STRUCTURE PLANNING STADIUM MIMIKA SYSTEM USING HIGH ORDER MOMENTS BEARERS ROOF STRUCTURE WITH SPACE FRAME

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Abstract

In planning for the stadium required a very careful calculation and full of caution. Because the stadium is a great building that will be used or filled by humans in large numbers. Besides categorized as a monumental building, the stadium also are planned to be used in emergency circumstances.

Planning the structure of the stadium includes the top and bottom structure. The structure consists of the top of the roof and the stands, while including the structure of the bottom is the poer and foundation. In this final proposal will be discussed regarding the structural design of the stadium and the stadium roof structure System construction of the stadium is in the planning of a structure earthquake-resistant building one of the methods used are the bearers Moment Frame Structures Medium (SRPMM). This method is a method of planning of earthquake resistant buildings that are used in the earthquake zone 4.

Planning and the calculation is limited to the building structure above it, which includes the building above which comprises the main structure (columns and beams), secondary structure (stairs, floor plates and joists.), And the space frame roof structure. This structure is used for planning the quality of ingredients: $f_c = 30\text{ mpa}$, $f_y = 400\text{ mpa}$,untuk reinforcement deform and $f_y = 240$ for plain reinforcement.

The calculations performed in this final project refers to the
existing regulations on the calculation of SNI 03-2874-2002 on concrete structures, SNI 03-1726-2002 about earthquake resistance, Indonesia Imposition Rules For Building (PPIUG 1983) and. Earthquake load is calculated with the dynamic response, with reduction factors earthquake (R) of 5.5 and building ductility factor (μ) of 3.3. While the structural analysis program SAP 2000 is used.

Space frame is a system that uses a truss structure, where the rods used are made of strong, lightweight materials, which together with interlocking support in a geometric pattern. Space frames are typically used in landscape structure multidireksional, and also often used in structures that have long spans without support. The system is gaining strength from the union of triangular frame stiffness. Existing loads will be transformed into a compressive force and tensile.

Key words: Stadium, Space frames, SRPMM