



# BUILDING DROPS

A Perfect Solution in Every Drop

398 East Dania Beach Blvd.  
Suite 338  
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July 31, 2012

**Manufacturer:** Wahoo Decks  
1604 Athens Highway  
Gainesville, GA 30507

**Report:** PER 2144

**Product(s):** AridDek Aluminum Decking  
DryJoist Aluminum Decking  
DryJoist EZ Aluminum Decking

***Compliance:***

This report is issued to comply with the requirements of the 2009 International Building Code & 2010 Florida Building Code.

***Scope:***

The purpose of this report is to determine the allowable loads based on span, deflection and material fiberstress limitations used in the analyses in the Appendix of this report. All calculations are in compliance with the 2009 International Building Code, 2010 Florida Building Code, accepted engineering practices, and industry design standards.

***Analysis and Findings:***

The AridDek, DryJoist, and DryJoist EZ products are Aluminum 6005-T5 decking extrusions typically used as a waterproof deck solution on residential and commercial decks, low-slope roofs, and boat docks. The deck products were analyzed using the following beam configurations to determine the maximum allowable loads (PSF) based on span, deflection and material fiberstress limitations:

1. Single Span – beam simply supported at both ends (All deck products listed)
2. Double Span – beam simply supported at both ends and at center (All deck products listed)
3. Multi Span – beam simply supported at multiple locations (All deck products listed)
4. Cantilever – beam simply supported at one end (DryJoist & DryJoist EZ only)

All beam configurations were analyzed using three maximum deflection allowances  $L/180$ ,  $L/240$ , and  $L/360$ . Material fiberstress limits were developed using the 2005 Edition of the Aluminum Design Manual (ASD). Allowable stresses are based upon the shape of the decking extrusion, material properties, and length of the unsupported span. All calculations can be found within the appendix of this report.



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The following table shows the end results of the analysis. The maximum allowable load was taken for each of the beam configurations using the minimum value between deflections or bending stress limits.

### Maximum Allowable Loads (PSF): AridDek Aluminum Decking

Single Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	3707.29	3707.29	3142.22
1.5	1476.57	1396.54	931.03
2.0	734.32	589.17	392.78
2.5	382.07	301.65	201.10
3.0	184.25	174.57	116.38
3.5	99.46	99.46	73.29
4.0	58.30	58.30	49.10

Double Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	6590.74	6590.74	6590.74
1.5	2625.01	2625.01	2242.71
2.0	1305.45	1305.45	946.14
2.5	679.23	679.23	484.43
3.0	327.56	327.56	280.34
3.5	176.81	176.81	176.54
4.0	103.64	103.64	103.64

Multi-Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	11121.88	11121.88	11121.88
1.5	4429.70	4429.70	4429.70
2.0	2202.95	2202.95	1963.89
2.5	1146.20	1146.20	1005.51
3.0	552.76	552.76	552.76
3.5	298.37	298.37	298.37
4.0	174.90	174.90	174.90



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**Maximum Allowable Loads (PSF): DryJoist Aluminum Decking**

Single Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	653.83	490.38	326.92
5.0	334.76	251.07	167.38
6.0	193.72	145.30	96.86
7.0	104.57	91.50	61.00
8.0	61.30	61.30	40.86
9.0	38.27	38.27	28.70
10.0	25.11	25.11	20.92

Double Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	1253.01	1181.24	787.50
5.0	705.98	604.80	403.20
6.0	344.40	344.40	233.33
7.0	185.90	185.90	146.94
8.0	108.97	108.97	98.44
9.0	68.03	68.03	68.03
10.0	44.63	44.63	44.63

Multi-Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	2114.46	2114.46	1634.59
5.0	1191.34	1191.34	836.91
6.0	581.17	581.17	484.32
7.0	313.70	313.70	305.00
8.0	183.89	183.89	183.89
9.0	114.80	114.80	114.80
10.0	75.32	75.32	75.32

Cantilever Span, Total Load (PSF)			
Overhang Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	4358.90	3269.17	2179.45
1.5	1291.53	968.64	645.76
2.0	544.86	408.65	272.43
2.5	278.97	209.23	139.48



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**Maximum Allowable Loads (PSF): DryJoist EZ Aluminum Decking**

Single Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	447.58	335.68	223.79
5.0	229.16	171.87	114.58
6.0	123.29	99.46	66.31
7.0	66.55	62.64	41.76
8.0	39.01	39.01	27.97
9.0	24.35	24.35	19.65
10.0	15.98	15.98	14.32

Double Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	828.26	808.62	539.08
5.0	454.50	414.01	276.01
6.0	219.18	219.18	159.73
7.0	118.31	118.31	100.59
8.0	69.35	69.35	67.38
9.0	43.30	43.30	43.30
10.0	28.41	28.41	28.41

Multi-Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	1397.69	1397.69	1118.95
5.0	766.96	766.96	572.90
6.0	369.87	369.87	331.54
7.0	199.65	199.65	199.65
8.0	117.03	117.03	117.03
9.0	73.06	73.06	73.06
10.0	47.94	47.94	47.94

Cantilever Span, Total Load (PSF)			
Overhang Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	2983.86	2237.90	1491.93
1.5	884.11	663.08	442.05
2.0	372.98	279.74	186.49
2.5	190.97	143.23	95.48



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## **Limits of Use:**

Calculations and analyses in this report take into the main components of the decking systems listed herein. Decks are made up of multiple components that may, or may not, be mechanically fastened to one another.

Using only the 'main' components is conservative as other components will simply add to the performance of the deck. Components made up of several sub-components are assumed to be fastened together to adequately share loads between each other and deflect 'as one'.

This report does not take into account anchorage or fastening of the deck to any surrounding structure. These products shall be used and installed per manufacturer specifications and these aspects are beyond the scope of this report.

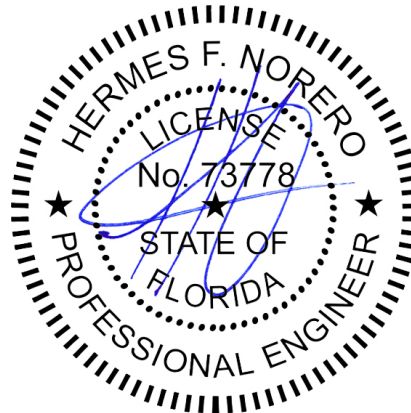
## **Conclusion:**

The products in question have been calculated to be able to withstand the loads listed in the tables above at the corresponding maximum unsupported spans. These calculations are in compliance with the 2009 International Building Code, 2010 Florida Building Code, accepted engineering practices, and industry design standards.

In my professional opinion, the calculated results, as presented above, for maximum loads are accurate and acceptable.

I trust that this will satisfy your needs, however feel free to call if you have any questions.

Respectfully,



Hermes F. Norero, P.E.

Florida Registered Professional Engineer #73778

## **Certification of Independence:**

Please note that I do not have nor will I acquire a financial interest in any company manufacturing or distributing the product(s) for which this report is being issued. Also, I do not have nor will I acquire a financial interest in any other entity involved in the approval process of the listed product(s).



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# APPENDIX

Allowable Loading Analyses: AridDek Aluminum Decking  
Allowable Loading Analyses: DryJoist Aluminum Decking  
Allowable Loading Analyses: DryJoist EZ Aluminum Decking



## **BUILDING DROPS**

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### **Product Evaluation Report**

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AridDek Aluminum Deck

#### ***Allowable Loads Based on Span Length & Type***

**Wahoo Decks**  
**AridDek Aluminum Deck**

All calculations herein are specific to the AridDek Aluminum Deck product taking into account deflection and material fiberstress limits. Analyses are based upon the Aluminum Design Manual (ADM) 2005 Edition and other accepted engineering practices.



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## Product Evaluation Report

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### AridDek Aluminum Deck-Determination of Allowable Stress

**Reference:** Aluminum Design Manual, 2005 Edition

**Design Method:** Allowable Strength Design (ASD)

**Shape Assumption:** Single Web Shape, Compression in Beams

**Section:** 3.4.11

**Material:** Aluminum 6005-T5

**Yield Strength ( $F_{cy}$ ):** 35000 PSI

**Elastic Modulus (E):** 10100 KSI

**Buckling Intercept ( $B_c$ ):** 39365.27 PSI

**Buckling Slope ( $D_c$ ):** 245.76

**Buckling Intersection ( $C_c$ ):** 65.67

**Buckling Coeff. ( $C_b$ ):** 1

**Radius of Gyration ( $r_x$ ):** 0.363 in.

**$S_1$ :** 21.31

**$S_2$ :** 78.81

ADM 2005, Section 3.4.11		
Unsupported Length ( $L_b$ ), in.	$S_0$	Allowable Bending Stress ( $F_b$ ), PSI
12	33.058	19754.58
18	49.587	17703.00
24	66.116	15651.42
30	82.645	12724.18
36	99.174	8836.24
42	115.702	6491.93
48	132.231	4970.38





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### AridDek Aluminum Deck Load Tables

#### General Data and Assumptions

Elastic Modulus (E): 10100000 PSI  
Moment of Inertia (I<sub>x</sub>): 0.105 in<sup>4</sup>

TL: Total Load, PSF  
δ: Deflection based on span length, in.  
L: Span Length, in.  
w: Linear Load, lbs/in .  
b: 6 in. (board width)

Case 1: Single Span - Pinned at both ends :  $\delta_{max} = (5*w*L^4)/(384*E*I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
1.0	6284.44	4713.33	3142.22
1.5	1862.06	1396.54	931.03
2.0	785.56	589.17	392.78
2.5	402.20	301.65	201.10
3.0	232.76	174.57	116.38
3.5	146.58	109.93	73.29
4.0	98.19	73.65	49.10

Case 2: Double span - Pinned at both ends and center  $\delta_{max} = (w*L^4)/(185*E*I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
1.0	15138.31	11353.73	7569.16
1.5	4485.43	3364.07	2242.71
2.0	1892.29	1419.22	946.14
2.5	968.85	726.64	484.43
3.0	560.68	420.51	280.34
3.5	353.08	264.81	176.54
4.0	236.54	177.40	118.27



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Case 3: Multi Span  $\delta_{max} = (w \cdot L^4) / (384 \cdot E \cdot I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
1.0	31422.22	23566.67	15711.11
1.5	9310.29	6982.72	4655.14
2.0	3927.78	2945.83	1963.89
2.5	2011.02	1508.27	1005.51
3.0	1163.79	872.84	581.89
3.5	732.88	549.66	366.44
4.0	490.97	368.23	245.49



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### AridDek Aluminum Deck Load Tables

#### General Data and Assumptions

Allowable Bending Stress ( $F_b$ ): See ADM calculations

Section Modulus ( $S_x$ ): 0.141 in<sup>3</sup>

TL, P: Total Load, PSF

$\delta$ : Deflection based on span length, in.

L: Span Length, in.

A: 0.5\*L ft<sup>2</sup>

b: 6 in. (board width)

Case 1: Single Span - Pinned at both ends :  $\sigma_{max} = (P*b*L^2)/(8*S_x)$

Total Load, PSF	
Span Length, ft.	TL
1.0	3707.29
1.5	1476.57
2.0	734.32
2.5	382.07
3.0	184.25
3.5	99.46
4.0	58.30

Case 2: Double Span - Pinned at both ends and center:  $\sigma_{max} = (9*P*b*L^2)/(128*S_x)$

Total Load, PSF	
Span Length, ft.	TL
1.0	6590.74
1.5	2625.01
2.0	1305.45
2.5	679.23
3.0	327.56
3.5	176.81
4.0	103.64



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Case 3: Multi Span - Pinned at both ends :  $\sigma_{max} = (P*b*L^2/(24*S_x))$

Total Load, PSF	
Span Length, ft.	TL
1.0	11121.88
1.5	4429.70
2.0	2202.95
2.5	1146.20
3.0	552.76
3.5	298.37
4.0	174.90



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### AridDek Aluminum Deck Load Tables

Single Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	3707.29	3707.29	3142.22
1.5	1476.57	1396.54	931.03
2.0	734.32	589.17	392.78
2.5	382.07	301.65	201.10
3.0	184.25	174.57	116.38
3.5	99.46	99.46	73.29
4.0	58.30	58.30	49.10

Double Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	6590.74	6590.74	6590.74
1.5	2625.01	2625.01	2242.71
2.0	1305.45	1305.45	946.14
2.5	679.23	679.23	484.43
3.0	327.56	327.56	280.34
3.5	176.81	176.81	176.54
4.0	103.64	103.64	103.64

Multi-Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	11121.88	11121.88	11121.88
1.5	4429.70	4429.70	4429.70
2.0	2202.95	2202.95	1963.89
2.5	1146.20	1146.20	1005.51
3.0	552.76	552.76	552.76
3.5	298.37	298.37	298.37
4.0	174.90	174.90	174.90



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### **Product Evaluation Report**

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#### ***Allowable Loads Based on Span Length & Type***

**Wahoo Decks**  
**DryJoist Aluminum Deck**

All calculations herein are specific to the DryJoist Aluminum Deck product taking into account deflection and material fiberstress limits. Analyses are based upon the Aluminum Design Manual (ADM) 2005 Edition and other accepted engineering practices.



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## Product Evaluation Report

Wahoo Decks  
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### DryJoist Aluminum Deck-Determination of Allowable Stress

**Reference:** Aluminum Design Manual, 2005 Edition

**Design Method:** Allowable Strength Design (ASD)

**Shape Assumption:** Single Web Shape, Compression in Beams

**Section:** 3.4.11

**Material:** Aluminum 6005-T5

**Yield Strength ( $F_{cy}$ ):** 35000 PSI  
**Elastic Modulus (E):** 10100 KSI  
**Buckling Intercept ( $B_c$ ):** 39365.27 PSI  
**Buckling Slope ( $D_c$ ):** 245.76  
**Buckling Intersection ( $C_c$ ):** 65.67  
**Buckling Coeff. ( $C_b$ ):** 1

**Radius of Gyration ( $r_x$ ):** 0.7715 in.  
 **$S_1$ :** 21.31  
 **$S_2$ :** 78.81

ADM 2005, Section 3.4.11		
Unsupported Length ( $L_b$ ), in.	$S_0$	Allowable Bending Stress ( $F_b$ ), PSI
12	15.554	21927.15
18	23.331	20961.86
24	31.108	19996.56
30	38.885	19031.27
48	62.216	16135.39
60	77.771	14204.81
72	93.325	9978.52
84	108.879	7331.16
96	124.433	5612.92
108	139.987	4434.90
120	155.541	3592.27



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### DryJoist Aluminum Deck Load Tables

#### General Data and Assumptions

Elastic Modulus (E): 10100000 PSI  
Moment of Inertia (I<sub>x</sub>): 0.9322 in<sup>4</sup>

TL: Total Load, PSF  
δ: Deflection based on span length, in.  
L: Span Length, in.  
w: Linear Load, lbs/in .  
b: 8 in. (board width)

Case 1: Single Span - Pinned at both ends :  $\delta_{max} = (5*w*L^4)/(384*E*I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
4.0	653.83	490.38	326.92
5.0	334.76	251.07	167.38
6.0	193.73	145.30	96.86
7.0	122.00	91.50	61.00
8.0	81.73	61.30	40.86
9.0	57.40	43.05	28.70
10.0	41.85	31.38	20.92

Case 2: Double span - Pinned at both ends and center  $\delta_{max} = (w*L^4)/(185*E*I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
4.0	1574.99	1181.24	787.50
5.0	806.40	604.80	403.20
6.0	466.66	350.00	233.33
7.0	293.88	220.41	146.94
8.0	196.87	147.66	98.44
9.0	138.27	103.70	69.14
10.0	100.80	75.60	50.40





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Case 3: Multi Span  $\delta_{max} = (w*L^4)/(384*E*I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
4.0	3269.17	2451.88	1634.59
5.0	1673.82	1255.36	836.91
6.0	968.64	726.48	484.32
7.0	609.99	457.49	305.00
8.0	408.65	306.49	204.32
9.0	287.01	215.25	143.50
10.0	209.23	156.92	104.61

Case 4: Cantilever Span - Fixed at one end :  $\delta_{max} = (w*L^4)/(8*E*I)$

Total Load, PSF			
Overhang Length, ft.	L/180	L/240	L/360
1.0	4358.90	3269.17	2179.45
1.5	1291.53	968.64	645.76
2.0	544.86	408.65	272.43
2.5	278.97	209.23	139.48



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### DryJoist Aluminum Deck Load Tables

#### General Data and Assumptions

Allowable Bending Stress ( $F_b$ ): See ADM calculations

Section Modulus ( $S_x$ ): 0.699 in<sup>3</sup>

TL, P: Total Load, PSF

$\delta$ : Deflection based on span length, in.

L: Span Length, in.

A: 0.67\*L ft<sup>2</sup>

b: 8 in. (board width)

Case 1: Single Span - Pinned at both ends :  $\sigma_{max} = (P*b*L^2)/(8*S_x)$

Total Load, PSF	
Span Length, ft.	TL
4.0	704.82
5.0	397.11
6.0	193.72
7.0	104.57
8.0	61.30
9.0	38.27
10.0	25.11

Case 2: Double Span - Pinned at both ends and center:  $\sigma_{max} = (9*P*b*L^2)/(128*S_x)$

Total Load, PSF	
Span Length, ft.	TL
4.0	1253.01
5.0	705.98
6.0	344.40
7.0	185.90
8.0	108.97
9.0	68.03
10.0	44.63



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Case 3: Multi Span - Pinned at both ends :  $\sigma_{\max} = (P*b*L^2/(24*S_x))$

Total Load, PSF	
Span Length, ft.	TL
4.0	2114.46
5.0	1191.34
6.0	581.17
7.0	313.70
8.0	183.89
9.0	114.80
10.0	75.32

Case 4: Cantilever Span - Fixed at one end :  $\sigma_{\max} = (P*b*L^2/(2*S_x))$

Total Load, PSF	
Overhang Length, ft.	TL
1.0	3831.25
1.5	1627.82
2.0	873.48
2.5	532.04



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## Product Evaluation Report

Wahoo Decks  
DryJoist Aluminum Deck

### DryJoist Aluminum Deck Load Tables

Single Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	653.83	490.38	326.92
5.0	334.76	251.07	167.38
6.0	193.72	145.30	96.86
7.0	104.57	91.50	61.00
8.0	61.30	61.30	40.86
9.0	38.27	38.27	28.70
10.0	25.11	25.11	20.92

Double Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	1253.01	1181.24	787.50
5.0	705.98	604.80	403.20
6.0	344.40	344.40	233.33
7.0	185.90	185.90	146.94
8.0	108.97	108.97	98.44
9.0	68.03	68.03	68.03
10.0	44.63	44.63	44.63

Multi-Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	2114.46	2114.46	1634.59
5.0	1191.34	1191.34	836.91
6.0	581.17	581.17	484.32
7.0	313.70	313.70	305.00
8.0	183.89	183.89	183.89
9.0	114.80	114.80	114.80
10.0	75.32	75.32	75.32

Cantilever Span, Total Load (PSF)			
Overhang Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	4358.90	3269.17	2179.45
1.5	1291.53	968.64	645.76
2.0	544.86	408.65	272.43
2.5	278.97	209.23	139.48



## **BUILDING DROPS**

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#### ***Allowable Loads Based on Span Length & Type***

**Wahoo Decks**  
**DryJoist EZ Aluminum Deck**

All calculations herein are specific to the DryJoist EZ Aluminum Deck product taking into account deflection and material fiberstress limits. Analyses are based upon the Aluminum Design Manual (ADM) 2005 Edition and other accepted engineering practices.



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### DryJoist EZ Aluminum Deck-Determination of Allowable Stress

**Reference:** Aluminum Design Manual, 2005 Edition

**Design Method:** Allowable Strength Design (ASD)

**Shape Assumption:** Single Web Shape, Compression in Beams

**Section:** 3.4.11

**Material:** Aluminum 6005-T5

**Yield Strength ( $F_{cy}$ ):** 35000 PSI

**Elastic Modulus (E):** 10100 KSI

**Buckling Intercept ( $B_c$ ):** 39365.27 PSI

**Buckling Slope ( $D_c$ ):** 245.76

**Buckling Intersection ( $C_c$ ):** 65.67

**Buckling Coeff. ( $C_b$ ):** 1

**Radius of Gyration ( $r_x$ ):** 0.7524 in.

**$S_1$ :** 21.31

**$S_2$ :** 78.81

ADM 2005, Section 3.4.11		
Unsupported Length ( $L_b$ ), in.	$S_0$	Allowable Bending Stress ( $F_b$ ), PSI
12	15.949	21878.14
18	23.923	20888.34
24	31.898	19898.55
30	39.872	18908.75
48	63.796	15939.36
60	79.745	13666.41
72	95.694	9490.56
84	111.643	6972.66
96	127.592	5338.44
108	143.541	4218.03
120	159.490	3416.60



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### DryJoist EZ Aluminum Deck Load Tables

#### General Data and Assumptions

Elastic Modulus (E): 10100000 PSI  
Moment of Inertia (I<sub>x</sub>): 0.4786 in<sup>4</sup>

TL: Total Load, PSF  
δ: Deflection based on span length, in.  
L: Span Length, in.  
w: Linear Load, lbs/in .  
b: 6 in. (board width)

Case 1: Single Span - Pinned at both ends :  $\delta_{max} = (5*w*L^4)/(384*E*I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
4.0	447.58	335.68	223.79
5.0	229.16	171.87	114.58
6.0	132.62	99.46	66.31
7.0	83.51	62.64	41.76
8.0	55.95	41.96	27.97
9.0	39.29	29.47	19.65
10.0	28.65	21.48	14.32

Case 2: Double span - Pinned at both ends and center  $\delta_{max} = (w*L^4)/(185*E*I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
4.0	1078.15	808.62	539.08
5.0	552.01	414.01	276.01
6.0	319.45	239.59	159.73
7.0	201.17	150.88	100.59
8.0	134.77	101.08	67.38
9.0	94.65	70.99	47.33
10.0	69.00	51.75	34.50



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Case 3: Multi Span  $\delta_{max} = (w \cdot L^4) / (384 \cdot E \cdot I)$

Total Load, PSF			
Span Length, ft.	L/180	L/240	L/360
4.0	2237.90	1678.42	1118.95
5.0	1145.80	859.35	572.90
6.0	663.08	497.31	331.54
7.0	417.57	313.18	208.78
8.0	279.74	209.80	139.87
9.0	196.47	147.35	98.23
10.0	143.23	107.42	71.61

Case 4: Cantilever Span - Fixed at one end :  $\delta_{max} = (w \cdot L^4) / (8 \cdot E \cdot I)$

Total Load, PSF			
Overhang Length, ft.	L/180	L/240	L/360
1.0	2983.86	2237.90	1491.93
1.5	884.11	663.08	442.05
2.0	372.98	279.74	186.49
2.5	190.97	143.23	95.48





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### DryJoist EZ Aluminum Deck Load Tables

#### General Data and Assumptions

Allowable Bending Stress ( $F_b$ ): See ADM calculations

Section Modulus ( $S_x$ ): 0.351 in<sup>3</sup>

TL, P: Total Load, PSF

$\delta$ : Deflection based on span length, in.

L: Span Length, in.

A: 0.5\*L ft<sup>2</sup>

b: 6 in. (board width)

Case 1: Single Span - Pinned at both ends :  $\sigma_{max} = (P*b*L^2)/(8*S_x)$

Total Load, PSF	
Span Length, ft.	TL
4.0	465.90
5.0	255.65
6.0	123.29
7.0	66.55
8.0	39.01
9.0	24.35
10.0	15.98

Case 2: Double Span - Pinned at both ends and center:  $\sigma_{max} = (9*P*b*L^2)/(128*S_x)$

Total Load, PSF	
Span Length, ft.	TL
4.0	828.26
5.0	454.50
6.0	219.18
7.0	118.31
8.0	69.35
9.0	43.30
10.0	28.41



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Case 3: Multi Span - Pinned at both ends :  $\sigma_{\max} = (P*b*L^2/(24*S_x))$

Total Load, PSF	
Span Length, ft.	TL
4.0	1397.69
5.0	766.96
6.0	369.87
7.0	199.65
8.0	117.03
9.0	73.06
10.0	47.94

Case 4: Cantilever Span - Fixed at one end :  $\sigma_{\max} = (P*b*L^2/(2*S_x))$

Total Load, PSF	
Overhang Length, ft.	TL
1.0	2557.93
1.5	1085.42
2.0	581.62
2.5	353.72



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4.0	447.58	335.68	223.79
5.0	229.16	171.87	114.58
6.0	123.29	99.46	66.31
7.0	66.55	62.64	41.76
8.0	39.01	39.01	27.97
9.0	24.35	24.35	19.65
10.0	15.98	15.98	14.32

Double Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	828.26	808.62	539.08
5.0	454.50	414.01	276.01
6.0	219.18	219.18	159.73
7.0	118.31	118.31	100.59
8.0	69.35	69.35	67.38
9.0	43.30	43.30	43.30
10.0	28.41	28.41	28.41

Multi-Span, Total Load (PSF)			
Span Length, ft.	TL (PSF)		
	L/180	L/240	L/360
4.0	1397.69	1397.69	1118.95
5.0	766.96	766.96	572.90
6.0	369.87	369.87	331.54
7.0	199.65	199.65	199.65
8.0	117.03	117.03	117.03
9.0	73.06	73.06	73.06
10.0	47.94	47.94	47.94

Cantilever Span, Total Load (PSF)			
Overhang Length, ft.	TL (PSF)		
	L/180	L/240	L/360
1.0	2983.86	2237.90	1491.93
1.5	884.11	663.08	442.05
2.0	372.98	279.74	186.49
2.5	190.97	143.23	95.48