

BUILDING DEFICIENCIES AND THEIR ADVERSE EFFECTS ON ENERGY USE AND INDOOR AIR QUALITY

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Motivation:

- Americans spend nearly 90% of their time indoors
- Buildings in the US consume 40% of energy, and 72% of electricity
- Building deficiencies cost building owners and users billions in wasted energy, repair and litigation costs

Research Goals:

- (1) Identify and characterize building deficiencies in existing residential and light commercial buildings due to environmental influences, building envelope failures, and HVAC system faults.
- (2) Explore how recent changes in building operations strategies to reduce energy consumption during peak energy use time periods can introduce additional deficiencies in buildings.

Causes

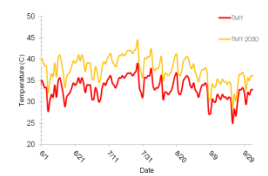
HVAC
Faults



Building
Envelope
Failures



Environmental
Influences

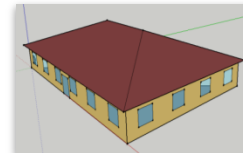


Effects

Increased energy use, building structure damage, bad indoor air quality

Research Techniques

Building
Simulation



Lab/Field
Testing



Smart Meter
Data Analysis

