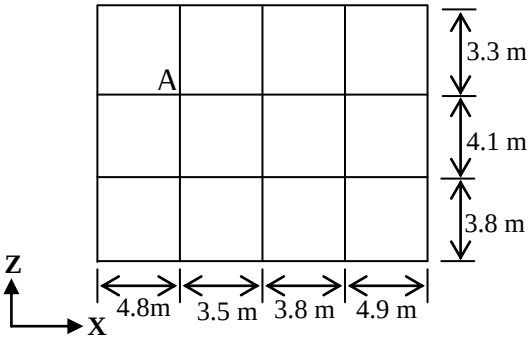
SOFT BUILD-EDIFICE 2017

ROUND 1-ELIMINATIONS

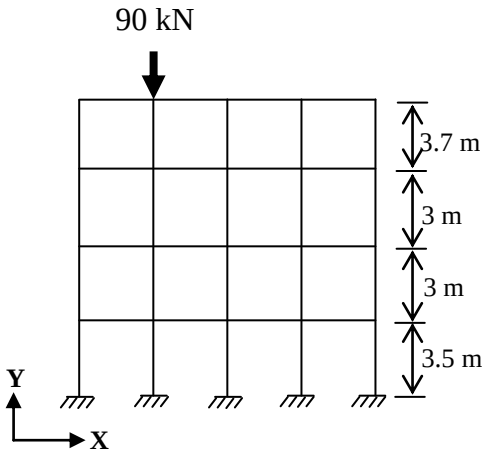
PROBLEM STATEMENT FOR STAAD PRO

Develop the model of a Hospital building to be constructed in Guwahati, India using the STAAD PRO software package.

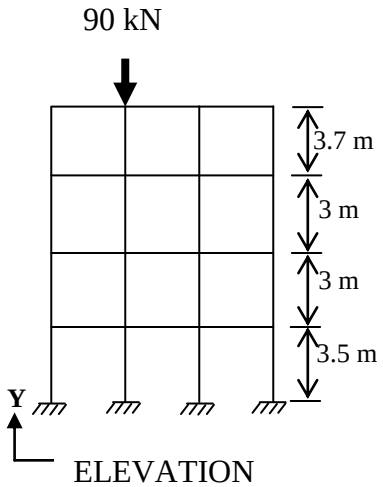
The plan, 2 elevations and 3D model of the skeleton structure of the building are shownbelow:



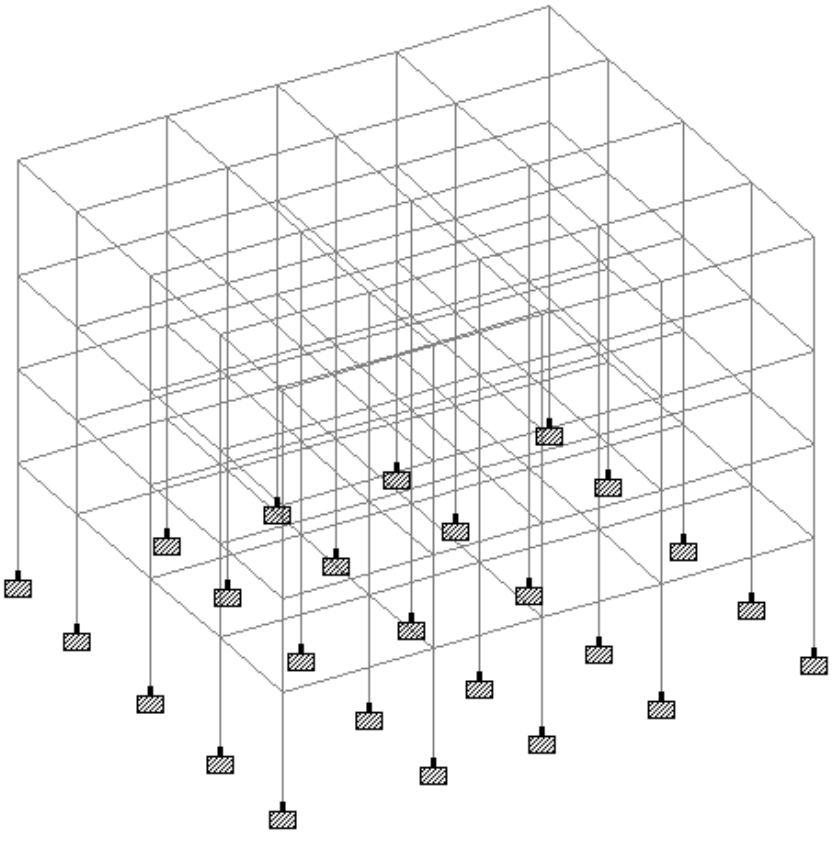
PLAN



ELEVATION



ELEVATION



3D VIEW

The specifications of the building are as follows:

- All beams are rectangular in section with dimensions 0.25m X 0.30m.
- All columns are circular in section with diameter 0.30m.
- All members are of RCC.
- The lowermost columns are fixed supported at their bases

Consider only the following loads cases:

- Dead Load: considering the self-weight of the members.
- Live Load: comprising of 2.7kN/m UDL on all the beams of the stories of the frame and a vertical load of 90kN at point A shown in figures above.
- Wind Load: Intensity = 0.8KN/ $m^2$from bottom till 7.5 m height.
  Intensity= 1.2KN/m^2 from 7.5 m to 15 m height.
  Exposure factor of 0.8.
  Wind load to be considered in one direction only
  (Wind load=Wind Intensity x Exposed Area)
- Seismic Load: Zone factor Z= 0.36
  Importance factor I= 1.5
  Response Reduction Factor R=3
- Load Combinations 1.5(Dead Load +Live Load)
  1.2(Dead Load+Live Load+Wind Load)
  1.2(Dead Load+Live Load+ Seismic Load).

Your Task:

1. Determine the support reactionsdirectly below the vertical load i.e. point A.
2. Find the maximum displacement of the roof.

Mail your solutions at softbuild2k11@gmail.com by **20 SEPTEMBER 2011**