

CHAPTER V

CONCLUSIONS AND SUGGESTIONS

5.1. Conclusions

After analyzing and designing “Asuransi Astra” building based on SNI 03 - 2847 - 2002, SNI 03 1729 - 2002 and SNI 03 - 1726 - 2002, some conclusions can be taken:

- Building simulation for first mode and second mode are dominant in translation.
- For irregular building, the effect of earthquake should be computed based on dynamic analysis where $V_{\text{dynamic}} = 7999.62 \text{ KN} < 0.8 V_1 = 14870.63 \text{ KN}$. So we need to scale it up with scale factor = 1.9 so it will satisfy SNI 03 - 1726 – 2002.
- Service story drift $\Delta_s = 6.4 \text{ mm} < \Delta_s \text{ drift required} = 14.12 \text{ mm}$, ultimate story drift $\Delta_m \text{ drift} = 38.08 \text{ mm} < \Delta_m \text{ drift required} = 80 \text{ mm}$, so that both service story drift and ultimate story drift have satisfied SNI 03 - 1726 – 2002.
- For designing truss, we use WF 300 x 150 for beam and H 300 x 300 for column.
- The entire slab has the thickness 120 mm and design as two way slab with reinforcement bar P10 mm. Except for skew parallelogram slab type, we use D16 for the reinforcement.
- Stair has the thickness 120 mm, with reinforcement bar D13 mm and P10 mm (for shrinkage reinforcement).

- Dimension of concrete beam is designed to be 800 x 400, longitudinal reinforcement for support area are 5D25 (top reinforcement), 3D25 (bottom reinforcement), longitudinal reinforcement for midspan area are 2D25 (top reinforcement), 3D25 (bottom reinforcement).
- The size of square column is 1000 mm x 1000 mm, longitudinal reinforcement has 24D25, and no need transversal reinforcement.
- The thickness of shear wall is 400 mm. Vertical reinforcement is 120D25 and horizontal reinforcement is 2D13 – 100.

5.2. Suggestions

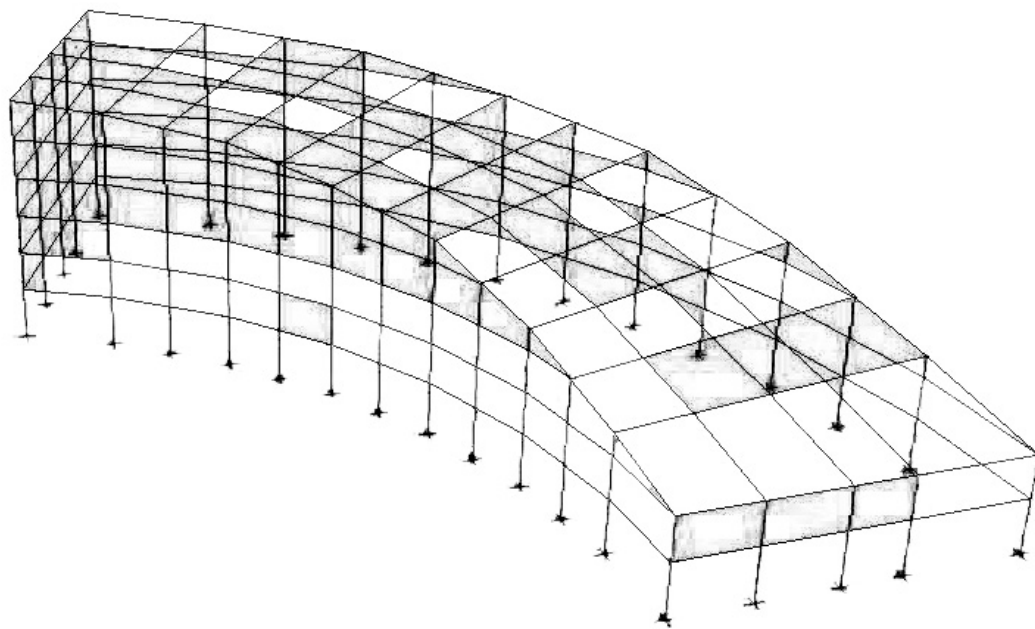
After finishing redesign “Asuransi Astra” building some suggestions were given:

- In designing structural elements like slab reinforcement, beam and column it will be good decision to make it uniformly. The purpose is to make the work easier in the field.
- While inputting data in ETABS, it's better to do it accurately with some assumptions that has been made before so the output will be more real.
- Before designing of structure elements, it's better to understand the rules especially SNI 03-2847-2002 about Calculating Concrete Structure for Building and SNI 03-1726-2002 about Designing Earthquake Resistance for Building.

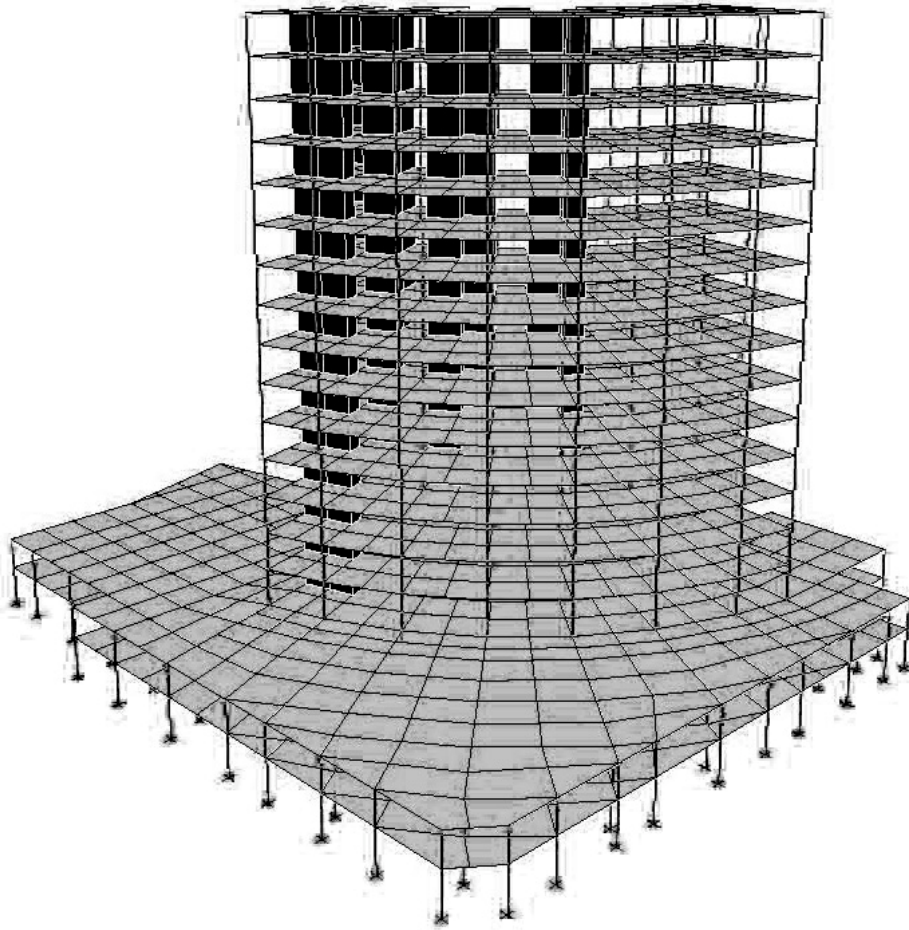
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in lumine



Asuransi Astra roof structure



3D model of Asuransi Astra Building