
 ANGULAR: $\pm 3'$

TITLE:

8:12 PEAK SHINGLE PALLET

	NAME	DATE
DRAWN	DMW	11/1/18
CHECKED	DMW	11/1/18
APPVD	C Grobbel	11/1/18

INTERNAL SIZE

REV

A

CAGE CODE

DO NOT SCALE DRAWING

SHEET 2 OF 2

Section 2

LOADING DIAGRAMS AND CALCULATIONS



Loads

- Axial force
- Distributed user loads - Members

20 psf Uniform Live Load with
3.5 psf shingle load

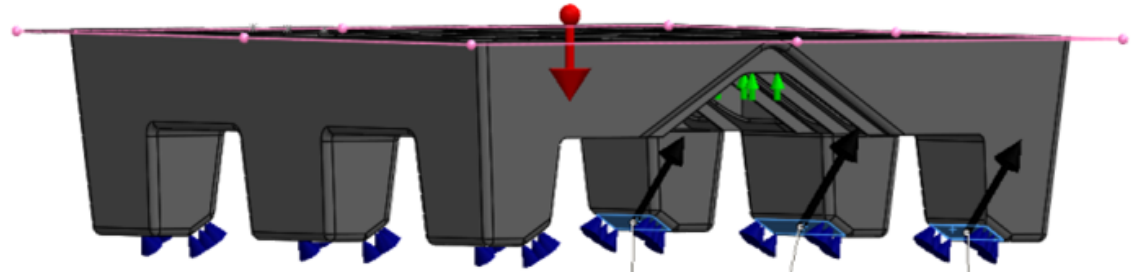
-0.02[Kip/ft]

-0.003[Kip/ft]

-0.02[Kip/ft]

-0.003[Kip/ft]

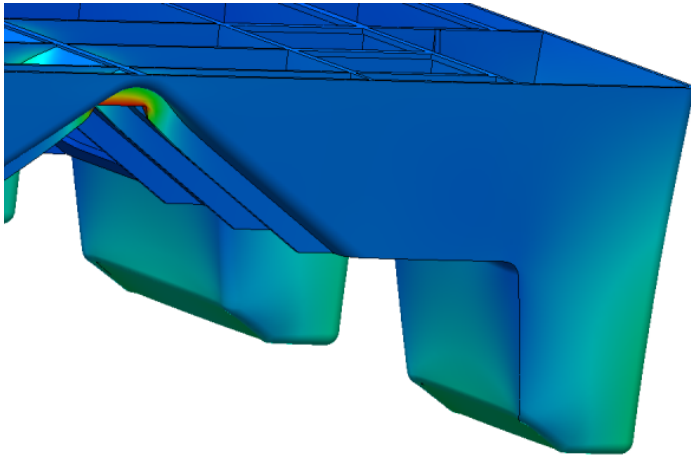
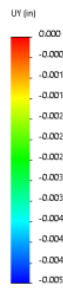




FX:	3.65 lbf
FY:	5.67e-08 lbf
FZ:	5.41 lbf
FRes:	6.53 lbf

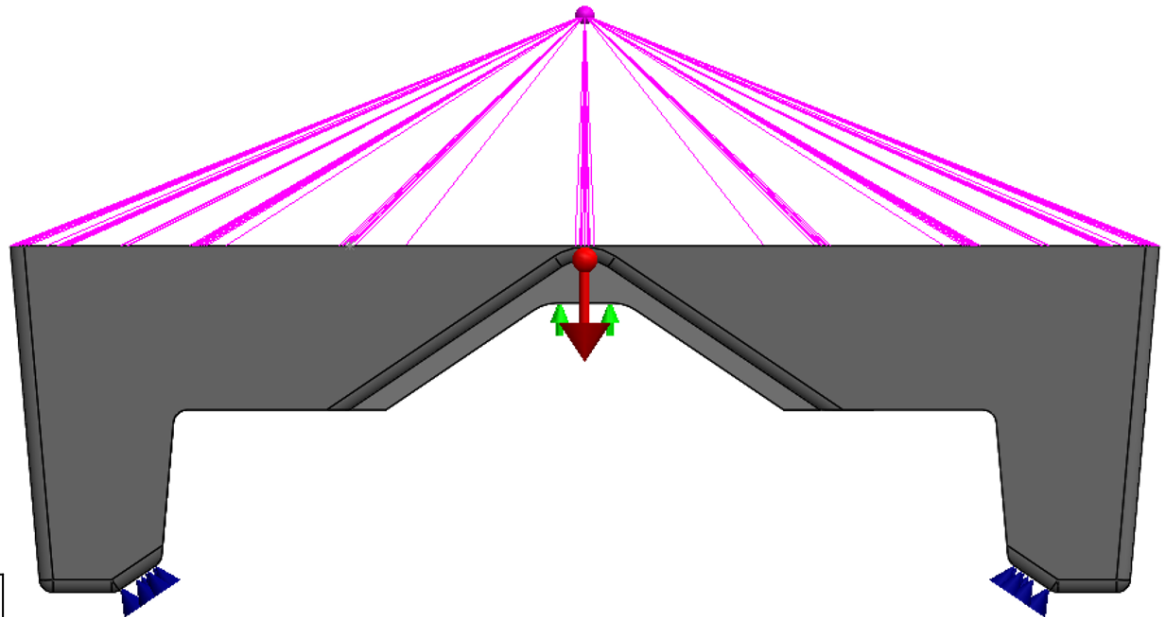
FX:	4.54 lbf
FY:	-8.25e-08 lbf
FZ:	6.73 lbf
FRes:	8.12 lbf

FX:	4.05 lbf
FY:	-3.71e-08 lbf
FZ:	6 lbf
FRes:	7.23 lbf



Peak Load

Load Case - Using spring supports - $k = 29.8$ kips / in



	Restraint
	Gravity
	Shingle Load
	Spring Support

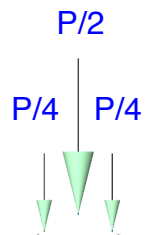
Simulate the pallet supporting the load via contact with the peak and the adjacent roof surfaces using springs



Loads

- Axial force
- Concentrated - Nodes

LOADS PER THE FINITE
ELEMENT ANALYSIS





Client Name: **PEAKED PALLETS**
 Project Name: **COMPARATIVE ANALYSIS**

By: **AMD**
 Project Number: **18.128**

COUPLED ROOF CLOSED TRUSS ANALYSIS FOR 6:12 MIN. PITCH

Pallet Leg offset from center: 17 inches
 Rafter Spacing greater than 16" o.c.: 24 inches o.c.
 Comparative Uniform Live Load + 3.5psf dead: 23.5 psf

L (ft)	16 " O.C. SPACING								24 " O.C. SPACING						
	Quantity of Trusses Engaged= 4								Quantity of Trusses Engaged= 3						
	UL End Shear	UL Tension Element 3	Allowable Concentrated Load per Truss	Allowable Pallet Load	Allowable Squares per Pallet	Allowable Square Footage*	Length of Roof Served	UL End Shear	UL Tension Element 3	Allowable Concentrated Load per Truss	Allowable Pallet Load	Allowable Squares per Pallet	Allowable Square Footage*	Length of Roof Served	
15.0	0.24	0.18	0.25	1.02	4.2	400	27	0.35	0.26	0.38	1.15	4.8	400	15	
20.0	0.31	0.23	0.34	1.36	5.7	500	25	0.47	0.35	0.51	1.53	6.4	600	24	
25.0	0.39	0.29	0.42	1.70	7.1	700	28	0.59	0.44	0.64	1.91	8.0	700	25	
30.0	0.47	0.35	0.51	2.04	8.0			0.71	0.53	0.76	2.29	8.0			
35.0	0.55	0.41	0.59	2.38	8.0			0.82	0.62	0.89	2.68	8.0			
40.0	0.63	0.47	0.68	2.72	8.0			0.94	0.70	1.02	3.06	8.0			
45.0	0.71	0.53	0.76	3.06	8.0			1.06	0.79	1.15	3.44	8.0			
50.0	0.78	0.59	0.85	3.40	8.0			1.18	0.88	1.27	3.82	8.0			
55.0	0.86	0.64	0.93	3.74	8.0			1.29	0.97	1.40	4.20	8.0			
60.0	0.94	0.70	1.02	4.08	8.0			1.41	1.05	1.53	4.59	8.0			
65.0	1.02	0.76	1.10	4.42	8.0			1.53	1.14	1.66	4.97	8.0			

NOTES:

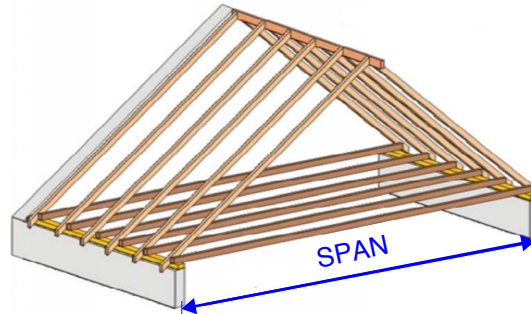
1. SQUARE WEIGHT IS ASSUMED AT 240 LBS/SQUARE.
2. SQUARE QUANTITY PER PALLET NOT TO EXCEED 8.

* PALLETS ARE CERTIFIED TO HOLD SHINGLES FOR CONNECTED ROOF AREAS. PALLETS SET ON SMALL SPANS SHALL NOT SUPPORT LOADS FOR LARGER DISCONNECTED ROOF SPANS.

Section 3

ALLOWABLE PALLET LOAD CHART

TOTAL ALLOWABLE PALLET LOAD ON COUPLED ROOF CLOSED TRUSS WITH 6:12 MIN. PITCH



Comparative Uniform Live Load: 20 psf
 Maximum User Load on trusses loaded by pallet: 200 lbs

16" o.c. EXISTING TRUSS SPACING	
Span (ft)	Total Allowable Pallet Load (lbs)
15.0	819
20.0	1159
25.0	1499
30.0	2022
35.0	2178
40.0	2300
45.0	2300
50.0	2300
55.0	2300
60.0	2300
65.0	2300

24" o.c. EXISTING TRUSS SPACING	
Span (ft)	Total Allowable Pallet Load (lbs)
15.0	947
20.0	1329
25.0	1711
30.0	2093
35.0	2300
40.0	2300
45.0	2300
50.0	2300
55.0	2300
60.0	2300
65.0	2300

NOTE:

1. TOTAL PALLET LOAD LIMITED BY PALLET SELF WEIGHT, USER LOAD AS NOTED ABOVE, AND MAXIMUM PALLET CAPACITY OF 2,500 LBS