MODIFICATION OF PLANNING THE GOVERNMENT OFFICE BLOCK BUILDING OF BATU CITY USING STEEL-CONCRETE COMPOSITE STRUCTURES

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ABSTRACT

As the time goes by, the number of public facilities needs increased, so did the number of development to do. However, availability of the land is currently out of balance with the number of ongoing development. The availability of the lands that getting narrow demands the ongoing constructions not to take much land, then many public facilities construction built in the multilevel form such as The Government Office Block Building of Batu city which is consisting of five office blocks. The A block is a five-storey building, while B, C, D, and E block is a three-storey buildings built using conventional concrete. The building will be replanned over two blocks, A block in ten-storey, and B in 7-storey using steel-concrete composite structures.

Composite cross section is composed of concrete and steel profiles which are combined together to carry compressive and flexural load. The beam that bear flexural loads is generally referred to as a composite beam, while the beam that bear just compressive or compressive and flexural load, generally referred to as composite columns. Composite cross section has a greater stiffness than the cross section of the concrete slab and steel girder working separately,
moreover this section can bear the same or larger loads with a smaller flexure in a long span.

The purpose of this Final project is to produce the structural design of steel-concrete composite building with safety structural requirements by SNI 03-2847-2002, SNI 03-1729-2002, SNI 03-1726-2002, and PPIUG 1983.

The results of the building planning based on the structural analysis that fulfill safety structural requirements are the main beams in 1-10 and roof floors using steel profile WF 400x200x8x13, columns in the 1-3 floors using steel profile KC 600x200x11x17, 4-6 floors using KC 400x200x8x13 and 7-10 floors using KC 300x150x6,5x9. The floor and roof plates of this building using bondek plates and the foundation using pile foundation with a diameter of 40 cm and a depth of 10 m.

Key Words: The Government Office Block Building of Batu city, steel, concrete, composite structur