



CALCULATIONS PACKAGE

BUILDER: CARY & ASSC BLDRS INC
CUSTOMER: MANZANA PRODUCTS INC.
JOB NUMBER: 17-B-21308

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THESE ATTACHMENTS ARE PART
OF THE APPROVED PLANS.

*** DO NOT REMOVE THEM ***

08/26/2020

PERMIT AND RESOURCE
MANAGEMENT DEPARTMENT
BUILDING PLAN CHECK

PERMIT # BLD20-2958

Original Design Completed thru Change Order # 0

Revision History

Rev #	Update Reactions?	Reason for Revision	Pages Revised	Date Revised	Eng.

Project Engineer: Satish Kurma (Fairview)
Checking Engineer: Amer Khan
Signing Engineer: Bejun Anklesaria, P.E.



June 20, 2019

CARY & ASSC BLDRS INC
112 PINE BREEZE LN
SEBASTOPOL, CA 95472-5664

17-B-21308
MANZANA PRODUCTS INC.
9141 GREEN VALLEY RD
SEBASTOPOL, CA 95472-2245 US
20'-8" x 34'-0" x 13'-0" x 11'-3 5/16"

To Whom It May Concern:

This is to certify that materials for the subject structure have been designed in accordance with the order documents, specifically as shown per the attached Engineering Design Criteria Sheet.

Aspects of code compliance as related to use or occupancy, such as sprinkler requirements, are not addressed by these documents.

These materials, when properly erected on an adequate foundation in accordance with the erection drawings as supplied and using the components as furnished, will meet the attached loading requirements.

This certification does not cover field modifications or the design of materials not furnished by Metallic Building Systems.

The attached design criteria and calculations are to remain with and form part of this Letter of Certification.

The calculations and the metal building they represent are the product of Metallic Building Systems or a division of its affiliate NCI Building Systems. The engineer whose seal appears hereon is employed by either Metallic Building Systems or a division of its affiliate NCI Building Systems and is not the engineer of record for this project.

Cordially,

Metallic Building Systems
Materials for Metal Buildings
An NCI Company

Bejun Anklesaria, P.E.
Engineer IV



17-B-21308

METALLIC BUILDING COMPANY

Job Number: 17-B-21308

Jobsite: SEBASTOPOL, CA 95472-2245 US Designer: STK Dwg Checker: PNR

Revision: A Date: 6/20/19 By: Pages Revised:

Building Code CBC 16
Risk Category..... II - Normal

Roof Dead Load
Superimposed..... 2.200 psf
Collateral..... 10.00 psf (Total)
(Solar load 3.0 psf. + Other load 7.0 psf)
Roof Live Load..... 20.00 psf (Reducible)

Snow
Ground Snow Load (Pg)..... 0.00 psf
Snow Load Importance Factor (Is) 1.00
Flat Roof Snow Load (Pf)..... 0.00 psf
Snow Exposure Factor (Ce)..... 1.00
Thermal Factor (Ct)..... 1.00

Wind
Ultimate Wind Speed..... 110 mph
Nominal Wind Speed (Vasd)..... 85 mph (IBC Section 1609.3.1)
Serviceability Wind Speed 72 mph
Wind Exposure Category C
Internal Pressure Coef (GCpi) 0.18/-0.18
Loads for components not provided by building manufacturer
Corner Areas 24.171 psf pressure -32.167 psf suction
Other Areas 24.171 psf pressure -26.185 psf suction
These values are the maximum values required based on a 10 sq ft area.
Components with larger areas may have lower wind loads.

Seismic
Seismic Importance Factor (Ie) 1.00
Seismic Design Category..... D
Soil Site Class..... D Stiff Soil
Ss..... 1.5000 g Sds 1.0000 g
Sl..... 0.6000 g Sd1 0.6000 g
Analysis Procedure..... Equivalent Lateral Force
Column Line 1-3 SWA SWC
Basic Force Resisting System C4 B3 B3
Response Modification Coefficient (R) 3.5 3.25 3.25
System Over-Strength Factor (Omega) 2.5000 2.0000 2.0000
Seismic Response Coefficient (Cs) 0.286 0.308 0.308
Design Base Shear in kips (V) Transverse 5.42 Longitudinal 5.04
Basic Structural System (from ASCE 7-10 Table 12.2-1)
C4 - Steel Ordinary Moment Frames
B3 - Steel Ordinary Concentric Braced Frames
Cs is determined using an Ss=1.5000 as per section 12.8.1.3 of ASCE 7-10

* "The design collateral load has been uniformly applied to the design*
* of the building. Hanging loads are to be attached to the purlin *
* web. This may not be appropriate for heavily concentrated loads. *
* Any attached load in excess of 150 pounds shall be accounted for by *
* special design performed by a licensed engineer using concentrated *
* loads and may require separate support members within the roof *
* system." *

The rigid frame at lines 1&3 are designed as a non-expandable rigid frame. Corresponding frame reactions are calculated based upon actual tributary area.

1

2

3

Open for others
all

B

A

B

A

1

2

3

17-B-21308

Framing Layout

6/20/19

PURLIN LAYOUT:

Surface Id	Purlin Type	Surface_Extend Left Right	Stub_Purlin Left Right	Total Rows	Peak Space	--Set_Space-- Space Row
2	ZB	0.0000 0.0000	N N	5	3.9347	3.9346 2 2.5000 2 3.9346 1

EAVE LAYOUT:

Wall Id	Type	Flange Rotate	Web Orient	Offset
2	EO	I	V	0.00
4	EO	I	V	0.00

PURLIN LOCATION:

Surface Id	Purlin Id	Surface Offset	Space
2	1	3.9346	3.9346
	2	7.8692	3.9346
	3	10.3692	2.5000
	4	12.8692	2.5000
	5	16.8038	3.9346
		20.7385	3.9347

PURLIN & EAVE STRUT:

Surface Id	Bay Id	Part	----Purlin_Lap---- Left Right	IS_Flg Strap	Eave_B_SW Strut	Eave_F_SW Strut
2	1	8X25Z16	1.3333	0	8ES1H14	8ES1L14
	2	8X25Z16	1.3333	0	8ES1H14	8ES1L14

ROOF BRACING:

Bay Id	Attach Start	Locate End	Type	Part	Dia
1	0.00	10.33	Rod	WR0800	0.500
	10.33	20.67	Rod	WR0800	0.500

EAVE EXTENSION LAYOUT:

Wall Id	Ext Id	--Bay_Id-- Start End	Width	Height	Slope	Mount	-Edge_Extend- Left Right
2	1	1 2	5.00	11.28	1.00	F	0.00 0.00

EAVE EXTENSION BEAM & SPLICE PLATE:

Wall Id	Ext Id	Column Line	 Part	 Type	Splice_Plate Width Thick	 Type	-----Splice_Bolts----- Dia Space Gage Row
------------	-----------	-----------------	----------	----------	-----------------------------	----------	--

2	1	-	OC0814							
		1	W8X10	LP		A325	0.500	19.80	2.50	2
		2	W8X10	LP		A325	0.500	19.80	2.50	2
		3	W8X10	LP		A325	0.500	19.80	2.50	2
		-	OC0814							

EAVE EXTENSION PURLIN & EAVE STRUT:

Wall Id	Ext Id	Bay Id	-----Purlin----- Type	Row	Part	---Purlin_Lap--- Left	Right	Eave Strut	Flange Strap
2	1	1	ZF	1	8X25Z16			8X35C14	0
		2	ZF	1	8X25Z16			8X35C14	0

EXTENSION BRACING:

Ext Id	Wall Id	Bay Id	Brace Type	Brace Dia
1	2	1	Rod	0.500

BOLT AT EAVE STRUT:

Wall Id	Frame Line Id	Lap Type	-----Bolt_Size----- No. Type	Dia	Washer
2	1	RF	-	2 A325	0.500 0
2	2	RF	N	2 A325	0.500 0
2	3	RF	-	2 A325	0.500 0
4	1	RF	-	2 A325	0.500 0
4	2	RF	N	2 A325	0.500 0
4	3	RF	-	2 A325	0.500 0

PURLIN ANTI-ROLL:

Surf Id	Line Id	AntiRoll Type	Ds_ARoll Id	No. Purlin	Purlin_Id
2	RF	Clip w/gusset	@004	1	1

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=====
17-B-21308          FRAMING SUMMARY: Left Endwall          6/20/19  4:57am
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COLUMN:

Id	Offset	Grid Line	Part	Length	Base Elev
-----	-----	-----	-----	-----	-----

CAP PLATE:

Id	-----Bolts----- No. Type	Dia
-----	-----	-----

OPENING LAYOUT:

Open Id	-----Bay----- Id Offset	-----Opening_Size----- Width Height	Sill	Note
-----	-----	-----	-----	-----
1	1 7.00	7.00 8.00	0.00	

OPENING JAMB/HEADER/SILL:

Open Id	Bay Id	Member	Offset	Locate	Part	Length
1	1	Jamb-L	7.00	6.00	8F25C16	9.33
		Jamb-R	14.00	6.00	8F25C16	9.33
		Header	8.00	7.00	8F25C16	7.00

PARTIAL WALLS:

--Bay_Id--	Start	End	Height	Base Type
1	1	1	0.50	C

GIRT LAYOUT:

Bay Id	Locate	Type	Part	---Bay_Offset-- Start	End	--Support-- Left	Right	-----Lap----- Left	Right	Flg Rot
1	0.5000	CO	8X25C16	0.0000	7.0000	Col	Jamb	0.0000	0.0000	U
	0.5000	CO	8X25C16	14.0000	20.6667	Jamb	Col	0.0000	0.0000	U
	4.0000	ZB	8X25Z16	0.0000	7.0000	Col	Jamb	0.0000	0.0000	D
	4.0000	ZB	8X25Z16	14.0000	20.6667	Jamb	Col	0.0000	0.0000	D
	7.5000	ZB	8X25Z16	0.0000	7.0000	Col	Jamb	0.0000	0.0000	D
	7.5000	ZB	8X25Z16	14.0000	20.6667	Jamb	Col	0.0000	0.0000	D
	9.3334	ZB	8X25Z14	0.0000	20.6667	Col	Col	0.0000	0.0000	D

GIRT INSIDE FLANGE BRACE:

No._Brace/Bay
1
0

17-B-21308 FRAMING SUMMARY: Right Endwall 6/20/19 4:57am

COLUMN:

Id	Offset	Grid Line	Part	Length	Base Elev
----	--------	-----------	------	--------	-----------

CAP PLATE:

Id	No.	Type	Dia
----	-----	------	-----

PARTIAL WALLS:

--Bay_Id--	Start	End	Height	Base Type
1	1	1	0.50	C

GIRT LAYOUT:

Bay Id	Locate	Type	Part	---Bay_Offset-- Start	End	--Support-- Left	Right	-----Lap----- Left	Right	Flg Rot
--------	--------	------	------	--------------------------	-----	---------------------	-------	-----------------------	-------	------------

1	0.5000	CO	8X25C16	0.0000	20.6667	Col	Col	0.0000	0.0000	U
	4.0000	ZB	8X25Z16	0.0000	20.6667	Col	Col	0.0000	0.0000	D
	7.5000	ZB	8X25Z14	0.0000	20.6667	Col	Col	0.0000	0.0000	D

GIRT INSIDE FLANGE BRACE:

 No._Brace/Bay
 1

 0

=====

17-B-21308	FRAMING SUMMARY: Front Sidewall	6/20/19 4:57am
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=====

OPENING LAYOUT:

Open	-----Bay-----		-----Opening_Size-----			Note
Id	Id	Offset	Width	Height	Sill	
1	2	8.50	1.79	3.17	1.00	

OPENING JAMB/HEADER/SILL:

Open	Bay					
Id	Id	Member	Offset	Locate	Part	Length
1	2	Jamb-L	8.50	6.00	8F25C16	4.00
		Jamb-R	10.29	6.00	8F25C16	4.00
		Header	4.17	8.50	8F25C16	1.79
		Sill	1.00	8.50	8F25C16	1.79

PARTIAL WALLS:

--Bay_Id--		Base	
Start	End		
Height	Type		
1	2	0.50	C

GIRT LAYOUT:

Bay				---Bay_Offset---		--Support--		-----Lap-----		Flg
Id	Locate	Type	Part	Start	End	Left	Right	Left	Right	Rot
1	0.5000	CO	8X25C16	1.1667	16.6667	Col	Col	0.0000	0.0000	U
	4.0000	ZB	8X25Z16	1.1667	16.6667	Col	Col	0.0000	1.3333	D
	7.5000	ZB	8X25Z16	1.1667	16.6667	Col	Col	0.0000	1.3333	D
2	0.5000	CO	8X25C16	0.0000	8.5000	Col	Jamb	0.0000	0.0000	U
	0.5000	CO	8X25C16	10.2917	16.1666	Jamb	Col	0.0000	0.0000	U
	4.0000	ZB	8X25Z16	0.0000	16.1666	Col	Col	1.3333	0.0000	D
	7.5000	ZB	8X25Z16	0.0000	16.1666	Col	Col	1.3333	0.0000	D

GIRT INSIDE FLANGE BRACE:

 No._Brace/Bay
 1 2

 0 0

WALL BRACING:

Bay	Brace_Height				
Id	Bot	Top	Type	Part	Dia

1	0.00	11.28	Rod	WR0800	0.500
---	------	-------	-----	--------	-------

17-B-21308 FRAMING SUMMARY: Back Sidewall 6/20/19 4:57am

PARTIAL WALLS:

--Bay_Id--		Height	Base Type
Start	End		
1	2	4.00	C

GIRT LAYOUT:

Bay Id	Locate	Type	Part	---Bay_Offset---		--Support--		-----Lap-----		Flg Rot
				Start	End	Left	Right	Left	Right	
1	4.0000	CO	8X25C16	1.1667	17.3333	Col	Col	0.0000	0.0000	U
	7.5000	ZB	8X25Z16	1.1667	17.3333	Col	Col	0.0000	1.3333	D
2	4.0000	CO	8X25C16	0.0000	15.5000	Col	Col	0.0000	0.0000	U
	7.5000	ZB	8X25Z16	0.0000	15.5000	Col	Col	1.3333	0.0000	D

GIRT INSIDE FLANGE BRACE:

No._Brace/Bay	
1	2
0	0

WALL BRACING:

Bay Id	Brace_Height		Type	Part	Dia
	Bot	Top			
2	0.00	13.00	Rod	WR0800	0.500

17-B-21308 FRAMING SUMMARY: Rigid Frame 1 6/20/19 4:57am

LAYOUT:

Type	:	RF
No. Line	:	2
Frame Line Id	:	1 3
Grid Line Id	:	1 3

MEMBER:

Surf Id	Mem Id	Seg Id	Part	Flange Length	Flange Width	-Web_Depth-		-Plate_Thickness-		
						Start	End	Web	O-flg	I-flg
1	1	1		12.23	5.00	10.00	10.00	0.134	0.250	0.250
2	2	2		8.41	5.00	10.00	10.00	0.134	0.250	0.250
2	2	3		8.73	5.00	10.00	10.00	0.134	0.250	0.250
3	3	4		10.62	5.00	16.00	16.00	0.156	0.250	0.250

SPLICE:

-Surface-		---Plate---	Bolt	Bolt	Bolt	---Top---	--Bottom--
Id	Locate	Type	Width	Thick	Type	Dia	Gage

2	0.00	VEE	6.00	0.625	A325	0.750	3.00	2	4.00	2	4.00
3	0.00	VEE	6.00	0.625	A325	0.750	3.00	2	4.00	2	4.00

BASE PLATE:

Locate	Type	---Plate---	Width	Thick	Type	Bolt	Dia	Gage	Row	Base	Elev
It Column	P		6.00	0.375	GR36		0.750	4.00	2		0.00
Rt Column	P		6.00	0.375	GR36		0.750	4.00	2		0.00

FLANGE BRACE:

Surf	Id	Locate	No.	Side	Part	Clip
1	2		1		L2X2X14G	
2	1		1		L2X2X14G	
2	2		1		L2X2X14G	
2	3		1		L2X2X14G	
2	4		1		L2X2X14G	
2	5		1		L2X2X14G	
3	3		1		L2X2X14G	

BEARING STIFFENER:

Locate	Width	Thick
It Column	2.50	0.250
Rt Column	2.50	0.250

17-B-21308 FRAMING SUMMARY: Rigid Frame 2 6/20/19 4:57am

LAYOUT:

Type : RF
No. Line : 1
Frame Line Id : 2
Grid Line Id : 2

MEMBER:

Surf	Mem	Seg	Part	Flange	Flange	-Web_Depth-	-Plate_Thickness-			
Id	Id	Id		Length	Width	Start	End	Web	O-flg	I-flg
1	1	1		12.23	5.00	12.00	12.00	0.134	0.250	0.250
2	2	2		8.23	5.00	12.00	12.00	0.134	0.250	0.250
2	2	3		8.75	5.00	12.00	12.00	0.134	0.250	0.250
3	3	4		10.62	5.00	16.00	16.00	0.156	0.250	0.250

SPLICE:

-Surface-	Id	Locate	Type	---Plate---	Width	Thick	Bolt	Type	Bolt	Dia	Gage	Row	Top	Space	Bottom	Row	Space
2	0.00	VEE		6.00	0.625	A325		0.750	3.00		2	4.00	2	4.00	2	4.00	
3	0.00	VEE		6.00	0.625	A325		0.750	3.00		2	4.00	2	4.00	2	4.00	

BASE PLATE:

---Plate---	Bolt	Dia	Gage	Row	Top	Space	Bottom	Row	Space
-------------	------	-----	------	-----	-----	-------	--------	-----	-------

Locate	Type	Width	Thick	Type	Dia	Gage	Row	Elev
Lt Column	P	6.00	0.375	GR36	0.750	4.00	2	0.00
Rt Column	P	6.00	0.375	GR36	0.750	4.00	2	0.00

FLANGE BRACE:

Surf Id	Locate	No. Side	Part	Clip
1	2	1	L2X2X14G	
2	1	1	L2X2X14G	
2	2	1	L2X2X14G	
2	3	1	L2X2X14G	
2	4	1	L2X2X14G	
2	5	1	L2X2X14G	
3	3	1	L2X2X14G	

BEARING STIFFENER:

Locate	Width	Thick
Lt Column	2.50	0.250
Rt Column	2.50	0.250

SPICE PLATE & BOLT TABLE									
Mark	Qty	Top	Bot	Int	Type	Dia	Length	Width	Thick
SP-1	4	4	0	A325	3/4"	2 1/2"	6"	6/8"	1'-4 7/8"

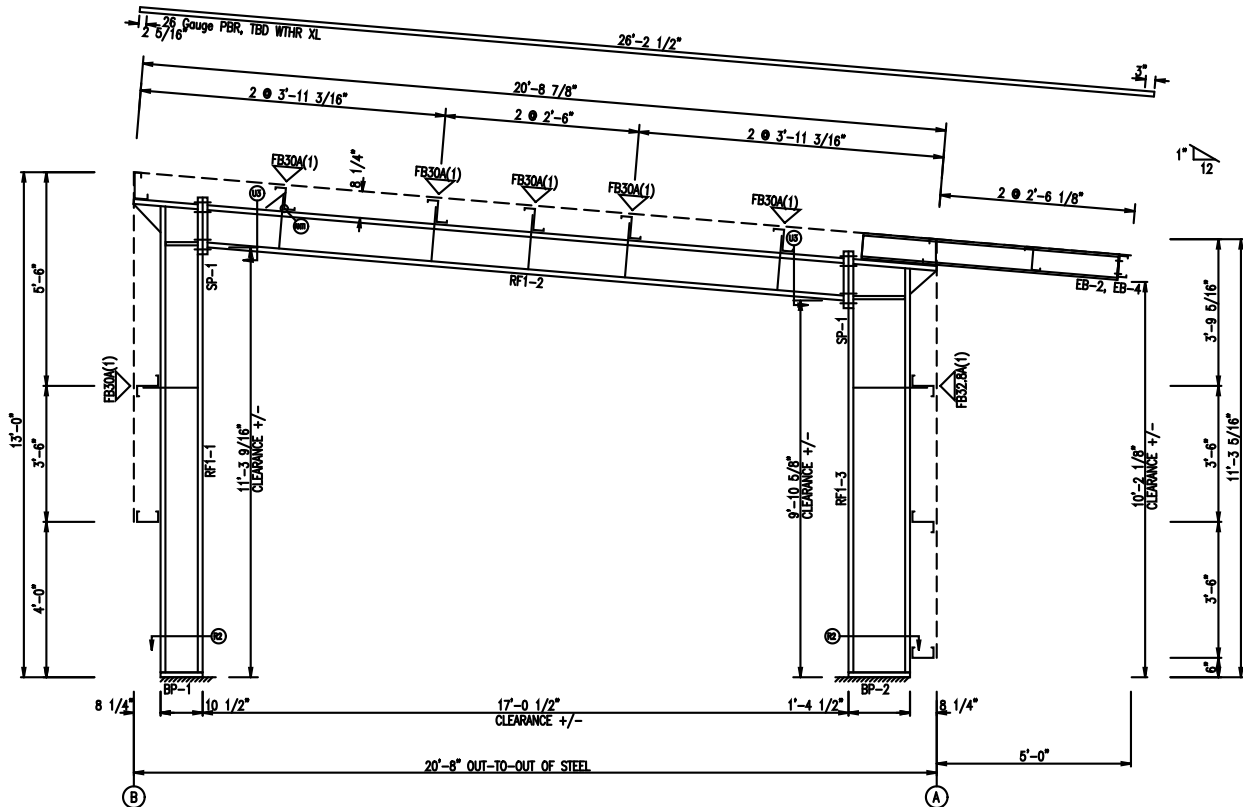
STIFFENER TABLE				
Mark	Stiff	Mark	Width	Plate Size
RF1-1	1	2 1/2	1/4"	10"
RF1-3	1	2 1/2	1/4"	16"

BASE PLATE TABLE			
Col	Width	Plate Size	Length
BP-1	6"	3/8"	10 1/2"
BP-2	6"	3/8"	1'-4 1/2"

FLANGE BRACES: BOTH SIDES(UNLESS NOTED)
 FB30A(1): xxx=length(in)
 A - L2K2X14G

MEMBER TABLE					
Mark	Web Depth	Start/End	Web Plate	Thick	Length
RF1-1	10.0/10.0	0.134	148.4		
RF1-2	10.0/10.0	0.134	204.0		
RF1-3	16.0/16.0	0.156	128.5		

Outside Flange			Inside Flange		
W x Thk	x Length		W x Thk	x Length	
6 x 1/4"	x 148.4		5 x 1/4"	x 131.7	
6 x 1/4"	x 18.5		5 x 1/4"	x 203.2	
6 x 1/4"	x 24.6		5 x 1/4"	x 114.7	



GENERAL NOTES:
 1. FULLY TIGHT - BOLT TIGHTENING - BOLTED JOINTS WITH A325 TYPE 1 BOLTS GREATER THAN 1/2" DIAMETER ARE SPECIFIED AS PRETENSIONED JOINTS IN ACCORDANCE WITH THE SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, DECEMBER 31, 2009. PRE-TENSIONING CAN BE ACCOMPLISHED BY USING THE TURN-OF-NUT METHOD OF TIGHTENING, CALIBRATED WRENCH, TWIST OFF TYPE TENSION CONTROL BOLTS OR DIRECT TENSION INDICATOR AS ACCEPTABLE TO THE INSPECTING AGENCY AND BUILDING OFFICIAL. INSTALLATION INSPECTION REQUIREMENTS FOR PRE-TENSIONED JOINTS (SPECIFICATION FOR STRUCTURAL JOINTS SECTION 9.2) USING TURN-OF-NUT METHOD IS SUGGESTED. THE CONNECTIONS ON THIS PROJECT ARE NOT SLIP CRITICAL.
 2. ALL FIELD CONNECTIONS OF SECONDARY FRAMING SHALL BE BOLTED WITH A325 BOLTS.
 3. INSTALL ALL FLANGE BRACES ON COLUMN AND RAFTER AS SHOWN

FRAME CROSS SECTION: FRAME LINE 1 3

ISSUE	DATE	DESCRIPTION	BY	CHK'D	DSN
A	6/20/19	FOR CONSTRUCTION PERMIT		PWR	STK

metallic building company

7301 FAIRVIEW, HOUSTON, TEXAS, P.O. BOX 40338
 ZIP 77041 (713) 466-7788 ZIP 77240

PROJECT: MANZANA PUMPHOUSE

CUSTOMER: CARY & ASSC BLDGS INC. OWNER: MANZANA PRODUCTS INC.

LOCATION: SEBASTOPOL, CA 96472-2245 US

CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	6/20/19	N.T.S.	1	A	17-B-21308	E7	A

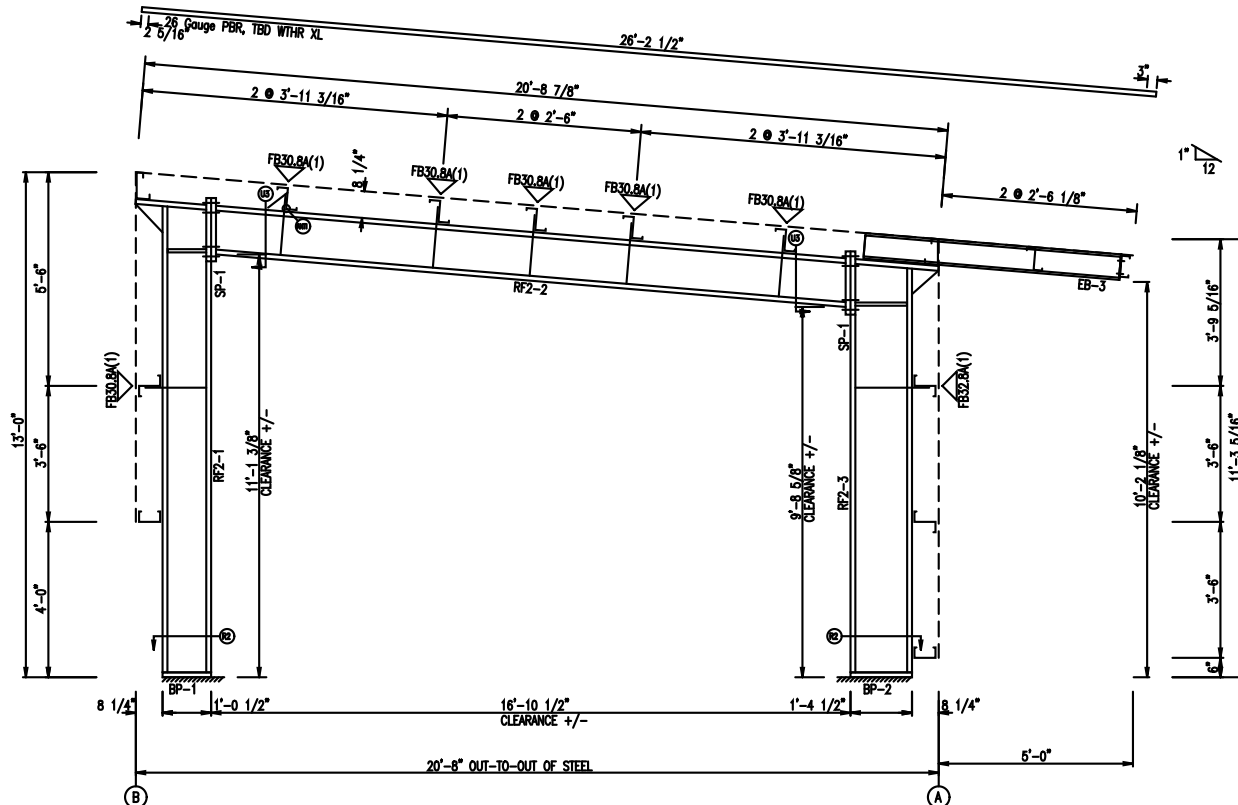
SPICE PLATE & BOLT TABLE									
Mark	Qty	Top	Bot	Int	Type	Dia	Length	Width	Thick
SP-1	4	4	0	A325	3/4"	2 1/2"	6"	6/8"	1'-6 7/8"

STIFFENER TABLE				
Mark	Stiff	Mark	Width	Plate Size
RF2-1	St-1	2	1/2	1/4"
RF2-3	St-1	2	1/2	1/4"

BASE PLATE TABLE			
Col	Width	Plate Size	Length
BP-1	6"	3/8"	1'-0 1/2"
BP-2	6"	3/8"	1'-4 1/2"

FLANGE BRACES: BOTH SIDES(UNLESS NOTED)
 FB30.8A(1); xxx=length(in)
 A - L2X2X14G

MEMBER TABLE				
Mark	Web Depth	Web Plate	Outside Flange	Inside Flange
RF2-1	12.0/12.0	0.134	148.4	129.5
RF2-2	12.0/12.0	0.134	202.2	201.2
RF2-3	16.0/16.0	0.156	128.5	112.7



- GENERAL NOTES:
- FULLY TIGHT - BOLT TIGHTENING - BOLTED JOINTS WITH A325 TYPE 1 BOLTS GREATER THAN 1/2" DIAMETER ARE SPECIFIED AS PRETENSIONED JOINTS IN ACCORDANCE WITH THE SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, DECEMBER 31, 2009. PRE-TENSIONING CAN BE ACCOMPLISHED BY USING THE TURN-OF-NUT METHOD OF TIGHTENING, CALIBRATED WRENCH, TWIST OFF TYPE TENSION CONTROL BOLTS OR DIRECT TENSION INDICATOR AS ACCEPTABLE TO THE INSPECTING AGENCY AND BUILDING OFFICIAL. INSTALLATION INSPECTION REQUIREMENTS FOR PRE-TENSIONED JOINTS (SPECIFICATION FOR STRUCTURAL JOINTS SECTION 9.2) USING TURN-OF-NUT METHOD IS SUGGESTED. THE CONNECTIONS ON THIS PROJECT ARE NOT SLIP CRITICAL.
 - ALL FIELD CONNECTIONS OF SECONDARY FRAMING SHALL BE BOLTED WITH A325 BOLTS.
 - INSTALL ALL FLANGE BRACES ON COLUMN AND RAFTER AS SHOWN

FRAME CROSS SECTION: FRAME LINE 2

ISSUE	DATE	DESCRIPTION	BY	CHK'D	DSN
A	6/20/19	FOR CONSTRUCTION PERMIT		PWR	STK

metallic building company

7301 FAIRVIEW, HOUSTON, TEXAS, P.O. BOX 40338
 ZIP 77041 (713) 466-7788 ZIP 77240

PROJECT: MANZANA PUMPHOUSE

CUSTOMER: CARY & ASSC BLDGS INC. OWNER: MANZANA PRODUCTS INC.

LOCATION: SEBASTOPOL, CA 96472-2245 US

CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	6/20/19	N.T.S.	1	A	17-B-21308	E8	A

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17-B-21308	Reactions, Anchor Bolts, & Base Plates: 6/20/19	4:57am
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-----Foundation_Loads(k)-----												
Frame Line	Col Line	Max_Pos_Val			Max_Neg_Val			Anc._Bolt		Base_Plate		
		Id	Horz	Vert	Id	Horz	Vert	No.	Diam	Width	Len	Thick
1*	B	1	0.7	2.4	2	-0.8	-0.6	4	0.750	6.00	10.50	0.375
		3	0.3	3.6	4	0.0	-1.7					
1*	A	5	0.8	-2.1	6	-1.0	2.6	4	0.750	6.00	16.50	0.375
		7	-0.5	4.6	8	0.6	-2.6					
2	B	9	1.7	4.4	2	-1.5	-1.0	4	0.750	6.00	12.50	0.375
		7	1.0	6.4	10	0.4	-2.7					
2	A	5	1.7	-3.5	6	-2.1	5.2	4	0.750	6.00	16.50	0.375
		7	-1.0	8.7	8	1.3	-4.6					

1* Frame Lines:1 3

LOAD COMBINATIONS:

Id	Combination
1	1.14Dead+1.14Collateral+0.7Seismic_Right
2	0.6Dead+0.6Wind_Left2
3	1.14Dead+1.14Collateral+0.7Seismic_LongR
4	0.46Dead+0.7Seismic_LongL
5	0.6Dead+0.6Wind_Right2
6	1.14Dead+1.14Collateral+0.7Seismic_Left
7	Dead+Collateral+Live
8	0.6Dead+0.6Wind_Right1
9	Dead+Collateral+0.75Live+0.45Wind_Right1
10	0.6Dead+0.6Wind_Long2L
11	0.6Dead+0.6Wind_Right2+0.6Wind_Suction
12	0.46Dead+0.7Seismic_LongR
13	0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L

=====

17-B-21308	Bracing Reactions Report:	6/20/19	4:57am
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BUILDING BRACING REACTIONS:

-----Reactions(k)-----									
---Wall-- Loc	Col Line	Line	---Wind---		---Seismic---		Panel_Shear(lb/ft)		Notes
			Horz	Vert	Horz	Vert	Wind	Seismic	
L_EW	1								(h)
F_SW	A	1 ,2	1.08	0.66	2.08	1.26			
R_EW	3								(h)
B_SW	B	2 ,1	1.15	0.83	2.96	2.13			

(h)Rigid frame at endwall									

Reaction values shown are unfactored. Maximum load combination factors are:

Wind : 0.60
Seismic: 0.70

```
=====
17-B-21308          Additional Reactions Report:          6/20/19    4:57am
=====
```

Rigid Frame Column Reactions(k)

Frame Line	Col Line	----Dead---		Collateral		----Live---		Wind_Left1		Wind_Right1	
		Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert
1*	B	0.0	0.5	0.2	1.0	0.2	1.7	-1.2	-2.2	0.7	-1.5
1*	A	0.0	0.6	-0.2	1.0	-0.2	3.0	-1.3	-1.1	1.1	-4.9
2	B	0.1	0.7	0.4	2.2	0.5	3.4	-2.1	-4.2	1.7	-2.6
2	A	-0.1	1.0	-0.4	2.2	-0.5	5.5	-2.3	-2.0	2.2	-8.6

Frame Line	Col Line	Wind_Left2		Wind_Right2		Wind_Long1		Wind_Long2		-Seis_Left-	
		Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert
1*	B	-1.4	-1.4	0.5	-0.8	0.2	-3.2	0.2	-3.2	-0.7	-1.1
1*	A	-1.1	-0.3	1.3	-4.1	-0.3	-2.9	-0.3	-2.9	-1.1	1.1
2	B	-2.6	-2.4	1.0	-0.9	0.6	-5.2	0.6	-5.2	-1.4	-2.2
2	A	-1.8	-0.2	2.9	-6.8	-0.8	-4.9	-0.8	-4.9	-2.1	2.2

Frame Line	Col Line	-Seis_Right		-Seis_Long-	
		Horz	Vert	Horz	Vert
1*	B	0.7	1.1	0.0	-2.8
1*	A	1.1	-1.1	0.0	-1.6
2	B	1.4	2.2	0.0	-2.8
2	A	2.1	-2.2	0.0	-1.6

1* Frame Lines:1 3

Endwall Column Reactions(k)

```
=====
17-B-21308          Seismic Design Report:          6/20/19    4:57am
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```

Building Data

```
-----
Code           =IBC  15
Length         = 34.00
Width          = 20.67
Left Eave Height = 13.00
Right Eave Height = 11.28
```

Seismic Formula

```
-----
Base Shear, V   = 0.667*Ie*Fa*Ss*W/R

Vmin            = 0.044*Sds*Ie*W
Vmax            = Sd1*Ie*W/(T*R)

T(Moment_Frame) = 0.206
Shear Force, E   = Rho*V
(Rigid frame, endwall frame, wind bent, wind column & base reactions)

T(Braced_Frame) = 0.130
Shear Force, Em  = Omega*V
(Wall diagonal bracing, splice at rigid frame & wind bent knee)
```


Note: Applied load is seismic force multiplied by load combination

Fa*Ss = 1.500
Zone/Design Category= D
Ie = 1.000
S1 = 0.600
Sd1 = 0.600
Sds = 1.000

Seismic Dead Load, W

Frame Dead = 2.00 (psf)
Roof Dead = 2.20 (psf)
Collateral = 10.00 (psf)
Roof Total = 14.20 (psf) , Weight= 9.98 (k)
L_EW Dead = 4.40 (psf) , Weight= 0.55 (k)
F_SW Dead = 4.40 (psf) , Weight= 0.84 (k)
R_EW Dead = 4.40 (psf) , Weight= 0.55 (k)
B_SW Dead = 18.40 (psf) , Weight= 4.07 (k)
F_SW Extend Total = 2.20 (psf) , Weight= 0.37 (k)

Total = 16.37 (k)

Seismic Forces

Roof Bracing

R = 3.25, Rho= 1.30
Cs = 0.3078
W = 11.08 (k)
Force, V = 3.41 (k)
Force, E = 4.43 (k)

Sidewall Bracing

Front R = 3.25, Rho= 1.30, Omega= 2.00
Cs = 0.3078
W = 6.74 (k)
Force, V = 2.08 (k)
Force, Em = 4.15 (k)
Force, E = 2.70 (k)
Back R = 3.25, Rho= 1.30, Omega= 2.00
Cs = 0.3078
W = 9.62 (k)
Force, V = 2.96 (k)
Force, Em = 5.92 (k)
Force, E = 3.85 (k)

Rigid Frames

R = 3.50, Rho= 1.30
Cs = 0.2859
Frame 1 W = 4.68 (k)
Force, V = 1.34 (k)
Force, E = 1.74 (k)
Frame 2 W = 9.58 (k)
Force, V = 2.74 (k)
Force, E = 3.56 (k)

End Plates

Frame R = 3.50, Rho= 1.00, Omega= 2.50

Total Base Shear

Longitudinal
Force, V = 5.04 (k)
Transverse
Force, V = 5.42 (k)