Nowadays, in hot tropical regions it is one of the most complicated and arising issue to ensure thermal comfort in buildings by means of passive way. Tropical climate greatly affects the indoor thermal environment of buildings. Here buildings are overheated during the day due to solar heat gain through the building envelope and release the stored heat towards indoor when night begins. From a thermal comfort point of view it requires lowering of indoor temperature below the outdoor temperature and drain out the indoor excessive heat by using building envelope, by construction materials and by passive or active systems. However, achieving thermal comfort through passive means in tropical and hot humid climate is not always easy. Characterized by relatively high temperatures, these climates usually require cooling. Even with the best effort to reduce heat gains, cooling requirement may not be eliminated. These difficulties lead to many buildings relying completely on air-conditioning. Nevertheless, a range of passive design techniques need to be employed to help minimize or avoid this reliance.

The aim of this paper is to investigate the heat transfer potentiality of a building envelope integrated with ELT (end-of-life tyres) at foundation. A hazardous waste, ELT or massive scraped tyre waste created environmental load to the local environment. Today, when researchers think of the environmental impacts of tyres, they mostly focus on the management of tyres at the end of their useful lives. From Global perspective it is found that one billion tyres reach the end of their useful lives annually, out of which about four billion ELTs are currently in landfills and as stockpiles worldwide. Study revealed that most of the developing countries currently are not experienced with the disposal method of ELT. Besides, developed countries from Europe, USA, Japan and Singapore have framed specific law or regulation to the disposal of ELT. Recently it is obvious that should find out alternative ways as to reduce the load of massive ELT waste.

Furthermore, this study has been designed to manage ELTs massive waste, experimentally. This research followed by an effective experimental set up to observe the real phenomena of ELT for passive cooling in hot humid and tropical climate and make comparison with conventional construction materials and systems.

**Key words:** ELT, Heat transfer, Heat sink, Building Envelope, Tropical Climate and Passive Cooling.