

Hotboxes have been around for quite a long time. The first Hotbox was developed in the 1930's at the Pennsylvania State University and the Massachusetts Institute of Technology. This Hotbox was capable of conducting static temperature tests on walls. Currently, there are approximately 60 Hotboxes in operation in different parts of the U.S. and Canada with sizes varying from 3' X 3' to 9' X 12'. Only three of the existing Hotboxes are capable of analyzing dynamic temperature variations; others called steady state devices analyze set temperature changes through walls.

The biggest Hotbox (9' X 12') is at the National Institute of Standards and Technology (NIST). This Hotbox has a higher degree of accuracy than others and will ultimately be able to measure the transfer of humidity and variations in temperature. DOE's main role has been in sponsoring a dynamic test method capable of measuring temperature variations. Steady state Hotboxes have been built and calibrated, and are no longer undergoing technical development. Dynamic temperature experiments, on the other hand, are relatively new. They have been conducted on two different wall systems by the NIST. Work is also being conducted on humidity measurements.

Hotboxes are applied in testing the thermal performance of whole wall systems. The Hotbox method leads to better information on different whole wall systems which increases economic efficiency by recommending correct amounts of insulation.

There are no direct energy savings generated from using Hotboxes. Like appliance labelling programs, home rating systems, design models, air infiltration testing methods, and other OBCS supported activities, Hotboxes have been promoted in an effort to narrow the information gap surrounding the energy performance of alternative building technologies.