

**COMPLETE THIS FORM WHEN DROPPING OFF ANY
CORRESPONDENCE AND/OR PLANS TO THE HOWARD COUNTY
DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS COUNTER:**

Date: 3/13/2020

To: Sydonia Garrett
(Person's Name and Division)

From: Randy Sanders Warner Construction (240) 815-0326
(Your Name, Company Name and Telephone Number)

Subject: Project name Alpha Ridge Landfill - Recycle Storage Shed
Project site address 2350 Marriottsville Rd, Marriottsville MD
Permit # BP19003681 SDP # _____
Other information pertinent to this project _____

- Please check the attachments below that you are submitting with this transmittal:
- Letter of response to address plan review comment letter
 - Revised plans and/or revised details: When submitting for a complete re-review, **duplicate sets shall be submitted.**
 - Letter Summarizing Changes
 - Energy conservation calculations
 - Copies of _____ (be specific).
 - Health Department Request DPZ/ DED Request Applicant's Request
 - Two sets of single family dwelling model plans to be placed on permanent file: Model name and/or # _____
 - Other _____

Contact Person Information: (Required)

Randy Sanders Telephone No: 240-815-0326
Please Print Name
E-Mail Address: rsanders@warner-construction.com

PLEASE ASSURE ALL DOCUMENTS AND/OR REVISIONS ARE APPROPRIATELY SIGNED AND SEALED, IF NECESSARY, BY A LICENSED ARCHITECT OR ENGINEER. PLEASE BE ADVISED THAT INSUFFICIENT INFORMATION MAY RESULT IN THE DELAY OF REVIEW BY THE PLANS EXAMINER. THE DEPARTMENT

COMMERCIAL REVISIONS # 4
Project Name: Alpha Ridge
Permit # B19-3081 Date: 3/13/20

CT YOU IF THERE IS A PROBLEM. IN ADDITION, REVIEW DIVISION AND ALL OTHER REQUIRED READY FOR ISSUANCE, THE PERMIT DIVISION FOR PERMIT PICK UP. ALL PERMIT STATUS ON AT 410-313-2455. CODE RELATED QUESTIONS TO THE PLAN REVIEW DIVISION AT 410-313-2436. FOR ANY PLAN SUBMITTALS TO BE REVIEWED.

Please date, initial, and advise project coordinator when last review is complete.

ASA/SLG _____ DEC _____
APH _____ JOSE _____
DH _____ JASON _____

Ho Co Proj

DELP 2020 MAR 18 PM 12:16

copy to HEALTH

Bd19003681

Version 2019.02.19 (2/25/19)



BETTER SOLUTIONS. BETTER BUILDINGS.

124 Kirby Dr
Portland, TN 37148
Ph: (615) 325-4165
Fax: (800) 231-3460

Page: 1 of 11
Date: 10/15/2019

GENERAL INFORMATION FOR COLUMN BASE REACTIONS

FOR REVIEW FOR CONSTRUCTION

Project Name: ALPHA RIDGE - STORAGE SHED
KBS Project Number: K19U0659
Customer: MTD ERECTORS, INC.
NBG Engineer: ADAM HASLEBACHER

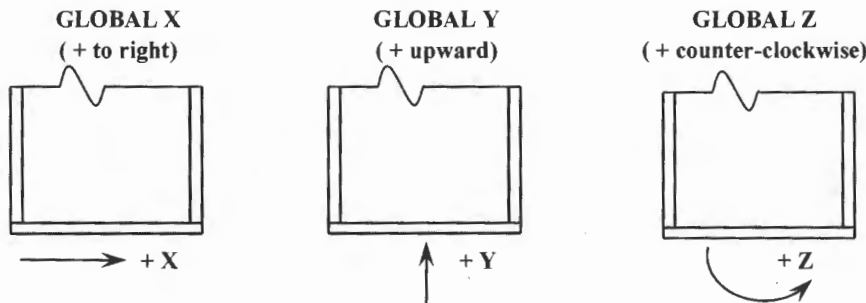


Column base reactions are included in this packet for a building designed by Kirby Building Systems. These reactions result from frame analysis done by the KBS Engineer for this specific job. They reflect all loading to which the building may be subject, per the appropriate building code and loading information provided to Kirby Building Systems at the date of design. Reaction packets marked "FOR REVIEW" are subject to change and are usually provided at the request of the customer, although the KBS Engineer believes he/she is working with undefined, incomplete or assumed information.

Reactions are provided by load case in order to aid the foundation engineer in determining the appropriate load factors and combinations to be used with either Working Stress or Ultimate Strength design methods. Wind load cases are given for each primary wind direction.

For ASCE7-10 based building codes, the unfactored load case reactions due to wind are generated using the ultimate design wind speed (Vult).

Sign conventions for computer generated frame reactions are as follows and should be taken in the sense of the frame sketch given on the reactions sheets.



Anchor bolt diameter, grade, location and projection is provided on the Anchor Bolt Plan. Anchor bolt embedment lengths and types are not provided by Kirby Building Systems. This information is closely related to the complete foundation design which should be done by a Registered Professional Engineer familiar with the local site conditions and construction practices.

Professional Certification: I Harold W. Gregory, hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 20695, Expiration Date: 1/6/2021.


RECEIVED
MAR 13 2020

LICENSES & PERMITS
DIVISION




Excellence from the ground up



 KIRBY BUILDING SYSTEMS <small>INCORPORATED</small> BETTER SOLUTIONS. BETTER BUILDINGS.	Job No.	K19U0659A	Designer	AH
	Customer	ALPHA RIDGE - STORAGE SHED	Checker	
	Address	2350 MARRIOTTSVILLE RD	Seal Engr.	
		COLUMBIA, MD 21046	Revision #	

This design extends only for the loads specified on Kirby's purchase order as applied to the structural components of the building designed and fabricated by Kirby and erected in accordance with Kirby's instructions.

Note: Kirby's Engineer is not acting as the Engineer of Record for this construction project and is not responsible for the observation or inspection of the building system during or after erection.

Revision: : revised reactions for building code, live load, and length changes (pages 4 - 11)

AH 12/19/2019

CK: WG/12-19-19

Standard Load Nomenclature:

Note: Not all load conditions are applicable to all buildings.

DL - DEAD LOAD	WL1 - WIND LEFT W/ INT. PRESS.
LL - LIVE LOAD	WR1 - WIND RIGHT W/ INT. PRESS.
CL - COLLATERAL LOAD	WL2 - WIND LEFT W/ INT. SUCT.
SL - SNOW LOAD	WR2 - WIND RIGHT W/ INT. SUCT.
DRIPT - SNOW DRIFT	LW1/LNWIND1 = LONG. WIND W/ INT. PRESS.
SLIDE - SLIDING SNOW	LW2/LNWIND2 = LONG. WIND W/ INT. SUCT.
FxPAT_LLx - PATTERN LIVE	LWIND1_L2E - LONG. WIND W/ INT. PRESS. + ZONE 2E
FxPAT_SLx - PATTERN SNOW	LWIND1_R2E - LONG. WIND W/ INT. PRESS. + ZONE 2E
FxUNB_SL_L - UNBALANCED SNOW LEFT	LWIND2_L3E - LONG. WIND W/ INT. SUCT. + ZONE 3E
FxUNB_SL_R - UNBALANCED SNOW RIGHT	LWIND2_R3E - LONG. WIND W/ INT. SUCT. + ZONE 3E
FxCRANEA1 - MAX LEFT W/ THRUST RIGHT	WINDP/WP - WIND PRESS. W/ INT SUCT. ENDWALL & SC
FxCRANEA2 - MAX LEFT W/ THRUST LEFT	WINDS/WS - WIND SUCT. W/ INT PRESS. ENDWALL & SC
FxCRANEA3 - MAX RIGHT W/ THRUST RIGHT	SEISMIC LEFT - SEISMIC LEFT
FxCRANEA4 - MAX RIGHT W/ THRUST LEFT	SEISMIC RIGHT - SEISMIC RIGHT



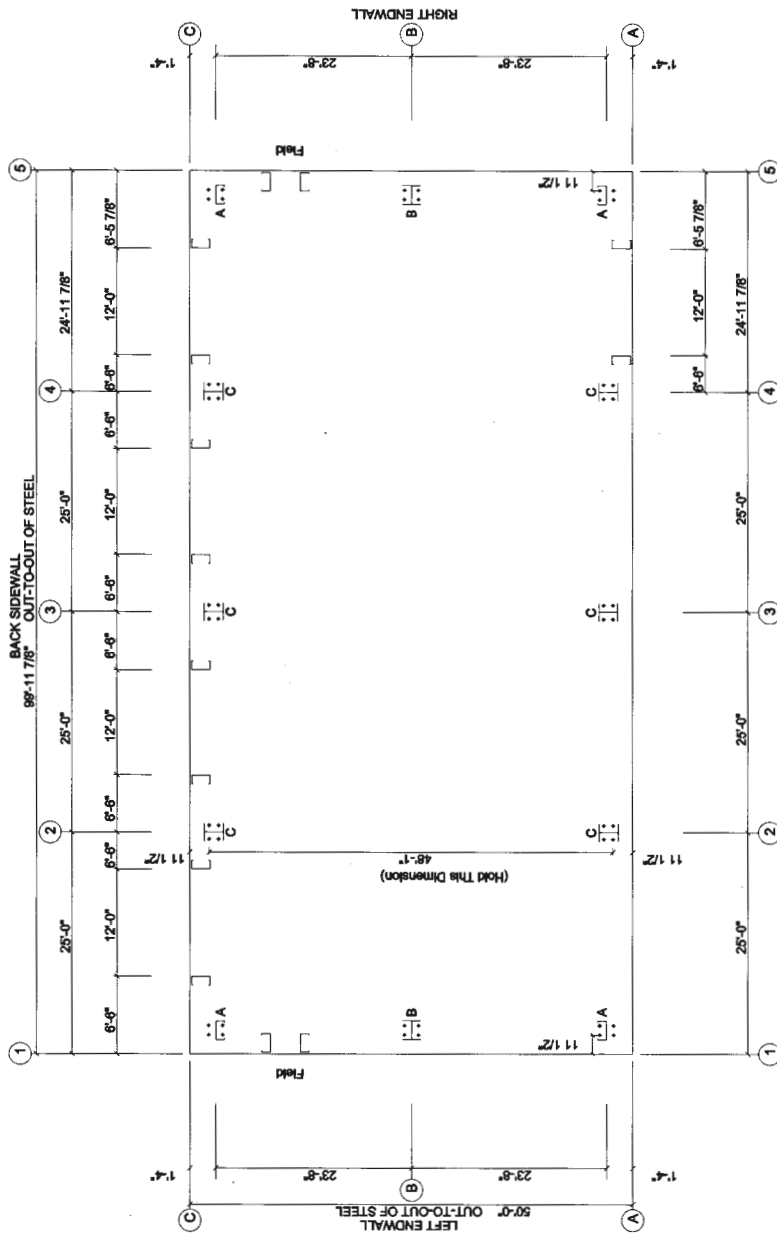
KIRBY
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BETTER SOLUTIONS. BETTER BUILDINGS

Job No.	K19U0659A	Designer	AH
Customer	ALPHA RIDGE - STORAGE SHED	Checker	
Address	2350 MARRIOTTSVILLE RD	Seal Engr.	
	COLUMBIA, MD 21046	Revision #	

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ANCHOR BOLT PLAN
NOTE: All Base Plates @ 100'-0" (U.N.)



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Job No.	K19U0659_R1	Designer	AH
Customer	ALPHA RIDGE - STORAGE SHED	Checker	
Address	2350 MARRIOTTSVILLE RD	Seal Engr.	
	COLUMBIA, MD 21046	Revision #	



KIRBY BUILDING SYSTEMS
124 KIRBY DR.
PORTLAND, TN 37148

REACTIONS, ANCHOR BOLTS, & BASE PLATES
FOR
MTD ERECTORS, INC.
PO BOX 47
THURMONT, MD 21788

ALPHA RIDGE - STORAGE SHED
2350 MARRIOTTSVILLE RD
COLUMBIA, MD 21046
K19U0659_R1

BUILDING LAYOUT

Width (ft) = 50.0
Length (ft) = 100.0
Eave Height (ft) = 18.0/ 18.0
Roof Slope (rise/12) = 4.00/ 4.00

BUILDING LOADS

Roof Dead Load (psf) = 2.5
Wall Dead Load
Left Endwall (psf) = 2.0
Right Endwall (psf) = 2.0
Front Sidewall (psf) = 2.0
Back Sidewall (psf) = 2.0
Live Load (psf) = 40.0
Collateral Load (psf) = 3.0
Snow Load (psf) = 23.6 (includes a minimum snow load of 30psf)
Wind Speed (mph) = 115.0
Wind Code = IBC 18
Closed/Open = C
Exposure = C
Internal Wind Coeff = -0.18, +0.18
Importance - Wind = 1.00
Importance - Seismic = 1.00
Seismic Design Category = B
Seismic Coeff (Fa*Ss) = 0.26

Designer : AH
Detailer : TB

12/19/19



Job No.	K19U0659_R1	Designer	AH
Customer	ALPHA RIDGE - STORAGE SHED	Checker	
Address	2350 MARRIOTTSTVILLE RD	Seal Engr.	
	COLUMBIA, MD 21046	Revision #	

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K19U0659_R1 Reactions, Anchor Bolts, & Base Plates:12/19/19 11:55am

-----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	C	6	1.4	-2.2	7	-1.2	-2.2	4	0.750	8.00	8.50	0.250
		1	0.0	6.0	6	1.4	-2.2					
1	B	8	6.3	-6.3	9	-5.7	-6.3	4	0.750	6.00	8.69	0.250
		1	0.0	19.3	8	6.3	-6.3					
1	A	10	1.4	-3.6	11	-1.2	-3.6	4	0.750	8.00	8.50	0.250
		1	0.0	6.0	10	1.4	-3.6					
5	A	8	1.4	-3.6	9	-1.2	-3.6	4	0.750	8.00	8.50	0.250
		1	0.0	6.0	8	1.4	-3.6					
5	B	10	6.3	-6.3	11	-5.7	-6.3	4	0.750	6.00	8.69	0.250
		1	0.0	19.3	10	6.3	-6.3					
5	C	12	1.4	-2.2	13	-1.2	-2.2	4	0.750	8.00	8.50	0.250
		1	0.0	6.0	12	1.4	-2.2					
2*	C	1	12.2	29.6	2	-4.9	-3.8	4	0.750	6.00	10.25	0.375
					3	0.9	-8.0					
2*	A	4	4.9	-3.8	1	-12.2	29.6	4	0.750	6.00	10.25	0.375
		1	-12.2	29.6	5	-0.9	-7.9					

2* Frame Lines:2 3 4

LOAD COMBINATIONS:

Id	Combination
1	Dead+Collateral+Live
2	0.6Dead+0.6Wind_Left2
3	0.6Dead+0.6Wind_Long1L
4	0.6Dead+0.6Wind_Right2
5	0.6Dead+0.6Wind_Long2L
6	0.6Dead+0.6Wind_Suction+0.6Wind_Long1L
7	0.6Dead+0.6Wind_Pressure+0.6Wind_Long1L
8	0.6Dead+0.6Wind_Left1+0.6Wind_Suction
9	0.6Dead+0.6Wind_Left1+0.6Wind_Pressure
10	0.6Dead+0.6Wind_Right1+0.6Wind_Suction
11	0.6Dead+0.6Wind_Right1+0.6Wind_Pressure
12	0.6Dead+0.6Wind_Suction+0.6Wind_Long2L
13	0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L



Job No.	K19U0659_R1	Designer	AH
Customer	ALPHA RIDGE - STORAGE SHED	Checker	
Address	2350 MARRIOTTSVILLE RD	Seal Engr.	
	COLUMBIA, MD 21046	Revision #	

=====
 K19U0659_R1 Bracing Reactions Report: 12/19/19 11:55am
 =====

BUILDING BRACING REACTIONS:

---Wall--		Col		-----Reactions(k)-----				Panel_Shear(lb/ft)		Notes
Loc	Line	Line	Horz	Vert	Horz	Vert	Wind	Seismic		
L_EW	1	B ,A	2.88	2.93	0.30	0.30				
F_SW	A	2 ,3	5.48	3.50	1.13	0.72				
R_EW	5	A ,B	2.88	2.93	0.30	0.30				
B_SW	C	3 ,2	2.74	3.64	0.56	0.75			(b)	

 (b)Wind bent in bay, base above finish floor

Reaction values shown are unfactored. Maximum load combination factors are:
 Wind : 0.60
 Seismic: 0.70



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K19U0659_R1 Additional Reactions Report: 12/19/19 11:55am

Rigid Frame Column Reactions(k)

Frame Line	Col Line	---Dead---		Collateral		----Live---		----Snow---		Wind_Left1	
		Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert
2*	C	0.9	2.6	0.8	2.0	10.5	25.0	6.2	14.8	-8.9	-15.0
2*	A	-0.9	2.6	-0.8	2.0	-10.5	25.0	-6.2	14.8	-1.0	-9.9
Frame Line	Col Line	Wind_Right1		Wind_Left2		Wind_Right2		Wind_Long1		Wind_Long2	
		Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert
2*	C	1.0	-9.9	-9.1	-9.0	0.8	-4.0	0.7	-12.3	-1.1	-11.1
2*	A	8.9	-15.0	-0.8	-4.0	9.1	-9.0	1.1	-11.1	-0.7	-12.3
Frame Line	Col Line	-Seis_Left-		-Seis_Right		-MIN_SNOW-		F1UNB_SL_L		F1UNB_SL_R	
		Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert
2*	C	-0.3	-0.2	0.3	0.2	7.8	18.7	5.0	14.0	5.1	8.4
2*	A	-0.3	0.2	0.3	-0.2	-7.8	18.7	-5.1	8.4	-5.0	14.0

2* Frame Lines:2 3 4



Job No.	K19U0659_R1	Designer	AH
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Endwall Column Reactions(k)

Frame Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert
1	C	0.7	0.4	5.0	2.9	-3.7	-3.4	-2.0	-1.7
1	B	2.3	1.3	15.8	9.3	-9.8	-8.8	-7.0	-6.1
1	A	0.7	0.4	5.0	2.9	-2.4	-3.7	-0.8	-2.0

Frame Line	Col Line	Wind Press Horz	Wind Suct Horz	Wind Long1 Vert	Wind Long2 Vert	Seismic Left Vert	--MIN_SNOW-- Horz	Seismic Right Vert
1	C	-2.1	2.3	-4.3	-2.1	0.03	0.0	3.7
1	B	-9.5	10.4	-8.6	-9.0	-0.1	0.0	11.9
1	A	-2.1	2.3	-2.1	-3.9	0.1	0.0	3.7


Frame Line	Col Line	-E1UNB_SL_L- Horz	-E1UNB_SL_L- Vert	-E1UNB_SL_R- Horz	-E1UNB_SL_R- Vert
1	C	0.0	3.4	0.0	0.5
1	B	0.0	7.6	0.0	7.6
1	A	0.0	0.5	0.0	3.4

Frame Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert
5	A	0.7	0.4	5.0	2.9	-3.7	-2.4	-2.0	-0.8
5	B	2.3	1.3	15.8	9.3	-8.8	-9.8	-6.1	-7.0
5	C	0.7	0.4	5.0	2.9	-3.4	-3.7	-1.7	-2.0

Frame Line	Col Line	Wind Press Horz	Wind Suct Horz	Wind Long1 Vert	Wind Long2 Vert	Seismic Right Vert	--MIN_SNOW-- Horz	Seismic Left Vert
5	A	-2.1	2.3	-3.9	-2.1	0.1	0.0	3.7
5	B	-9.5	10.4	-9.0	-8.6	-0.1	0.0	11.8
5	C	-2.1	2.3	-2.1	-4.3	0.03	0.0	3.7

Frame Line	Col Line	-E2UNB_SL_L- Horz	-E2UNB_SL_L- Vert	-E2UNB_SL_R- Horz	-E2UNB_SL_R- Vert
5	A	0.0	3.4	0.0	0.5
5	B	0.0	7.6	0.0	7.6
5	C	0.0	0.5	0.0	3.4



	Job No.	K19U0659_R1	Designer	AH
	Customer	ALPHA RIDGE - STORAGE SHED	Checker	
	Address	2350 MARRIOTTSVILLE RD	Seal Engr.	
		COLUMBIA, MD 21046	Revision #	

K19U0659_R1

Seismic Design Report:

12/19/19

11:55am

Building Data

Code = IBC 18
 Length = 99.99
 Width = 50.00
 Left Eave Height = 18.00
 Right Eave Height = 18.00

Seismic Formula

Base Shear, V = $0.667 \cdot I_e \cdot F_a \cdot S_s \cdot W/R$

Vmin = $0.044 \cdot S_d \cdot I_e \cdot W$

Vmax = $S_d \cdot I_e \cdot W / (T \cdot R)$

T(Moment_Frame) = 0.334

Shear Force, E = $\rho \cdot V$

(Rigid frame, endwall frame, wind bent, wind column & base reactions)

T(Braced_Frame) = 0.204

Shear Force, Em = $\Omega \cdot V$

(Wall diagonal bracing, splice at rigid frame & wind bent knee)

Note: Applied load is seismic force multiplied by load combination

Fa*Ss = 0.256

Zone/Design Category = B

Ie = 1.000

S1 = 0.050

Sd1 = 0.080

Sds = 0.171

Seismic Dead Load, W

Frame Dead = 2.00 (psf)
 Roof Dead = 2.50 (psf)
 Collateral = 3.00 (psf)
 Roof Total = 7.50 (psf) , Weight= 37.50 (k)
 L_EW Dead = 2.00 (psf) , Weight= 1.11 (k)
 F_SW Dead = 2.00 (psf) , Weight= 1.80 (k)
 R_EW Dead = 2.00 (psf) , Weight= 1.11 (k)
 B_SW Dead = 2.00 (psf) , Weight= 1.80 (k)

 Total = 43.31 (k)



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Seismic Forces

Roof Bracing

R = 3.00, Rho= 1.00
 Cs = 0.0569
 W = 39.71 (k)
 Force, V = 2.26 (k)
 Force, E = 2.26 (k)

Sidewall Bracing

Front
 R = 3.00, Rho= 1.00, Omega= 1.00
 Cs = 0.0569
 W = 19.86 (k)
 Force, V = 1.13 (k)
 Force, Em = 1.13 (k)
 Force, E = 1.13 (k)

Wind Bents

Back
 R = 3.00, Rho= 1.00
 Cs = 0.0569
 W = 19.86 (k)
 Force, V = 1.13 (k)
 Force, E = 1.13 (k)

Endwall Bracing

Left
 R = 3.00, Rho= 1.00, Omega= 1.00
 Cs = 0.0569
 W = 5.27 (k)
 Force, V = 0.30 (k)
 Force, Em = 0.30 (k)
 Force, E = 0.30 (k)

Right
 R = 3.00, Rho= 1.00, Omega= 1.00
 Cs = 0.0569
 W = 5.27 (k)
 Force, V = 0.30 (k)
 Force, Em = 0.30 (k)
 Force, E = 0.30 (k)

Rigid Frames

R = 3.00, Rho= 1.00
 Cs = 0.0569
Frame 1
 W = 10.19 (k)
 Force, V = 0.58 (k)
 Force, E = 0.58 (k)

End Plates

Frame R = 3.00, Rho= 1.00, Omega= 1.00
Wind Bent R = 3.00, Rho= 1.00, Omega= 1.00

Total Base Shear

Longitudinal
 Force, V = 2.26 (k)

Transverse
 Force, V = 2.34 (k)