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CIVIL ENGINEERING DEPARTMENT

MARA INSTITUTE OF TECHNOLOGY

SHAH ALAM

AN INVESTIGATION OF THE EFFECT OF MOISTURE CONTENT ON THE UNIAXIAL COMPRESSIVE STRENGTH OF MALAYSIAN ROCK

BY

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SYNOPSIS

The compressive strength is the most commonly determined property of rock and the procedure used by most laboratories in making this measurement is virtually equivalent. The concept of the compressive strength test is deceptively simple, but in reality there are a number of factors that can affect the test results significantly, such as the flatness of the bearing surfaces, the specimen size and shape, the effect of friction between the bearing platens and the specimen, the alignment of the swivel head, the rate of loading and the moisture content in the specimen.

Relatively small variations in the moisture content of a specimen, for example, due to the coolants or lubricants used during specimen preparation, can cause significant variations in the properties measured. Such moisture variations may occur in the rock specimen even after it is air-dried, since laboratory humidity conditions commonly fluctuate from day to day.

For these reasons, it is virtually important to investigate the effects of moisture content on uniaxial compressive strength of the rock. Hence three rock

CHAPTER ONE

1.00 INTRODUCTION

1.10 GENERAL.

An important consideration in any analysis of rock properties is the question of environment. In most aspects of engineering design the structural material can be obtained in a specified state, both as regards internal and external or internal stress. Rock being a natural material must be accepted in its natural state, although this can be altered within limits by various forms of treatment such as bolting or grouting. This means that rock mass may often contain large quantities of water, which may radically alter its mechanical properties which are normally based on small-scale laboratory tests.

One of the most important criteria of mechanical properties of rock is strength. The strength of a material in a mechanical sense may be defined as the ability of the material to resist stress without large scale failure.