

# **Abstract**

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## **EXPERIMENTAL INVESTIGATION OF HEAT RECOVERY SYSTEM IN LEISURE CENTER**

Leisure centers are known as high consumers of energy, especially if they have large ice rinks and swimming pools. The aim of this paper is to apply a heat recovery concept, by using the heat rejected from the condenser of the refrigeration unit to heat the water of swimming pool especially in winter. An experimental model has been constructed to contribute in solving the problem of energy shortage. The model installed includes an ice rink, a swimming pool and two different condensers. A comparison between different cases of operation to obtain the maximum energy saving was carried out. The results show that the energy saving was about 30% by using both air and water cooled condensers in series compared to the air cooled condenser only. The results also showed a significant decrease in the time required for the ice formation by using both air and water cooled condensers