Problem:

Loads:

Roof:  
DL = 10 psf  
LL = 25 psf  
(snow horizontally projected)

Ceiling:  
DL = 5 psf  
LL = 10 psf

Bearing walls:  
DL = 10 psf (2nd and 3rd floors)

Floors:  
DL = 20 psf (2nd and 3rd floors)  
LL = 40 psf (2nd and 3rd floors)

1st floor column:  
3” standard pipe, 10.8 lb/ft

Garage Slab:  
on grade, isolated from footings

Concrete:  
150 lb/ft³

Soil-bearing Pressure:  
2200 psf

Footings:  
8” thickness on pads, 8” x 24” stem on wall footing

1. Determine the equivalent (horizontally projected) load on the rafters spaced at 2’0” on centers.
2. Determine the load per foot on the bearing walls.
3. Determine the loading and beam reactions for each of the steel wide flange beams.
4. Determine the column load.
5. Determine the minimum width of the continuous foundation.
6. Determine the size of the column spread footing.