

**REDESIGN OF THE UPPER STRUCTURE OF THE
INTERSECTION BRIDGE WITH COMPOSITE MATERIALS**
**(Case study: Terrace junction bridge on the Dumai – Lubuk
Gaung – Sinaboi road, Dumai)**

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ABSTRACT

The purpose of this study is to develop a steel and concrete composite beam design to redesign the upper structure of the Intermodal Bridge. This bridge has a total length of 18.5 meters. The planning results include a 200 mm thick slab, a 1000 mm wide sidewalk with a height of 250 mm, the combined ultimate moment value and the maximum ultimate shear force on the "Strong I" girder are 927.40 kNm and 329.7 kNm. In planning, the dimensions are as follows; girder profile WF 900 x 300 x 18 x 25 mm; WF diaphragm profile 400 x 200 x 7 x 11 mm; stud connector with a diameter of 25 mm; and the laying of 150 x 300 mm elastomer bearings. The amount of iron used on the plan bridge has a total weight of 19455.11 kg of threaded iron and 1519.76 kg of plain iron. Meanwhile, Existing uses 31027.79 kg of threaded iron and 1519.76 kg of plain iron.. The results of the study show that, in accordance with the applicable standards, the design of the designed composite bridge can meet the requirements of structural strength and stability.

Keywords : SNI 1725:2016 (National standard for bridge loading), SNI T-03-2005 (Strength and safety standard for steel structures), SNI T-12-2004 (Technical standard for composite concrete structures)