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Cost modeling for selection roofing material

In recent decades new building techniques have bee developed and many new materials have been introduced to this construction industry and the building material market has become more profitable construction material producers than for the client.

Most people in Sri Lanka try to construct their own dwelling without much guidance from qualified professionals. Often an Architect is retained as the designer but is not employed during the construction phase due to various reasons. Further, the abundance of numerous material options for selection makes it even a difficult task for construction professionals. Further, there is hardly much product information available at hand to the construction professional to advise a building client. Information available is piece-meal and hardly any comparative analysis available.

This research was aimed at preparation of a cost model which can be used for selection of roofing materials including roof covering, ceiling and insulation materials for domestic purpose, giving adequate consideration on cost and some other performance factors like thermal comfort, water tightness, durability, etc. In the creation of model adequate consideration has been given to difference in roof design complexity and materials are ranked for each type on aforementioned factors.

Different roof covering, ceiling and insulation material combinations gives different roof costs in total for different roof designs. Analysis of total roof cost shows that the lowest cost combination for all simple, medium complex and complex type as the Asbestos roof covering with exposed rafter slope Asbestos ceiling and 3 mm thick Polyuthalene insulation. Further, the research is extended to publish the model on the Web to overcome the limitations of using cost models and to develop a web knowledge based cost model which can be used for material selection for building construction.