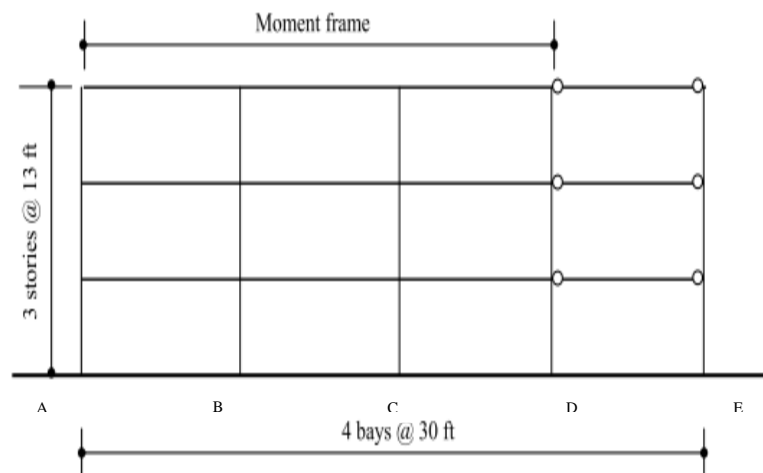**Assignment #6**

Assigned on Tuesday, October 6

1)Find out the BMD, SFD & time periods of vibration for different modes for the 2-D frame system shown in **Figure1**. For all members, consider, E = 29000 Ksi, sections and loading are as shown below,

Story/Floor	Columns		Girders	Point load on columns(Kips)		Distributed load on Girders(K/ft)
	Exterior	Interior		Exterior	Interior	
1/2	W14X257	W14X311	W33X118	23.6	34.8	1
2/3	W14X257	W14X311	W30X116	23.6	34.8	1
3/roof	W14X257	W14X311	W24X68	20.3	30.9	0.85

Please note the following important instructions,
1) Consider rigid floor diaphragm effect at each floor.
2) Column line E which is outside the moment frame, has columns W14X68.
3) Girder D-E are pin connected to columns and are W21X44.
4) Floor masses on each frame from roof downward are 2.954, 2.730, and 2.730 Kip-s^2/in.

Figure 1

2) Find out the BMD, SFD & time periods of vibration for different modes for the 2-D frame system shown in **Figure2**. For all members, consider, $E = 29000$ Ksi, sections and loading are as shown below,

Story/Floor	Columns		Girders	Point load on columns(Kips)		Distributed load on Girders(K/ft)
	Exterior	Interior		Exterior	Interior	
1/2	W14X370	W14X500	W36X160	24.6	34.8	1.06
2/3	W14X370,W14X370	W14X500,W14X455	W36X160	23.6	34.8	1
3/4	W14X370	W14X455	W36X135	23.6	34.8	1
4/5	W14X370,W14X283	W14X455,W14X370	W36X135	23.6	34.8	1
5/6	W14X283	W14X370	W36X135	23.6	34.8	1
6/7	W14X283,W14X257	W14X370,W14X283	W36X135	23.6	34.8	1
7/8	W14X257	W14X283	W30X99	23.6	34.8	1
8/9	W14X257,W14X233	W14X283,W14X257	W27X84	23.6	34.8	1
9/roof	W14X233	W14X257	W24X68	20.3	30.9	0.85

Please note the following important instructions,
1) Consider rigid floor diaphragm effect at each floor.
2) Column line A has columns section oriented along strong axis.
3) Column line F has columns section oriented along weak axis.
4) Girder are connected to columns line F through pin connections.
5) Column splices are at 6 ft above the centerline.
6) No need to consider basement floor.
5) Floor masses on each frame from roof downward are 3.047, 2.828, 2.828, 2.828, 2.828, 2.828, 2.828, 2.877, and 2.748 Kip-s^2/in.
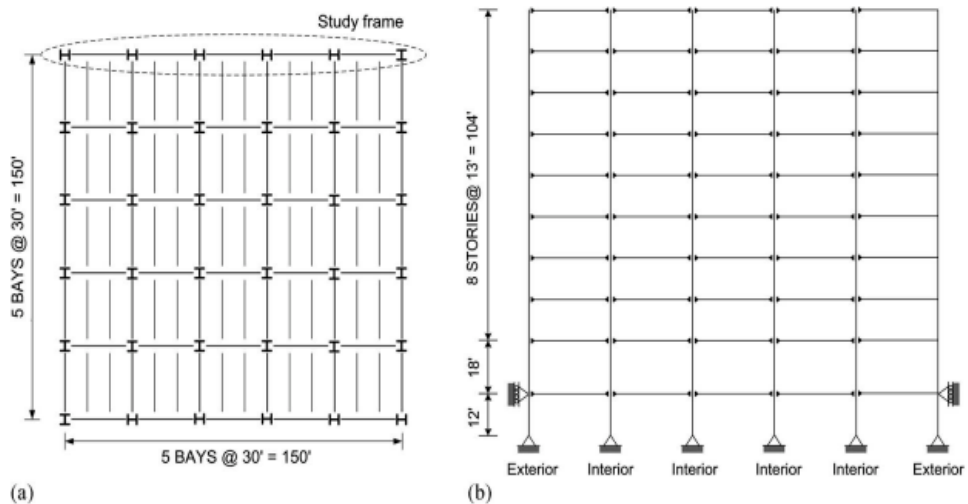

Figure 2