UNIVERSITI TEKNOLOGI MARA CAWANGAN TERENGGANU

MEC299

STRUCTURE DESIGN AND ANALYSIS OF GRP BEDAR

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ABSTRACT

The project's objectives were to develop and analyse a GRP Bedar boat's frame construction. A bedar boat is a traditional wood-built fishing boat. It's a boat that was made to match the shape of its own body. In this project, the Bedar boat was made out of Glass Reinforced Plastic rather than wood. Nonetheless, there are a slew of issues with finishing this assignment successfully. The design of the boat frame structure, the high degree of skill required, and the widespread use of wood in boat construction all contribute to this. This problem, however, may be overcome, and the project's objectives can be attained. One of its objectives is to improve the boat's structural strength. Apart from that, it is capable of effectively constructing a good boat construction and ensuring the boat's stability. As a result, there are stages to producing a product that must be completed in order to attainthe best results. To begin, the builders must research and learn about the boats that must be built in order to construct them using accurate specifications. They can design the boat using tools like PolyCad or Rhino. To assure the boat's safety, they must assess its strength. After that, the builder will be able to design and construct the boat construction efficiently. The boat design structure will be constructed successfully in the future. The boat's strength can be boosted as a result of the expected outcome by using GRP material and a correct boat construction.

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CHAPTER 1
INTRODUCTION

1.0 Background of Study

The Bedar is a traditional Malay watercraft. One of Malaysia's most renowned traditional craft is the bedar boat. Typically, this kind of boat is built in Kuala Terengganu, Malaysia. It's easy to identify a Bedar boat because of its distinctive characteristics. The Malays have been building wooden sailing vessels like these since the nineteenth century, and they've been plying the South China Sea and other waters ever since. Structures for boats are often constructed from Chengal (Neobalanocarpus heimii) wood. In Indonesian, this boat was known as bedar luang sudu @ duck's beak since it had a sudu on board.

Using traditional Malaysian methods, Terengganu's bedar boats are built using wood from the state's forests. They start with the hull and then work their way up to the frame. Wooden "basok" (dowels) made of Penaga-ironwood are used to bend and cut the boards (Mesua ferrea). As opposed to caulking the grooves between the boards in the European method, a strip of kulit gelam (paperbarks skin) from the Melaleuca species is placed over the dowels. One to two millimetres thick, this natural material covering has excellent sealing properties. The Proto-Malay migrations that populated the archipelago thousands of years ago may have introduced this unique building technology, which has been used for millennia. It is said to have originated with this manner.

Plastic that has been strengthened with glass fibres is known as GRP (Glass Reinforced Plastic). There is no difference between fibreglass, composite plastic, and FRP when it comes to the same product. It's durable, lightweight, and very versatile. The thermoplastics that are often used in everyday items do not respond the same way to GRP. If this is the case, then it may be said to have properties that make it useful in several