

SHEARWALL LOAD DISTRIBUTION - FLEXIBLE DIAPHRAGM ANALYSIS
IBC 2009 SHEAR WALL CRITERIA
579 BURNETT AVENUE, S.F. - SOFT STORY RETROFIT

Wall Location: 14
Loading: EQ
Loading Direction: N-S

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

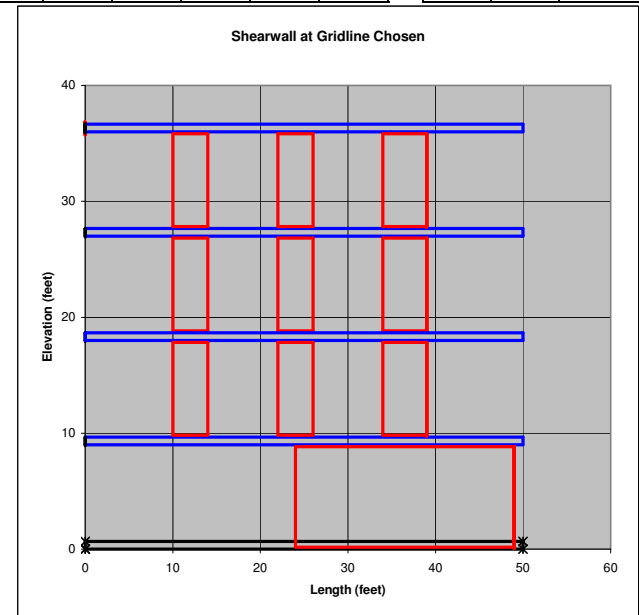
Level	Strength Load (lbs)	Service Load (lbs)	Foundation			Diaphragm			Wall Segments										Summation of Segments								
			Offset (feet)	Length (feet)	Edge (feet)	Offset (feet)	Length (feet)	Edge (feet)	Wall 1	Wall 2	Wall 3	Wall 4	Wall 5	Wall Length (feet)	Floor Length (feet)	Tied to Foundation (feet)*											
6						0.00																					
5			0	0	0.00	0.00		0.00																0.00	0.00	0.00	
4		1,489	0	0	0.00	0.00	50.00	50.00																0.00	0.00	0.00	
3		2,438	0	0.00	0.00	0.00	50.00	50.00																13.00	50.00	0.00	
2		2,438	0	0.00	0.00	0.00	50.00	50.00																13.00	50.00	0.00	
1		2,438	0	0.00	0.00	0.00	50.00	50.00																13.00	50.00	0.00	
0			0	50.00	50.00			0.00																25.00	50.00	25.00	

- * 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/ Crtl - 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)				
6	0	0				0.00	0.00	0	0
5	0	0	0	0	0	0.00	0.00	0	0
4	1,489	1,489	0	1,489	1,489	13.00	50.00	115	49
3	2,438	3,927	0	3,927	3,927	13.00	50.00	302	49
2	2,438	6,365	0	6,365	6,365	13.00	50.00	490	49
1	2,438	8,803	0	8,803	8,803	25.00	50.00	352	49
0			8,803	8,803	8,803	0.00	0.00		

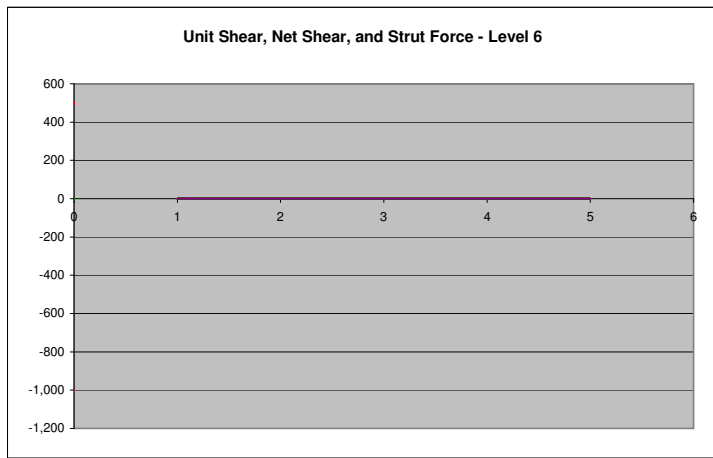
- Notes: 1. Diaphragm connected to foundation transfers all load to shear walls; diaphragm connection to wall calculated separately (conservative).
 2. Load transferred to floor below is proportional to wall length over diaphragm/total wall length;



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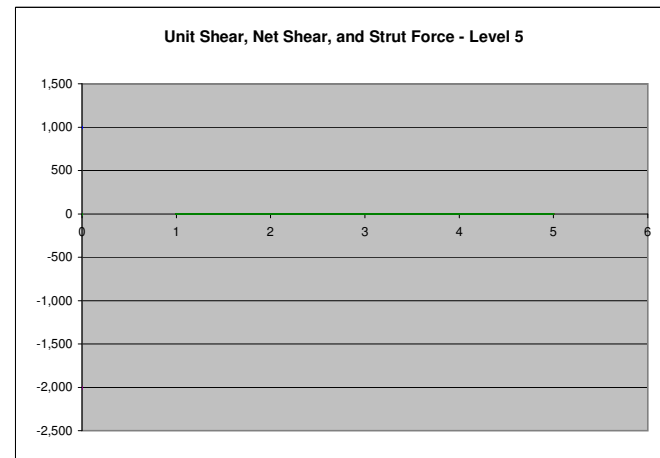
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3. Plots of Unit and Net Shears and Strut Force at Wall Levels



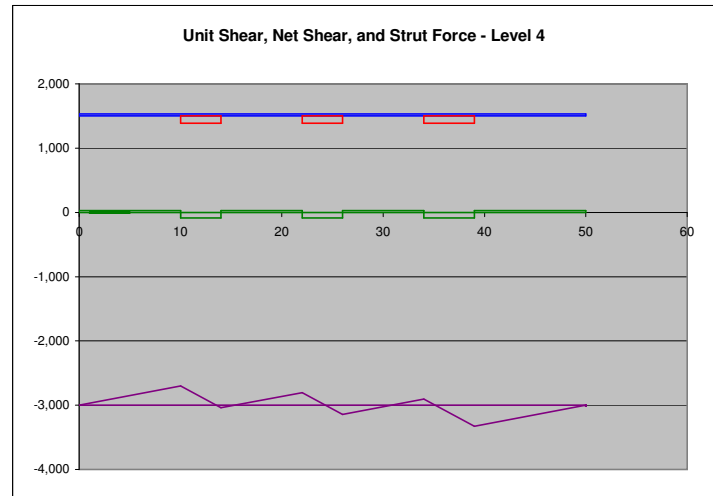
Level 6 Demands:

$V_{sw} = 0$ lb/ft
 $F_{strut} = 0$ lbs



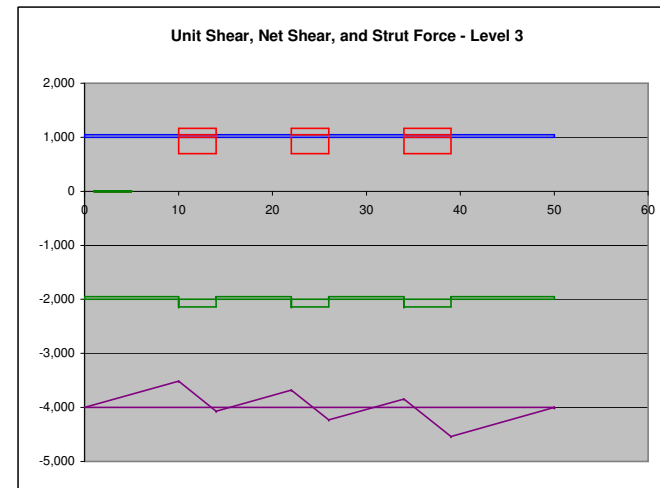
Level 5 Demands:

$V_{sw} = 0$ lb/ft
 $F_{strut} = 0$ lbs



Level 4 Demands:

$V_{sw} = 115$ lb/ft
 $F_{strut} = 328$ lbs

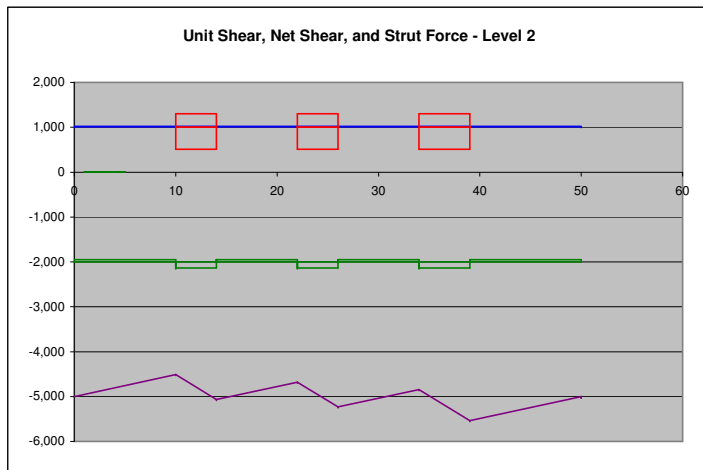


Level 3 Demands:

$V_{sw} = 302$ lb/ft
 $F_{strut} = 536$ lbs

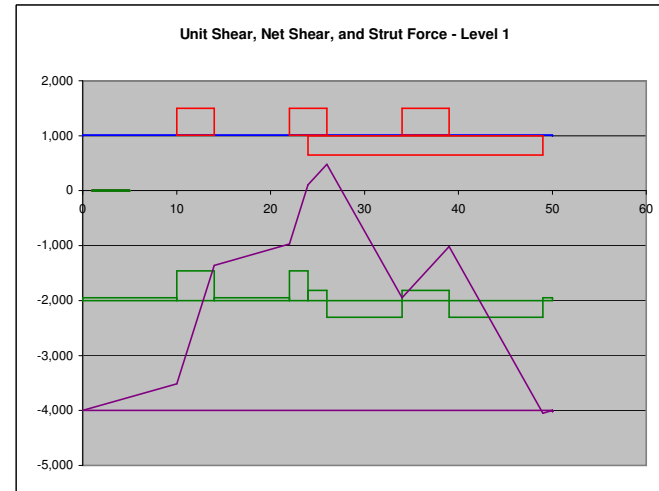
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Level 2 Demands:

V_{sw} = 490 lb/ft
 F_{strut} = 536 lbs



Level 1 Demands:

V_{sw} = 352 lb/ft
 F_{strut} = 4,480 lbs