

**SHEARWALL LOAD DISTRIBUTION - FLEXIBLE DIAPHRAGM ASSUMPTIONS
 IBC 2009 SHEAR WALL CRITERIA
 1770 PACIFIC AVENUE, SAN FRANCISCO - SEISMIC RETROFIT**

Wall Location: E
 Loading: EQ
 Loading Direction: W-E

1. Diaphragm and Shear Wall Dimensions along Plane of Assembled Walls

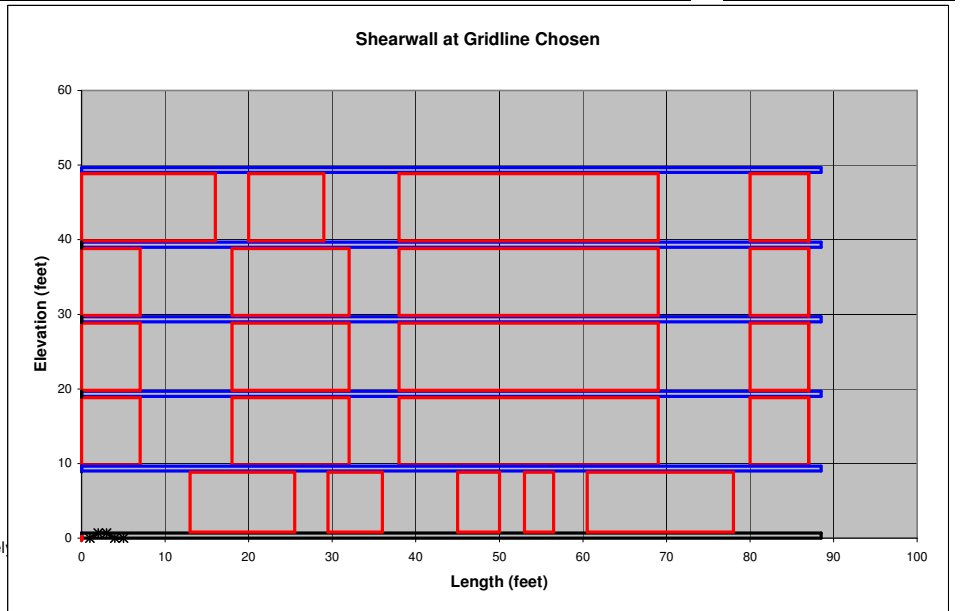
Level	Strength Load (lbs)	Service Load (lbs)	Foundation			Diaphragm			Wall Segments										Summation of Segments				
			Offset (feet)	Length (feet)	Edge (feet)	Offset (feet)	Length (feet)	Edge (feet)	Wall 1	Wall 2	Wall 3	Wall 4	Wall 5	Wall Length (feet)	Floor Length (feet)	Tied to Foundation (feet)*							
Roof		4,648				0.00	88.50	88.50	10.00	0.00	16.00	4.00	9.00	9.00	31.00	11.00	7.00				63.00	88.50	0.00
4		5,037	0	0	0.00	0.00	88.50	88.50	10.00	0.00	7.00	11.00	14.00	6.00	31.00	11.00	7.00				59.00	88.50	0.00
3		3,705	0	0	0.00	0.00	88.50	88.50	10.00	0.00	7.00	11.00	14.00	6.00	31.00	11.00	7.00				59.00	88.50	0.00
2		2,370	0	0.00	0.00	0.00	88.50	88.50	10.00	0.00	7.00	11.00	14.00	6.00	31.00	11.00	7.00				59.00	88.50	0.00
1		1,035	0.00	0.00	0.00	0.00	88.50	88.50	9.00	13.00	12.50	4.00	6.50	9.00	5.00	3.00	3.50	4.00	17.50	45.00	88.50	45.00	
			0.00	88.50	88.50			0.00			x		x		x		x		x	0.00	0.00	0.00	

* Notes : 1. Wall segment offset defined from edge of diaphragm (Diaphragm offset).
 2. Marked automatically with an X if Wall segment is tied to foundation.
 3. After all data is complete , run macro w/ Ctrl - w to update spreadsheet.

2. Vertical Wall Distribution and Shear Wall Loads

Level	Story Force (lbs)	Total Shear (lbs)	Story Shear			Wall Length (feet)	Diaphragm Length (feet)	Wall Shear (lbs/ft)	Diaphragm Shear (lbs/ft)
			To Foundation (lbs)	To Walls (lbs)	Total Shear (lbs)				
Roof	4,648	4,648				63.00	88.50	74	53
4	5,037	9,685	0	4,648	4,648	59.00	88.50	164	57
3	3,705	13,390	0	9,685	9,685	59.00	88.50	227	42
2	2,370	15,760	0	13,390	13,390	59.00	88.50	267	27
1	1,035	16,795	0	15,760	15,760	45.00	88.50	373	12
				16,795	16,795				

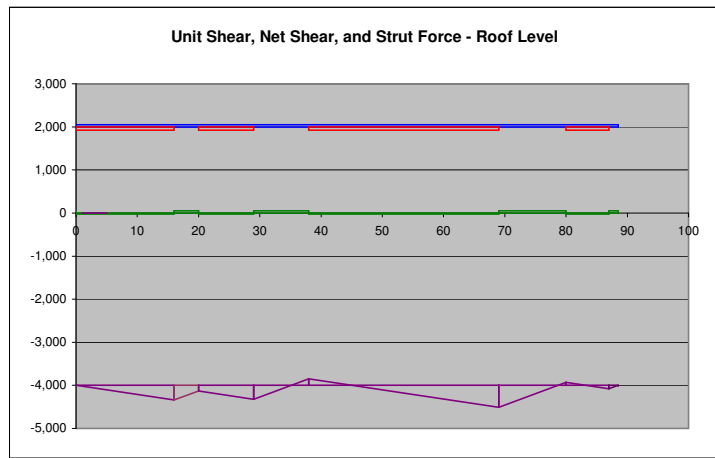
Notes: 1. Diaphragm connected to foundation transfers all load to shear walls; diaphragm connection to wall calculated separately.
 2. Load transferred to floor below is proportional to wall length over diaphragm/total wall length;



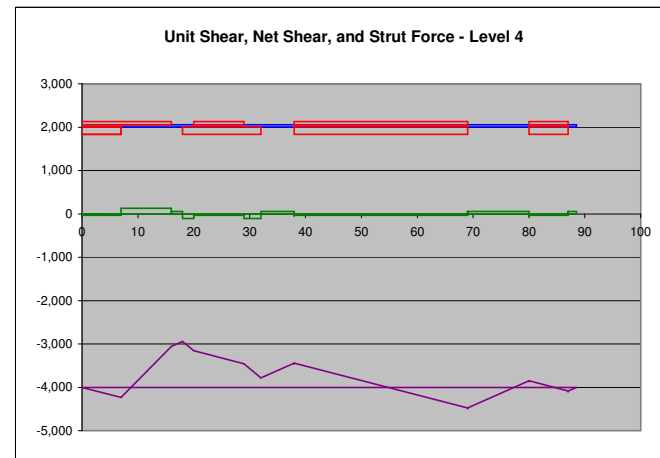
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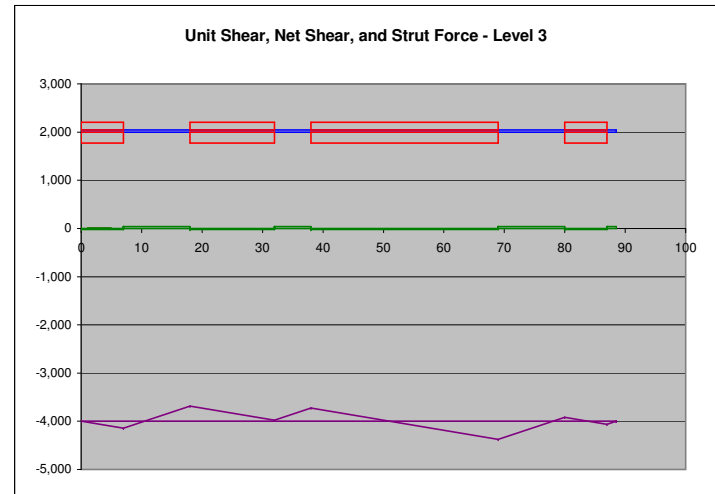
3. Plots of Unit and Net Shears and Strut Force at Wall Levels



Roof Level Demands:
 $V_{sw} = 74 \text{ lb/ft}$
 $F_{strut} = 508 \text{ lbs}$



Level 4 Demands:
 $V_{sw} = 164 \text{ lb/ft}$
 $F_{strut} = 1,056 \text{ lbs}$



Level 3 Demands:
 $V_{sw} = 227 \text{ lb/ft}$
 $F_{strut} = 377 \text{ lbs}$



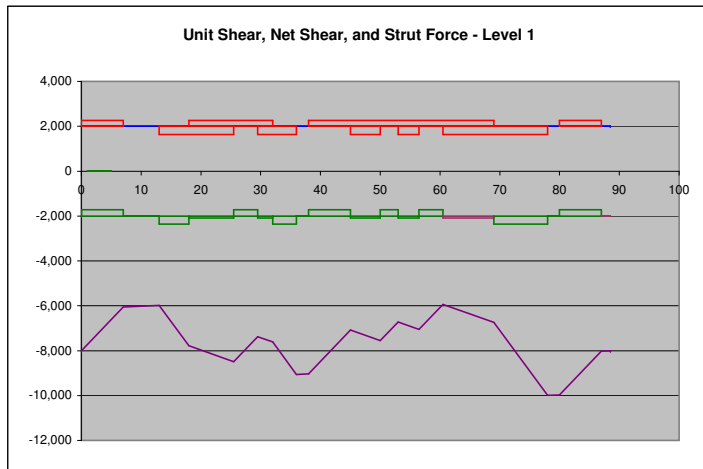
Level 2 Demands:
 $V_{sw} = 267 \text{ lb/ft}$
 $F_{strut} = 241 \text{ lbs}$

Project 1914-1916 Pine Street, San Francisco
Job No. 201623.1
By AL
Date 10/30/2016
Sheet _____ of _____

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Level 1 Demands:

V_{sw} = 373 lb/ft

F_{strut} = 2,064 lbs