

AECT 480 – Reinforced Concrete Design  
Spring 2009  
Homework # 3 – 3D Concrete Building Mass Model – Framing

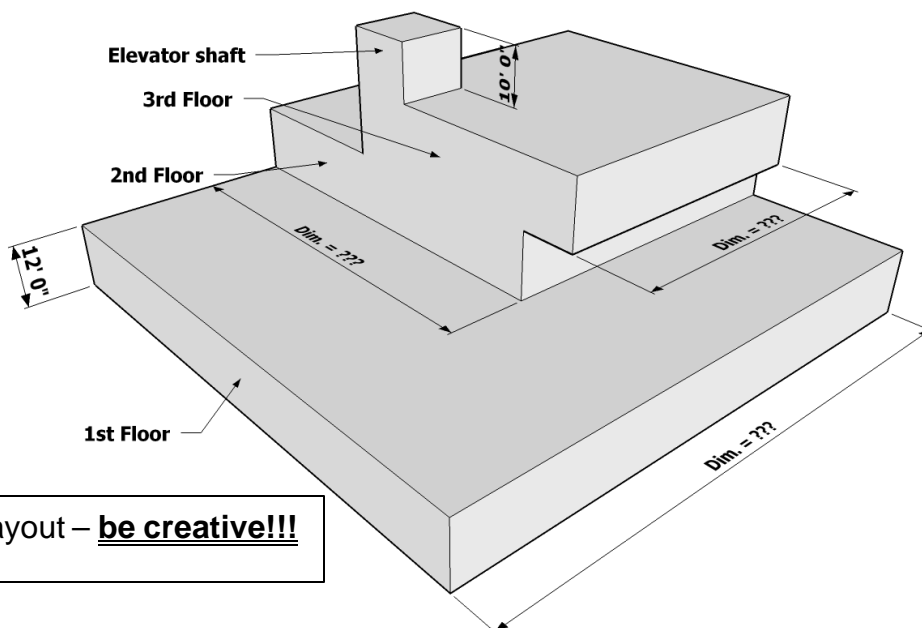
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**GIVEN:** A poured-in-place reinforced concrete office building is to be designed having the following criteria: (**NOTE:** Building as shown below is for dimensional information only! Your actual building may take any shape you desire. Be CREATIVE!!)

- 1<sup>st</sup> Floor = at least 8,000 ft<sup>2</sup>
- 2<sup>nd</sup> Floor = at least 4,000 ft<sup>2</sup>
- 3<sup>rd</sup> Floor = 2,000 ft<sup>2</sup>  $\pm$  10%
- 12'-0" floor-to-floor height
- Floor construction = T-beams
- Roof construction over 3<sup>rd</sup> floor = 2-way slab
- At least one cantilevered portion of building
- Elevator shaft – at least 12'-0" x 12'-0" w/ 10'-0" projection over 3<sup>rd</sup> floor roof
- Column spacing not to exceed 30'-0"
- Column size = 24" x 24" square

**REQUIRED:** Design the massing of the building. Please note that your building does NOT need to take the shape of the building shown below. Using "SketchUp" or some other 3D software, print the following on 11" x 17" sheets, or better yet, 22" x 34" "boards":

- 1) Perspective Mass model of your building, similar to below, (at least 2 different views minimum). Include overall dimensions.
- 2) Perspective "Skeleton" framing of building, showing ALL columns, footings, beams, T-Beams, slabs and mass of elevator shaft, (at least 6 different views, at least 2 different views of each framing level). Indicate sizes of all framing members.



Possible building layout – **be creative!!!**