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Institute for Research in Construction

Bringing quality to the built environment

High-performance Thermal Insulation Systems for Buildings

Objectives

To advance the development of new insulation materials for buildings and to assist manufacturers and the construction industry to overcome technical limitations on their use.

Background

Vacuum insulation panels (VIPs) filled with new high-performance thermal insulation, such as micro and nano-porous materials, have been developed. These can be up to ten times more energy efficient for the same thickness than insulation materials currently in use. This means that:

- the size of insulation cavities can be reduced
- less insulation material is required
- the amount of usable building space is increased.

However, the use of such materials in buildings in North America has been limited, partly because of concerns about long-term performance, handling in the field, and performance of the panels as a system.

Statement of Work

We will install equipment to evaluate the short -and long -term thermal resistance of high-performance insulation materials and systems and then test prototypes of nano-porous materials for use as the core of a VIP. We will subsequently seek industry partners to manufacture VIPs and evaluate them with regard to their performance and field application.

Expected Outcomes

Guidelines on the application and use of VIPs in buildings will be published.

Partners

Climate Change Technology and Innovation (CCTI)

Start/Expected Completion Dates

This project began in July 2004 and will be completed in 2007.

Project Manager

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For more information, see http://irc.nrc-cnrc.gc.ca/bes/prsi/thermal_e.html

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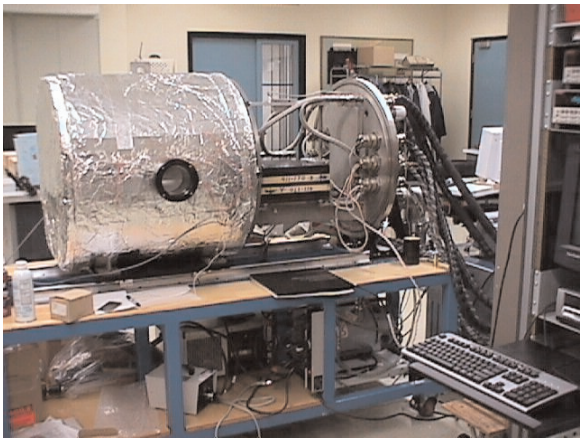

Vacuum Guarded Hot Plate