Effective Utilization of Transparent Waste as Thermal Insulation for Heating and Energy Saving

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Solid waste management is a major concern for Pakistan like many other developing countries. Now with arising climatic impacts on hand, waste management has become an inevitable problem for the planet earth. In addition to the waste management, efficient and reduced energy consumption is also one of many challenges Pakistan is confronting. Alongside various usage of energy resources, it is also utilized for the heating and cooling applications. In order to reduce and optimize energy consumption for these applications this project is an attempt to both manage the transparent waste and reduce energy required for heating purposes. In this context, five different groups of waste i.e. plastic bags, plastic bottles, glass parts, cellophane, and mixed waste are separately utilized and tested as thermal insulator in buildings glass instead of classic thermal insulators. Based on this project finding, it is revealed that transparent thermal insulators exhibit better results as compared to classic thermal insulators for such applications. It was also observed that the insulator with mixed transparent waste exhibited more superior results among the 5 types of waste used in this project, which include plastic bottles, plastic bags, cellophane, and glass. Thus, it is highly recommended that transparent plastic waste can be collected, treated and utilized for thermal insulation of the buildings.

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