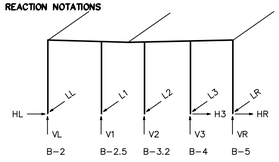
FRAME DESCRIPTION: Endwall EWB
USER NAME: bdcloar JOB NAME: 26518A DATE: 4/20/16 FILE: REW3BLDG1 PAGE: EW-1
PATH: R:\Jobs\Active\ENG\15-B-26518\ver02-bdcloar\Bldg-A\run04\
SUPPORT REACTIONS FOR EACH LOAD GROUP
NOTE: All reactions are in kips and kip-ft.
TIME: 09:36:05

REACTION NOTATIONS



Grid Line "B"
Building "A"

LOAD GROUP REACTION TABLE

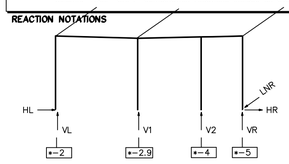
COLUMN	B-2			B-5			B-2.5			B-3.2			B-4		
LOAD GROUP	HL	VL	LL	HR	VR	LR	H1	V1	L1	H2	V2	L2	H3	V3	L3
D	0.1	6.7	0.	0.0	2.5	0.	0.	14.1	0.0	0.	4.5	0.0	0.	6.4	0.0
C	0.1	9.8	0.	−0.1	4.9	0.	0.	20.1	0.0	0.	10.5	0.0	0.	13.5	0.0
L	0.4	28.7	0.	−0.2	14.6	0.	0.	69.2	0.1	0.	30.6	−0.1	0.	40.6	0.0
S	0.3	25.1	0.	−0.1	6.7	0.	0.	44.7	0.0	0.	12.4	0.0	0.	19.2	0.0
SBAL	0.1	8.8	0.	−0.1	6.8	0.	0.	20.6	0.0	0.	15.4	0.0	0.	18.4	0.0
W+	−0.4	−32.1	2.0	0.0	−10.4	7.1	0.	−10.8	4.7	0.	2.8	4.4	0.	−7.8	4.3
W−	−0.4	−32.1	−2.3	0.0	5.0	0.	0.	−10.8	−5.2	0.	2.8	−4.9	0.	−7.8	−4.8
WR	−0.4	−32.1	0.	4.5	−10.4	0.	0.	−10.8	0.0	0.	2.8	0.0	0.	−0.2	0.0
WL	−0.4	−32.1	0.	0.0	4.7	0.	0.	−10.8	0.0	0.	2.8	0.0	−4.4	−15.3	0.0
DR	0.0	0.1	0.	0.	0.0	0.	0.	3.0	0.0	0.	0.5	0.0	0.	−0.1	0.
ER	0.	0.	0.	3.6	−6.1	0.	0.	0.	0.	0.	0.	0.	0.	6.1	0.
EL	0.	0.	0.	0.	6.0	0.	0.	0.	0.	0.	0.	0.	−3.6	−6.0	0.
E+	0.	0.	0.	0.	−17.4	16.2	0.	0.	0.	0.	0.	0.	0.	0.	0.
E−	0.	0.	0.	0.	17.7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

LOAD GROUP DESCRIPTION

- D : DEAD LOAD
- C : COLLATERAL LOAD
- L : LIVE LOAD
- S : DESIGN SNOW LOAD
- SBAL : BALANCED ROOF SNOW
- W+ : WIND LOAD AS AN INWARD ACTING PRESSURE
- W− : WIND LOAD AS AN OUTWARD ACTING SUCTION
- WR : WIND FORCE FROM THE RIGHT
- WL : WIND FORCE FROM THE LEFT
- DR : DRIFT SNOW
- ER : EARTHQUAKE FORCE FROM RIGHT
- EL : EARTHQUAKE FORCE FROM LEFT
- E+ : EARTHQUAKE FORCE ACTING INWARD
- E− : EARTHQUAKE FORCE ACTING OUTWARD

FRAME ID #1 ms2 81.792/32.5/25.458 20./
USER NAME: bdcloar JOB NAME: 26518A DATE: 4/20/16 FILE: frame_c.fra PAGE: 1-3
SUPPORT REACTIONS FOR EACH LOAD GROUP
•LOCATION: Gridlines: C
NOTES: (1) All reactions are in kips and kip-ft.
(2) The seismic overstrength factor (Omega) is not included in the "RBDWEQ" and "RBUPEQ" Load Group reactions.
Seismic "BASE-ONLY" combination reactions include an overstrength factor of: 2.500
TIME: 12:37:42

REACTION NOTATIONS



Grid Line "C"
Building "A"

LOAD GROUP REACTION TABLE • = C

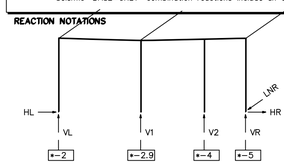
COLUMN	•−2			•−5			•−2.9			•−4		
LOAD GROUP	HL	VL	LNL	HR	VR	LNR	H1	V1	LN1	H2	V2	LN2
DL	0.5	11.2	0.0	−0.6	5.9	0.0	0.0	18.3	0.0	0.0	9.0	0.0
COLL	1.3	20.2	0.0	−1.3	10.9	0.0	−0.0	37.6	0.0	−0.0	18.9	0.0
PSL1	1.7	24.5	0.0	−1.7	5.2	0.0	0.0	31.5	0.0	−0.0	−10.6	0.0
PSL2	−0.3	−1.8	0.0	0.3	−4.3	0.0	−0.0	20.5	0.0	0.0	24.0	0.0
PSL3	0.4	0.5	0.0	−0.4	14.0	0.0	−0.0	−1.3	0.0	0.0	13.3	0.0
SNOW	1.8	39.6	0.0	−2.0	15.6	0.0	0.0	55.5	0.0	−0.0	25.1	0.0
LL	0.6	15.5	0.0	−0.7	5.7	0.0	0.0	20.4	0.0	−0.0	8.9	0.0
PL	3.2	41.8	0.0	−3.2	26.8	0.0	0.0	91.5	0.0	−0.0	48.1	0.0
H1	0.0	0.3	0.0	−0.0	0.0	0.0	0.0	−0.4	0.0	−0.0	0.1	0.0
H2	0.0	0.3	0.0	−0.0	0.0	0.0	0.0	−0.3	0.0	−0.0	−0.1	0.0
H3	0.0	0.2	0.0	−0.0	0.1	0.0	0.0	0.1	0.0	−0.0	−0.4	0.0
H4	0.0	0.2	0.0	−0.0	0.1	0.0	0.0	0.1	0.0	−0.0	−0.4	0.0
RBDWEQ	0.0	0.1	0.0	−0.0	17.6	0.0	−0.0	−0.2	0.0	0.0	−0.1	0.0
EQ	−8.2	−9.3	0.0	−10.2	22.3	0.0	0.0	15.5	0.0	−0.0	−28.3	0.0
RBUPEQ	0.1	0.1	0.0	−0.1	−17.8	−16.2	−0.0	−0.1	0.0	0.0	0.1	0.0
WL1	−4.2	−20.1	0.0	−4.8	1.6	0.0	0.0	−11.4	0.0	−0.0	−9.2	0.0
WL2	−8.3	−13.6	0.0	−5.2	8.5	0.0	0.0	−5.8	0.0	−0.0	−11.8	0.0
WL3	6.6	−10.8	0.0	6.5	−14.1	0.0	−0.0	−18.9	0.0	0.0	5.5	0.0
WL4	2.5	−4.3	0.0	6.1	−7.2	0.0	−0.0	−13.3	0.0	0.0	2.9	0.0
LWL1	4.5	−20.1	0.0	−0.4	−11.0	0.0	−0.0	−17.7	0.0	0.0	0.9	0.0

LOAD GROUP DESCRIPTION

- DL : Roof Dead Load
- COLL : Roof Collateral Load
- PSL1 : Pattern Snow Load [PSLxx]
- PSL2 : Pattern Snow Load [PSLxx]
- PSL3 : Pattern Snow Load [PSLxx]
- SNOW : Roof Snow Load
- LL : Roof Live Load
- PL : User Entered Load
- H1 : User Entered Load
- H2 : User Entered Load
- H3 : User Entered Load
- H4 : User Entered Load
- RBDWEQ : Downward Acting Rod Brace Load from Long. Seismic
- EQ : Lateral Seismic Load [parallel to plane of frame]
- RBUPEQ : Upward Acting Rod Brace Load from Longit. Seismic
- WL1 : Lateral Primary Wind Load
- WL2 : Lateral Primary Wind Load
- WL3 : Lateral Primary Wind Load
- WL4 : Lateral Primary Wind Load
- LWL1 : Longitudinal Primary Wind Load

FRAME ID #1 ms2 81.792/32.5/25.458 20./
USER NAME: bdcloar JOB NAME: 26518A DATE: 4/20/16 FILE: frame_c.fra PAGE: 1-4
SUPPORT REACTIONS FOR EACH LOAD GROUP
•LOCATION: Gridlines: C
NOTES: (1) All reactions are in kips and kip-ft.
(2) The seismic overstrength factor (Omega) is not included in the "RBDWEQ" and "RBUPEQ" Load Group reactions.
Seismic "BASE-ONLY" combination reactions include an overstrength factor of: 2.500
TIME: 12:37:42

REACTION NOTATIONS



Grid Line "C"
Building "A"

LOAD GROUP REACTION TABLE • = C

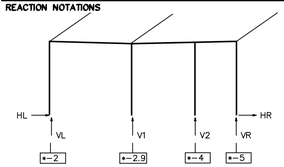
COLUMN	•−2			•−5			•−2.9			•−4		
LOAD GROUP	HL	VL	LNL	HR	VR	LNR	H1	V1	LN1	H2	V2	LN2
RBUPLW	0.0	0.0	0.0	−0.0	−7.8	−7.1	−0.0	−0.0	0.0	0.0	0.0	0.0
LWL2	4.5	−18.2	0.0	−0.5	−12.1	0.0	−0.0	−16.9	0.0	0.0	−0.4	0.0
LWL3	4.9	−8.9	0.0	−0.8	−8.6	0.0	−0.0	−7.9	0.0	0.0	1.8	0.0
LWL4	4.9	−8.1	0.0	−0.9	−9.1	0.0	−0.0	−7.6	0.0	0.0	1.2	0.0
SBAL	1.5	32.0	0.0	−1.7	14.8	0.0	0.0	50.5	0.0	−0.0	26.9	0.0
DSNW	0.2	17.7	0.0	−0.4	1.1	0.0	0.0	5.9	0.0	−0.0	−2.4	0.0
RBDWLW	0.0	0.0	0.0	−0.0	7.7	0.0	−0.0	−0.1	0.0	0.0	−0.0	0.0

LOAD GROUP DESCRIPTION

- RBUPLW : Upward Acting Rod Brace Load from Longitud. Wind
- LWL2 : Longitudinal Primary Wind Load
- LWL3 : Longitudinal Primary Wind Load
- LWL4 : Longitudinal Primary Wind Load
- SBAL : Code Calculated Balanced Roof Snow Load
- DSNW : Drifting Snow
- RBDWLW : Downward Acting Rod Brace Load from Longit. Wind

FRAME ID #2 ms2 81.792/32.5/22.333 20./
USER NAME: bdcloar JOB NAME: 26518A DATE: 4/20/16 FILE: frame_d.fra PAGE: 2-3
SUPPORT REACTIONS FOR EACH LOAD GROUP
•LOCATION: Gridlines: D
NOTE: All reactions are in kips and kip-ft.
TIME: 12:37:44

REACTION NOTATIONS



Grid Line "D"
Building "A"

LOAD GROUP REACTION TABLE • = D

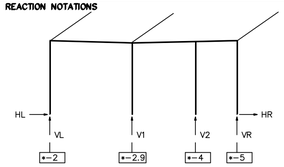
COLUMN	•−2			•−5			•−2.9			•−4		
LOAD GROUP	HL	VL	LNL	HR	VR	LNR	H1	V1	LN1	H2	V2	LN2
DL	0.3	6.6	0.0	−0.3	3.9	0.0	0.0	13.1	0.0	0.0	7.9	0.0
COLL	0.7	11.4	0.0	−0.8	6.2	0.0	−0.0	21.0	0.0	−0.0	11.3	0.0
PSL1	1.5	21.5	0.0	−1.5	4.6	0.0	0.0	27.6	0.0	−0.0	−9.3	0.0
PSL2	−0.3	−1.6	0.0	0.3	−3.8	0.0	−0.0	18.0	0.0	0.0	21.0	0.0
PSL3	0.3	0.4	0.0	−0.3	12.3	0.0	−0.0	−1.2	0.0	0.0	11.7	0.0
SNOW	1.3	28.1	0.0	−1.5	13.0	0.0	0.0	44.3	0.0	−0.0	23.6	0.0
LL	0.7	12.7	0.0	−0.8	5.4	0.0	0.0	19.3	0.0	−0.0	7.0	0.0
PL	1.4	18.4	0.0	−1.4	12.3	0.0	0.0	40.1	0.0	−0.0	25.1	0.0
H1	0.0	0.7	0.0	−0.0	0.0	0.0	0.0	−0.8	0.0	−0.0	0.1	0.0
H2	0.0	0.6	0.0	−0.0	0.1	0.0	0.0	−0.6	0.0	−0.0	−0.1	0.0
H3	0.0	0.3	0.0	−0.0	0.3	0.0	0.0	0.2	0.0	−0.0	−0.8	0.0
H4	0.0	0.3	0.0	−0.0	0.3	0.0	0.0	0.2	0.0	−0.0	−0.8	0.0
RBDWEQ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EQ	−5.5	−6.1	0.0	−6.7	14.7	0.0	0.0	10.1	0.0	−0.0	−18.6	0.0
RBUPEQ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WL1	−3.5	−11.7	0.0	−4.4	2.1	0.0	0.0	−6.1	0.0	−0.0	−9.4	0.0
WL2	−7.1	−6.0	0.0	−4.7	8.1	0.0	0.0	−1.2	0.0	−0.0	−11.7	0.0
WL3	6.0	−3.5	0.0	5.5	−11.7	0.0	−0.0	−12.7	0.0	0.0	3.4	0.0
WL4	2.4	2.2	0.0	5.2	−5.7	0.0	−0.0	−7.8	0.0	0.0	1.2	0.0
LWL1	4.1	−11.7	0.0	−0.5	−9.0	0.0	−0.0	−11.7	0.0	0.0	−0.6	0.0

LOAD GROUP DESCRIPTION

- DL : Roof Dead Load
- COLL : Roof Collateral Load
- PSL1 : Pattern Snow Load [PSLxx]
- PSL2 : Pattern Snow Load [PSLxx]
- PSL3 : Pattern Snow Load [PSLxx]
- SNOW : Roof Snow Load
- LL : Roof Live Load
- PL : User Entered Load
- H1 : User Entered Load
- H2 : User Entered Load
- H3 : User Entered Load
- H4 : User Entered Load
- RBDWEQ : Downward Acting Rod Brace Load from Long. Seismic
- EQ : Lateral Seismic Load [parallel to plane of frame]
- RBUPEQ : Upward Acting Rod Brace Load from Longit. Seismic
- WL1 : Lateral Primary Wind Load
- WL2 : Lateral Primary Wind Load
- WL3 : Lateral Primary Wind Load
- WL4 : Lateral Primary Wind Load
- LWL1 : Longitudinal Primary Wind Load

FRAME ID #2 ms2 81.792/32.5/22.333 20./
USER NAME: bdcloar JOB NAME: 26518A DATE: 4/20/16 FILE: frame_d.fra PAGE: 2-4
SUPPORT REACTIONS FOR EACH LOAD GROUP
•LOCATION: Gridlines: D
NOTE: All reactions are in kips and kip-ft.
TIME: 12:37:44

REACTION NOTATIONS



Grid Line "D"
Building "A"

LOAD GROUP REACTION TABLE • = D

COLUMN	•−2			•−5			•−2.9			•−4		
LOAD GROUP	HL	VL	LNL	HR	VR	LNR	H1	V1	LN1	H2	V2	LN2
RBUPLW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LWL2	4.1	−10.0	0.0	−0.6	−10.0	0.0	−0.0	−11.0	0.0	0.0	−1.7	0.0
LWL3	4.3	−7.8	0.0	−0.7	−7.5	0.0	−0.0	−7.0	0.0	0.0	1.5	0.0
LWL4	4.3	−7.1	0.0	−0.8	−8.0	0.0	−0.0	−6.7	0.0	0.0	1.0	0.0
SBAL	1.3	28.1	0.0	−1.5	13.0	0.0	0.0	44.3	0.0	−0.0	23.6	0.0
DSNW	−0.2	10.1	0.0	0.1	−0.1	0.0	−0.0	−0.0	0.0	0.0	0.1	0.0
RBDWLW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LOAD GROUP DESCRIPTION

- RBUPLW : Upward Acting Rod Brace Load from Longitud. Wind
- LWL2 : Longitudinal Primary Wind Load
- LWL3 : Longitudinal Primary Wind Load
- LWL4 : Longitudinal Primary Wind Load
- SBAL : Code Calculated Balanced Roof Snow Load
- DSNW : Drifting Snow
- RBDWLW : Downward Acting Rod Brace Load from Longit. Wind

NOTES

1) THE REACTIONS PROVIDED ARE BASED ON THE ORDER DOCUMENTS AT THE TIME OF MAILING. ANY CHANGES TO BUILDING LOADS OR DIMENSIONS MAY CHANGE THE REACTIONS. THE REACTIONS WILL BE SUPERSEDED AND VOIDED BY ANY FUTURE MAILING.
2) THE REACTIONS PROVIDED HAVE BEEN CREATED WITH THE FOLLOWING LAYOUT (UNLESS NOTED OTHERWISE).
a) A REACTION TABLE IS PROVIDED WITH THE REACTIONS FOR EACH LOAD GROUP.
b) RIGID FRAMES
(1) GABLED BUILDINGS
(a) LEFT AND RIGHT COLUMNS ARE DETERMINED AS IF VIEWING THE LEFT SIDE OF THE BUILDING, AS SHOWN ON THE ANCHOR ROD DRAWING, FROM THE OUTSIDE OF THE BUILDING.
(b) INTERIOR COLUMNS ARE SPACED FROM LEFT SIDE TO RIGHT SIDE.
(2) SINGLE SLOPE BUILDINGS
(a) LEFT COLUMN IS THE LOW SIDE COLUMN.
(b) RIGHT COLUMN IS THE HIGH SIDE COLUMN.
(c) INTERIOR COLUMNS ARE SPACED FROM LOW SIDE TO HIGH SIDE.
c) ENDWALLS
(1) LEFT AND RIGHT COLUMNS ARE DETERMINED AS IF VIEWING THE WALL FROM THE OUTSIDE.
(2) INTERIOR COLUMNS ARE SPACED FROM LEFT TO RIGHT.
d) ANCHOR ROD SIZE IS DETERMINED BY SHEAR AND TENSION AT THE BOTTOM OF THE BASE PLATE. THE LENGTH OF THE ANCHOR ROD AND METHOD OF LOAD TRANSFER TO THE FOUNDATION ARE TO BE DETERMINED BY THE FOUNDATION ENGINEER.
e) ANCHOR RODS ARE ASTM F1554 Gr. 36 MATERIAL UNLESS NOTED OTHERWISE ON THE ANCHOR ROD LAYOUT DRAWING.
f) X-BRACING
(1) ROD BRACING REACTIONS HAVE BEEN INCLUDED IN VALUES SHOWN IN THE REACTION TABLES.
(2) FOR IBC AND UBC BASED BUILDING CODES, WHEN X-BRACING IS PRESENT IN THE SIDEWALL, INDIVIDUAL LONGITUDINAL SEISMIC LOADS (RBUPEQ AND RBDWEQ) DO NOT INCLUDE THE AMPLIFICATION FACTOR, Ω_0.
(3) FOR CANADA BUILDING CODE (NBC), WHEN X-BRACING IS PRESENT IN THE SIDEWALL OR ENDWALL, INDIVIDUAL LONGITUDINAL SEISMIC LOADS (RBUPEQ & RBDWEQ) ARE MULTIPLIED BY FORCE REDUCTION FACTOR, Rd, WHEN SPECIFIED SHORT-PERIOD SPECTRAL ACCELERATION RATIO $I_E F_a S_a(0.2)$ IS GREATER THAN 0.45.
3) REACTIONS ARE PROVIDED AS UN-FACTORED FOR EACH LOAD GROUP APPLIED TO THE COLUMN. THE FOUNDATION ENGINEER WILL APPLY THE APPROPRIATE LOAD FACTORS AND COMBINE THE REACTIONS IN ACCORDANCE WITH THE BUILDING CODE AND DESIGN SPECIFICATIONS TO DETERMINE BEARING PRESSURES AND CONCRETE DESIGN. THE FACTORS APPLIED TO LOAD GROUPS FOR THE STEEL COLUMN DESIGN MAY BE DIFFERENT THAN THE FACTORS USED IN THE FOUNDATION DESIGN.
a) FOR PROJECTS USING ULTIMATE DESIGN WIND SPEEDS SUCH AS 2012 IBC OR 2014 FLORIDA BUILDING CODE, THE WIND LOAD REACTIONS ARE AT A STRENGTH VALUE WITH A LOAD FACTOR OF 1.0.
THE MANUFACTURER DOES NOT PROVIDE "MAXIMUM" LOAD COMBINATION REACTIONS. HOWEVER, THE INDIVIDUAL LOAD REACTIONS PROVIDED MAY BE USED BY THE FOUNDATION ENGINEER TO DETERMINE THE APPLICABLE LOAD COMBINATIONS FOR HIS/HER DESIGN PROCEDURES AND ALLOW FOR AN ECONOMICAL FOUNDATION DESIGN.

Revision	Date	Description	By	Ck'd

Reviewed for Code Compliance
Permit Drawings Approved
Date: 06/08/16

A&S BUILDING SYSTEMS
1880 HWY. 116, CARYVILLE, TENNESSEE 37714
PHONE: 865-426-2141 FAX: 865-426-2011

Project Name & Location:
BAYSIDE BOWL ADDITION
58 ALDER STREET
PORTLAND ME 04101

☐ For Construction Permit
☒ For Erector Installation

Customer:
AMERICAN AERIAL SERVICES
75 BISHOP STREET
PORTLAND ME 04103

Drawing Status:
☐ Preliminary (Not For Construction)
☐ For Approval (Not For Construction)

Scale: NOT TO SCALE
Drawn by: ML 4/23/16
Checked by: MARK 4/23/16
Project Engineer: BDC
Job Number: 15-B-26518-1
Sheet Number: F4 of 8

The engineer whose seal appears hereon is an employee for the manufacturer for the materials described herein. Said seal or certification is limited to the products designed and manufactured by manufacturer only.The undersigned engineer is not the overall engineer of record for this project.

Lee W. Lowe, P.E.
Maine P.E. 8861

Apr 26, 2016

STATE OF MAINE
LEE W. LOWE
8861
LICENSED
PROFESSIONAL ENGINEER