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This special project, the brainchild and vision in promoting community engagement projects by our Vice Chancellor, Professor Dato’ Dr. Mohd Amin Jalaludin, has resulted in the building of a low cost model house incorporating green technology using construction materials costing less than RM 20,000. The launching ceremony of this low cost green house was officiated by YB Dato’ Seri Idris Jusoh, Minister of Higher Education, Malaysia on 2 June 2016.

The Centre for Innovative Construction Technology (CICT) in the Faculty of Engineering, UM, has been conducting research on the use of local waste materials for more than 10 years. Among the research findings which have shown great potential include partial and full cement replacements using materials like palm oil fuel ash, palm oil clinker (POC) ash, rice husk ash, and coal bottom ash. In the case of full cement replacement, such materials need to be combined with activators to give binding properties to the concrete. This type of cement-free concrete is commonly termed as ‘geopolymer concrete’. In addition, local waste materials such as POC, oil palm shell and slag were found to be good alternative as coarse and fine aggregates in concrete.

Utilization of these materials promotes the recycling of wastes and avoids the depletion of natural aggregates and sand. By reducing or eliminating the usage of cement, it will help to reduce the high level of carbon dioxide emission and consumption of huge amount of energy in the cement-manufacturing industry. Moreover, the usage of wastes can help in reducing cost of producing concrete, and hence decrease the cost of houses made from concrete. This will help in addressing sustainability and green technology issues as well as reducing the cost of construction.

Prof. Dr. Noor Azuan Abu Osman, Dean of Engineering said, “The construction of the green low cost house was successfully completed in 3 months. The design was based on masonry structure system, focusing on the application of load-bearing interlocking brick system. Waste materials such as POC, slag, POC ash and quarry wastes were introduced in the brick system as well as the foundation of the low cost house. The single-storey house has a build-up area of 808 square feet, consisting of 3 bedrooms, 2 bathrooms and a combined living room/kitchen area with targeted total construction material cost of below RM 20,000”.

YB Dato’ Seri Idris Jusoh congratulated the UM Team for their innovative approach in the construction of this low cost house which will provide a practical solution to the government’s initiative to provide affordable housing in the country.