

Comparing Energy in Different Buildings using two Insulators

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ABSTRACT

This paper describes how to measure conductivity of two new insulators. Mat is made up of Agave plants which are now produced in Iran; gunny made up of plant fibers which is producing in Iran both can be used in walls of buildings to reduce energy loss in cold season. In this work the thermal conductivity for mat is to be $0.06949 \text{ J/s.m}^{\circ}\text{C}$ and also from temperature gradient curve it was found that the temperature changes uniformly with thickness of the mat and also the thermal conductivity for gunny is to be $0.080 \text{ J/s.m}^{\circ}\text{C}$ and also from temperature gradient curve it was found, the temperature changes uniformly with thickness of the gunny. Finally the difference of the energy gain in the brick buildings with & without the mat was estimated to be $1.9656 \times 10^3 \text{ kcal}$ in the cold season in Tehran for 150 days. Ultimately it was estimated energy gain in the brick buildings with & without the gunny to be $2.393 \times 10^3 \text{ kcal}$ in the cold season in Tehran for 150 days. The measured thermal insulation of mat and gunny proved to be more desirable comparing with other insulators.

INTRODUCTION

Prior to world war II in the 1940s, coal and wood were important. As we begin the new century the challenges we face as building designers increase daily. In criticism of energy due to the increasing oil and energy price, the main consumption of energy is usually used in residential and commercial buildings. Mat is made up of plant fibers which are produced in many countries in the world.

Both sisal and henequen come from the leaves of species of Agave (Agavaceae). Sisalana has sharp spines on the ends of its leaves that have been used by native people as needles , Gunny in made up of plant fibers which is produced in India, from which it is spread throughout the Turkey, Iraq, Pakistan, China, and Iran. Europeans began to search for an inexpensive substitute for flax, they tried to used gunny. The species appears to be a native of the Mediterranean region, from which it was spread throughout the Middle East and Far East. Today gunny uses for coarse goods. We have tried to introduce gunny and mat as two of the desirable insulators. The provision of both the fiber and a sewing utensil gave rise to the common name needle and thread plant. Today the fibers are used for sacking, mat, teabags and as reinforcements for materials such as rubber. Fibers are removed from Agave species in the same way. The outer, mature leaves are cut at the rphous mush that is scraped away from the fibers. The fibers are then washed and hung in the sun to dry. They cabase, to the factory, and fed between rollers that squeeze out most of the water and turn the soft tissues into an amon be dyed or used directly since they are naturally a creamy white if properly washed and dried.[1]. This work tries to consider mat and gunny as two new of the desirable insulators.