Easy Seals
easyseals.com

DESIGN CALCULATIONS

FOR

BURGER KING
6ft Logo Cabinet
Columbia County, FL

This document has been digitally signed and sealed by Christian Langley, PE on the date noted in this digital signature. Printed copies of this document are not considered signed & sealed, & the signature must be verified on any electronic copies.
Serial: 4A 49 8F 53 22 18 30 0D 22 9D 96 67

Digitally signed by Christian Langley
Date: 2021.08.30 11:11:35 -04'00'

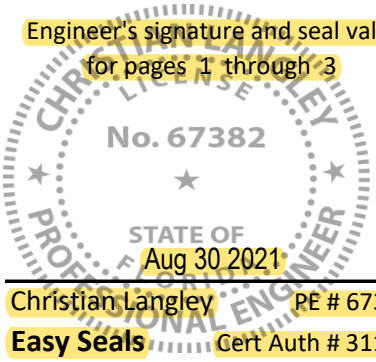
GENERAL NOTES:

1. Design is in accordance with the Florida Building Code 7th Edition (2020) for use within and outside the High Velocity Hurricane Zone (HVHZ).
2. Wind loads have been calculated per the requirements of ASCE 7-16 as shown herein.
3. These engineering calculations pertain only to the structural integrity of those systems, components, and/or other construction explicitly specified herein and/or in accompanying engineering drawings. The existing host structure (if any) is assumed to be in good condition, capable of supporting the loaded system, subject to building department approval. No warranty, either expressed or implied, is contained herein.
4. System components shall be as noted herein. All references to named components and installation shall conform to manufacturer's or industry specifications as summarized herein.
5. Where site conditions deviate from those noted herein, revisions may be required or a separate site-specific engineering evaluation performed.
6. Aluminum components in contact with steel or embedded in concrete shall be protected as prescribed in the 2015 Aluminum Design Manual, Part 1. Steel components in contact with, but not encased in, concrete shall be coated, painted, or otherwise protected against corrosion.
7. Engineer seal affixed hereto validates structural design as shown only. Use of this specification by contractor, et. Al, indemnifies and saves harmless this engineer for all costs & damages including legal fees & apellate fees resulting from deviation from this design.

Index:

Pg 1	Cover
Pg 2	Wind Loads
Pg 3	Anchor Design

Engineer's signature and seal valid for pages 1 through 3



Aug 30 2021

Christian Langley PE # 67382
Easy Seals Cert Auth # 31124

Easy Seals
easyseals.com

ASCE 7-16 Design Wind Loads

WALL-MOUNTED SIGNS

Building Specs

V =	130 mph	*Basic wind speed*	ASD Load Combo Coeff:	0.6
Exposure	C			

Calculations

α =	9.5	*3-sec gust speed power law exponent*	Kd =	0.85	*Directionality factor*
z_g =	900'	*Nominal ht. of atmos. boundary layer*	Kzt =	1.0	*Topographic factor*
Gcpi =	0	*Internal pressure coeff*	Ke =	1.0	*Ground elevation factor*
			A =	10 sq ft	*Tributary area*

130 mph - Exp "C"
WALL-MOUNTED SIGNS

SIGN HEIGHT	ASD WIND PRESSURES CENTER (Zone 4)	CORNER (Zone 5)	Kh = Kz	q_z	GCp (4)	GCp (5)
15 ft	**20.6 psf**	**26.2 psf**	0.85	31.2	-1.10	-1.40
20 ft	**21.9 psf**	**27.9 psf**	0.90	33.2	-1.10	-1.40
25 ft	**22.9 psf**	**29.2 psf**	0.95	34.8	-1.10	-1.40
30 ft	**23.8 psf**	**30.3 psf**	0.98	36.1	-1.10	-1.40
35 ft	**24.6 psf**	**31.3 psf**	1.01	37.3	-1.10	-1.40
40 ft	**25.3 psf**	**32.2 psf**	1.04	38.4	-1.10	-1.40
45 ft	**26.0 psf**	**33.0 psf**	1.07	39.3	-1.10	-1.40
50 ft	**26.5 psf**	**33.8 psf**	1.09	40.2	-1.10	-1.40
55 ft	**27.1 psf**	**34.5 psf**	1.12	41.0	-1.10	-1.40
60 ft	**27.6 psf**	**35.1 psf**	1.14	41.8	-1.10	-1.40
70 ft	**23.3 psf**	**46.6 psf**	1.17	43.2	-0.90	-1.80
80 ft	**24.0 psf**	**48.0 psf**	1.21	44.4	-0.90	-1.80
90 ft	**24.6 psf**	**49.2 psf**	1.24	45.5	-0.90	-1.80
100 ft	**25.1 psf**	**50.3 psf**	1.27	46.5	-0.90	-1.80
110 ft	**25.6 psf**	**51.3 psf**	1.29	47.5	-0.90	-1.80
120 ft	**26.1 psf**	**52.2 psf**	1.32	48.4	-0.90	-1.80
130 ft	**26.6 psf**	**53.1 psf**	1.34	49.2	-0.90	-1.80
140 ft	**27.0 psf**	**54.0 psf**	1.36	50.0	-0.90	-1.80
150 ft	**27.4 psf**	**54.7 psf**	1.38	50.7	-0.90	-1.80
175 ft	**28.3 psf**	**56.6 psf**	1.42	52.4	-0.90	-1.80
200 ft	**29.1 psf**	**58.2 psf**	1.46	53.9	-0.90	-1.80
250 ft	**30.5 psf**	**61.0 psf**	1.53	56.4	-0.90	-1.80

Wall Sign Anchor Design

Structure Dimensions & Loading

Design wind pressure: **P = 30.3 psf**

Sign type: Cabinet

Sign size: A = 28.3 sqft (entire cabinet)

Wall material: Wood CDX or equiv, thickness to match Min Embed

Anchor type/size: 3/8" Toggle Bolt (r)

Ref: Powers Strap-Toggle, catalog

Min Embedment: 0.5"

Min edge dist: 3" Min Spacing: 1.5"

Anchor tensile capacity: **Tcap = 179.4 lb** (per anchor)

Check Anchors for Pullout

Total Reaction:	Rt =	858	lb	... = P*A (entire cabinet)
No. of anchors req'd:	n =	4.8	total anchors	... = Rt/cap

Total anchors required: 5 total anchors balanced over cabinet

OK, limit to min (6) total.