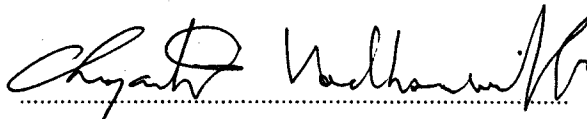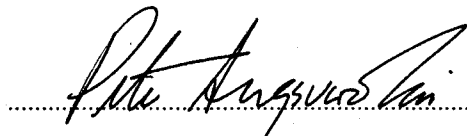THESIS TITLE : A STUDY ON THE FEASIBILITY OF CONCRETE-TIMBER AND
CONCRETE-STEEL , COMPOSITE SECTIONS FOR JOIST FLOOR
CONSTRUCTION

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ABSTRACT

This is a study on the feasibility of concrete-timber and concrete-steel , composite sections for joist floor construction. The criteria of design are that live load is not greater than 500 kg/m^2 and the spanlength is between 3.0-5.0 meters. The comparisons with prestressed concrete slabs and two way reinforced concrete slabs are made. Two shapes which are T-shaped and inverted U-shaped slabs are investigated. Beam sections are considered to compose of concrete slab , joist and shear connector. In this study , joist materials is timber whose shape is rectangular , and they are Yang (*D. alatus*) , Dang (*X. kerii*) and Keang (*Dialium cochichinens, xoay.*) and steel whose shapes are plate , I , light channel ([ ) , C , hollow square , double angle T-shaped and double angle divided U-shaped (⌊ ⌋). Shear connectors are made of local materials which can be easily found. Methods of construction of composite slabs are cast on site and cast in factory.

The results of this study indicate that the timber selected should have the high value of modulus of elasticity and shear strength. Regarding the steel shapes , for T-shaped slab section ; light channel ([ ) , C and hollow rectangular joist are suitable for all ranges of spanlength considered. For inverted U-shaped slab section ; double plate , double angle

divided T-shaped and double angle divided U-shaped are suitable for a spanlength of not greater than 4.0 meters. However , double light channel , double hollow square and double hollow rectangular are suitable for a spanlength of over 4.0 meters. To select a slab type used in construction , considerations should be made on costs , quantity of materials , labor skills , tools and machines used according to the local conditions.