

# DESIGN A THREE STORY OF RESTAURANT

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## ABSTRACT

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In this project, the limit state design philosophy is used in designing the structure. British Standard Code, BS 8110 for concrete is used mostly in the design of the slabs, beam, column, foundation and stair. On the other hand, BS 6399 is used to determine the dead load and imposed load that are acting on the structure's elements.

Before I design the structure for the restaurant, first I draw the plan view of the restaurant. The restaurant consists of three storeys. The ground floor is designed for the dining area, kitchen and toilet. The first floor and second floor are designed for the dining area, kitchen and toilet. The roof of the restaurant is designed as timber trusses roof.

Initially I design the slabs on each floor. Before I design the slabs, I have to determine the dead load and imposed load that are acting on the slab by referring Table B1 to B4, I design the slabs as solid slab which are continuous and spanning in one direction.

Then I design the beams. I select a beam that sustains the heaviest loads and design it. The beams are designed as continuous beam. In designing the beam and slabs, I used three cases of moment distribution methods to find the ultimate bending moments and shear forces acting on these elements. After that, I design the stair for the restaurant which is spanning longitudinally. Then, it is followed by column design. Three columns are selected for design. There are external column (e.g. column c) that resists axial load and maximum bending moment.

Finally, I design the foundation for the restaurant. The foundation is designed as a pad foundation for the restaurant since it supports the most loads compared with other.