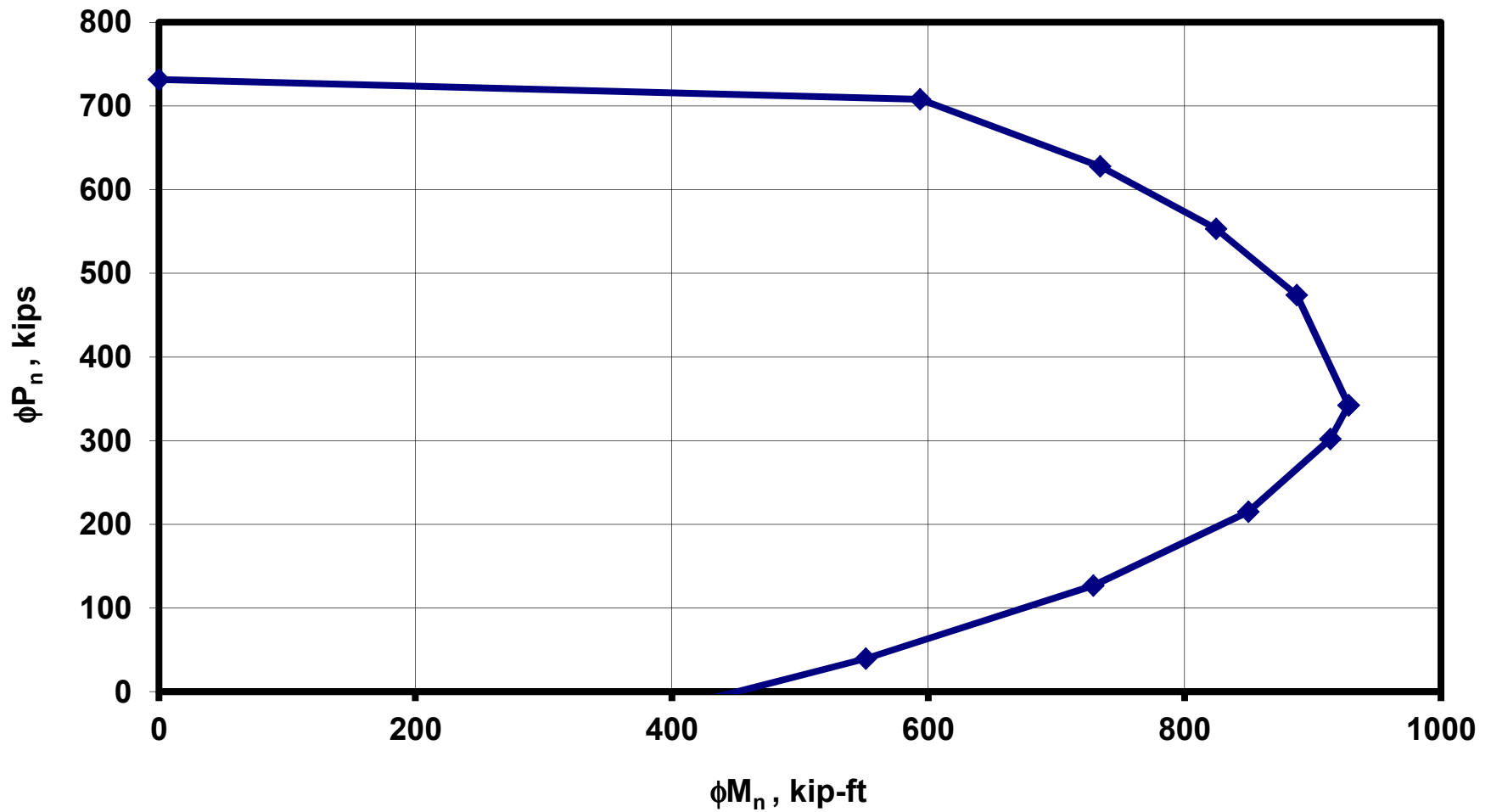


Strength Interaction Diagram by Spreadsheet
Center Shear Wall
f'm=1900 psi, 7.33-ft long, 8-in. thick, #6 bars @ 16 in.



Spreadsheet for calculating strength moment-axial force interaction diagram for CMU shear wall

depth 88
 emu 0.0025
 f'm 1.9
 fy 60
 Es 29000
 d 84
 (c/d)balanced 0.54717
 width 7.625
 phi 0.9

steel layers are counted from the extreme compression fiber to the extreme tension fiber
 distances are measured from the extreme compression fiber
 reinforcement is assumed to be placed at 16" intervals interior and in end cells
 compression in masonry and reinforcement is taken as positive
 stress in compressive reinforcement is set to zero, because the reinforcement is not laterally supported

Row of Reinforcement	distance	Area
1	4.00	0.44
2	20.00	0.44
3	36.00	0.44
4	52.00	0.44
5	68.00	0.44
6	84.00	0.44
7	0.00	0.00

	c/d	c	Cmas	fs(1)	fs(2)	fs(3)	fs(4)	fs(5)	fs(6)	fs(7)	Moment	Axial Force
pure axial load											0	731
Points controlled by masonry	1.01	84.84	787	0.00	0.00	0.00	0.00	0.00	0.00	0.00	594	708
	0.9	75.60	701	0.00	0.00	0.00	0.00	0.00	-8.06	0.00	734	628
	0.8	67.20	623	0.00	0.00	0.00	0.00	0.00	-0.86	-18.13	825	553
	0.7	58.80	545	0.00	0.00	0.00	0.00	-11.34	-31.07	0.00	887	474
	0.54717	45.96	426	0.00	0.00	0.00	-9.52	-34.76	-60.00	0.00	928	342
Points controlled by steel	0.54717	45.96	426	0.00	0.00	0.00	-9.52	-34.76	-60.00	0.00	928	342
	0.5	42.00	389	0.00	0.00	0.00	-17.26	-44.88	-60.00	0.00	914	302
	0.4	33.60	312	0.00	0.00	-5.18	-39.70	-60.00	-60.00	0.00	850	215
	0.3	25.20	234	0.00	0.00	-31.07	-60.00	-60.00	-60.00	0.00	729	127
	0.2	16.80	156	0.00	-13.81	-60.00	-60.00	-60.00	-60.00	0.00	551	40
	0.1353	11.37	105	0.00	-55.08	-60.00	-60.00	-60.00	-60.00	0.00	395	-22
	0.1	8.40	78	0.00	-60.00	-60.00	-60.00	-60.00	-60.00	0.00	317	-49
	0.01	0.84	8	-60.00	-60.00	-60.00	-60.00	-60.00	-60.00	0.00	26	-136