

MARA UNIVERSITY OF TECHNOLOGY

**THE EFFECT OF THE LATTICE GIRDER ON THE
COMPOSITE ACTION OF THE HALF SLAB**

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“May Allah Bless Them All”

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ABSTRACT

The works in this project is to determine shear stress of lattice girder on the composite action of the half slab by using finite element analysis. The analysis consists of determining the maximum displacement of each model, the stress and strain value of the slab. The output values from the analysis are compared with the results obtained from experimental work carried out by the others researcher. The solid structure HX8M and BRS2 are used in the finite element analysis of LUSAS software. In this analysis both the lattice girder and concrete are specify as volume. Combination from both of this material strength will give the result of displacement when the load is applied to the Half Slab.

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1.0 INTRODUCTION

1.1 GENERAL

The permanent formwork floor slab, sometimes called the half slab, used to be floor elements together with lattice girders. Half slab system uses the load bearing system, which is sometimes constructed with the combination of double wall elements, modification product of half slab. All structural requirements for tensile and shear reinforcements consists of lattice girders and longitudinal as well as transverse steel bars which are completely incorporated in the form of elements during production.

The half slab is the floor system made of steel and concrete layer about 50 and 60 mm thick on the bottom part. It is design to take the dead load from fresh concrete poured on top of concrete layer and ultimately becomes a complete slab system, which carries imposed and dead loads.

Lattice girders are divided into two types, namely, triangular for light and U-shape for heavy. (Pittini, K, 1997). When half slab bend after taking the load from fresh concrete, shear or slip force will occur between the surface of the half slab and fresh concrete. Lattice girders are designed to cater to this problem whereby it will take the load and also bond with the fresh concrete to become the permanent floor.