Window Testing Apparatus

Kevin DeBruin, Daniella Sugijanto, Dr. Renard Tubergen, Dr. Rich De Jong
Calvin College, Grand Rapids, Michigan

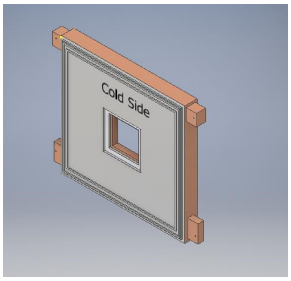
This shows both the old method of collecting data through the two black dials and displays to the left of the laptop and the new automated data acquisition system to the left of the computer and the new software displayed on the computer screen.

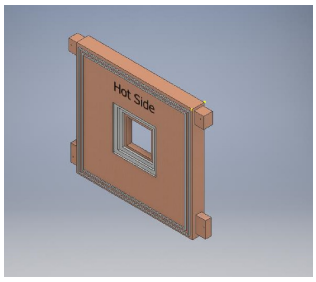
Purpose

The purpose of this project was to improve the window testing apparatus and continue testing window panel inserts.

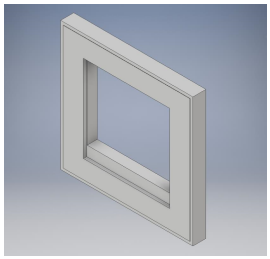
Background

In the 1950s many people thought that nuclear power would make electricity extremely cheap. As a result, not much care was taken on created well-insulated industrial buildings. Today, there is now a great need to make these buildings much more energy efficient. We believe that these window inserts will be and effective and inexpensive fix to this problem of inefficiency.





The above pictures are an inventor drawing of the panel inserted in between the cold box and hot box. The center hole houses a glass panel and is able to mount any 1 square foot plastic frame for testing. The bottom photos are of a frame used to house a 1 square meter frame used for most of the testing done this summer.



Project Overview

- Continued renovations of the existing hot and cold boxes designed and built by former Calvin students
- Added a completely automated data acquisition system to collect temperature data inside the boxes
- Continued testing of window inserts produced by the Mackinac Technology Company
- Began taking data measurements on 2 frames of plexiglass located in the Vos House off campus.