

**CORRELATION BETWEEN BRAZILIAN TENSILE
STRENGTH AND POINT LOAD INDEX OF KLIA
SANDSTONE**

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ABSTRACT

One factor necessary for designing or evaluating the stability of rock structure built on, in of rock such as tunneling, dam, high rise building is a knowledge of the mechanical properties of rocks. Hence, the knowledge of how the rock deforms or fails under the action of applied forces is required.

Brazilian tensile strength test (σ_T) and Point load index, $I_p(50)$ are the two method of testing applied in this project. The similarity of the nature of loading applied to the rock sample during testing is the factor to determine the possible correlation between these two types of tests. These tests were analyzed by plotting the graph Point load index versus Brazilian tensile strength. The results obtained were correlated to determine the relationships of these tensile properties.

The tests are carried out on the samples of Kuala Lumpur International Airport sandstone. The procedure of testing is according to International Society of Rock Mechanics (ISRM) suggested method.

From the laboratory investigation it was found that the Point Load strength is approximately 0.7 Brazilian tensile strength for Malaysian sandstone.

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CHAPTER 1.0

INTRODUCTION

1.1 GENERAL

Rock distinguished from all other common engineering materials, except concrete and soil by its low tensile strength. All civil engineering works of necessity require a fore knowledge of the physical, mechanical and consequently, the mineralogical or rheological properties of earth materials. The geologist calls these materials 'rock' but the engineer them called 'soil' when soft and 'rock' when hard. To the engineer who builds on, in, and by means of rock, the term 'rock' signifies firm and coherent or consolidated substances that cannot normally be excavated by manual method alone. To him, rock is a material having manifold properties, like any other material.

A lot of effort had been done in understanding the behaviour and properties of the rocks. N.Duncan (1969), Jumikis (1979) and Franklin (1989) for example have done a studies in the rock engineering. There are many other expertise and scientist have probing to this field in attempted to discovering the original characteristics of rocks in engineering aspects especially.

Nevertheless, in our region rock engineering can be considered as young. There are several numbers of studies in this discipline by the local expertise. Among them are Lee (1976), Tan and Chan (1980), and Komoo (1987).

Malaysia by its geological structure consist of various types of rocks. Occasionally, from the ancient history of rock recorded had gone through the lower paleozoic events. This events of the lower Paleozoic in Malaysia constitute a well