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Application of the Heat Pump for Year Round Air Conditioning

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REPORT ON

APPLICATION OF THE HEAT PUMP FOR YEAR ROUND AIR CONDITIONING

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ABSTRACT

The heat pump is a heating and cooling system that could be quite valuable. This machine has the capacity to replace all residential heating systems with a very efficient, small, package heating and cooling unit. The fuel shortages are gently pressing the energy situation and tremendous expenditures are being invested to help alleviate a possible energy crisis.

The heat pump is a product of theoretical thermodynamics that has been around for some 200 years. Not until the last thirty years has the heat pump been considered as a method for reliable heating and cooling.

The project was undertaken to design the components to make up a complete residential heating and cooling unit. The project began with an estimation of 84,000 Btu/hr cool load. A value of 40% of this cool load was taken as the heat load.

Water was selected as the sink - source and R-22 was selected as the refrigerant. Other components: the compressor, the heat exchange equipment, and the fan blower system was then designed. Next the drier and piping was chosen. The thermostat controls concluded the design of this heat pump system.

The conclusions explain how the system will next receive a complete cost analysis and then a redesign to lower the high costs. A layout will then be made if the project to that time still remains both physically and economically feasible.