

**APPLICATION OF THE BUILDING INFORMATION
MODELING (BIM) REVIT STRUCTURE METHOD IN
QTO (QUANTITY TAKE OFF) GIRDER BRIDGE
STRUCTURAL WORK**
(Case study: Seliau River Bridge, Pematang Duku, Bengkalis District)

Student Name : Yulius Winardi
Id Number : 4204201369
Supervisor : Dedi Enda, M.T

Abstract

Before the use of computers for building visual design, planners used drafting tables, which had many limitations. With technological advancements, Computer-Aided Design (CAD) emerged as a more efficient solution, allowing design changes without the need to redraw. As technology progressed, it demanded higher efficiency, leading to the development of Building Information Modeling (BIM). BIM enables the simulation of construction projects in accurate 3D forms, aided by software such as Autodesk Revit. Revit integrates architectural, structural, mechanical, electrical, and plumbing (MEP) designs within a single file, facilitating better communication among disciplines and detailed analysis.

This research focuses on modeling and applying BIM using Autodesk Revit Structure 2020, with initial design data obtained from the Public Works and Spatial Planning Office of Bengkalis Regency. It then calculates the quantity take-off based on the volumes derived from the bridge modeling.

From the design work carried out, a 3D structural model of the Seliau River Bridge in Pematang Duku Village, Bengkalis District, was produced, resulting in quantity take-off volumes of 139.04 m³ of concrete, 38.946,14 kg of reinforcement, and 281.794 m³ of formwork.

Keywords: *BIM, Autodesk Revit 2020, Quantity Take Off, Structural Work*