

ABSTRACT

Title : Alternative Design for the Upper Structure of the Purwosari Fly Over, Surakarta Using Steel Structure, Jakarta, Dani Pamula Prasetyo, 41117120060, Ivan Jensen Saragih, S.T., M.T., 2020

The Purwosari Bridge with a span of 60 m uses PCT girder prestressed concrete bridge material in the upper structure. Steel material is widely used because it has several advantages which are considered more efficient compared to other materials when used as the main structure of a bridge construction, In connection with this, an alternative design for the bridge's upper structure was carried out using steel material using the SAP 2000 application. The result was a reinforced concrete floor plate with a compressive strength of $f_c' 30 \text{ Mpa}$, 20 cm thick using $F_y 400 \text{ Mpa}$ D16 - 125 threaded reinforcement bar, field area reinforcement D16 – 100, threaded reinforcement bar $F_y 240 \text{ Mpa}$ D13 – 140, main girder used steel profile BJ-55 IWF 3000 x 1000 x 25 x 35 mm, diaphragm rod used steel profile BJ-37 IWF 400 x 200 x 7 x 11 mm, the connection between the main girders uses 35 mm thick BJ-55 plates and type A325 bolts with a diameter of 36 mm, a total of 32 bolts on the wings and 42 bolts on the body, the connections between the diaphragm and the main girder use 7 mm thick BJ-37 plates and type A325 bolts $d25 \text{ mm}$ with 6 bolts, sliding connector using BJ-55 stud connector $d = 20 \text{ mm}$ $t = 100 \text{ mm}$ with a distance of 9 cm with 4 stud connectors in each row.

Keyword : *Steel, Bridge, Upper Structure, SAP 2000*

