

# ICF Wall Systems

vs.

## Concrete Block Wall Systems: Most Beneficial Building Material

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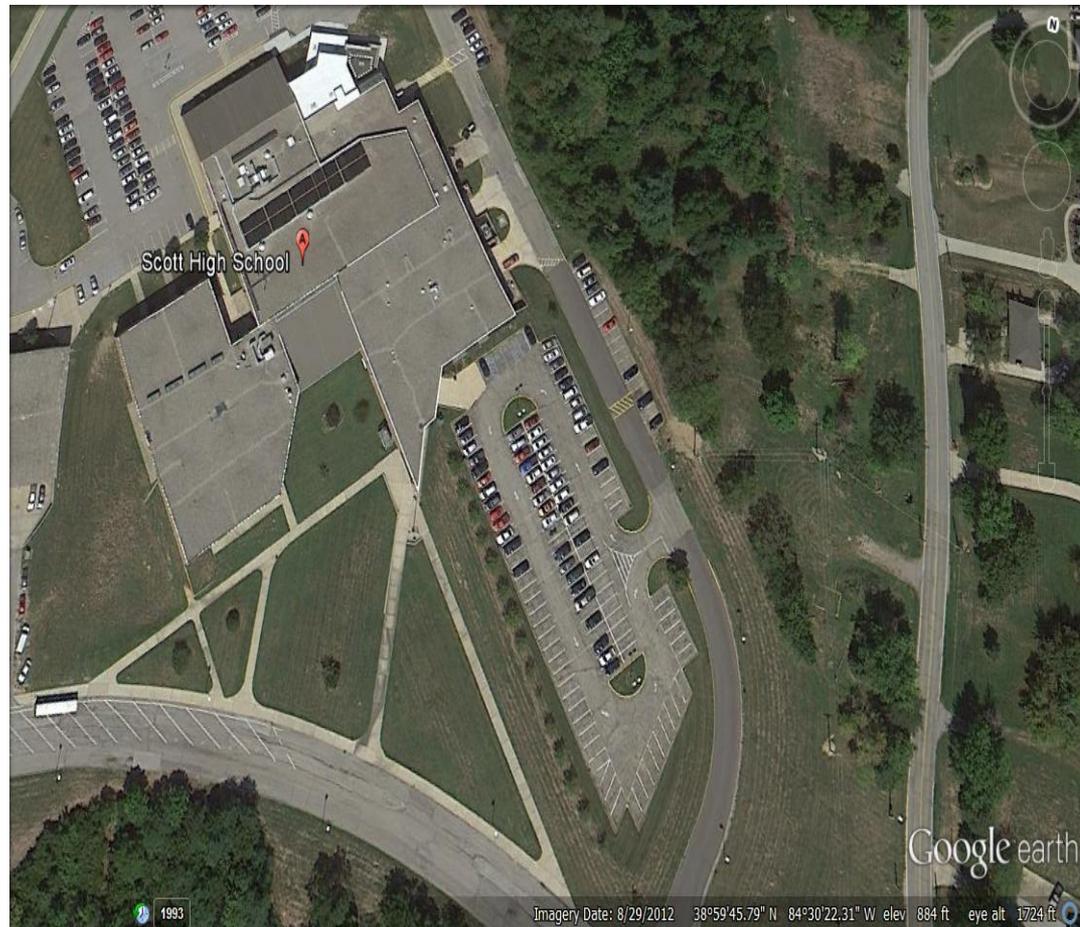


# Question and Problem

- Scott High School is currently is made of a traditional concrete block wall.
- Will ICF be a more beneficial building material?
- Although beneficial, ICF has a higher upfront cost.

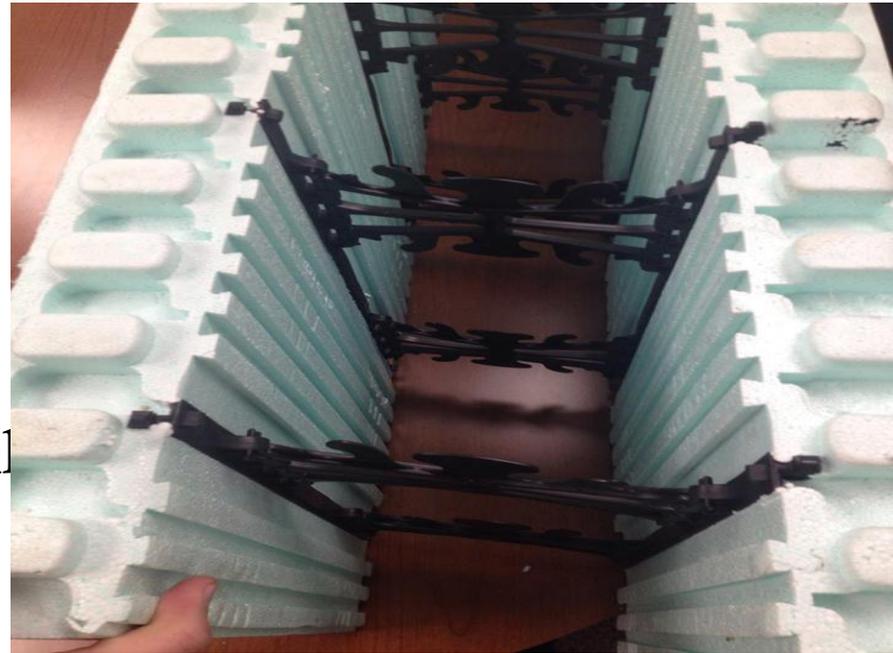
# Our Hypothesis

- ICF will be the most cost effective wall for Scott High School



# ICF wall system

- Pros
  - Energy efficient.
  - Faster construction time.
  - Interchangeable sides.
  - Less man power to install
  - 40% higher shipping capacity
- Cons
  - Cost 5-10% more upfront.
  - Difficult to remodel.
  - Can provide routes for insects.
  - Humidity problems.



Estimated Cost per square foot: \$10

# Traditional wall system:

- Pros
  - Cheaper upfront cost.
  - Fewer ways for bugs to get in.
- Cons
  - Installation time.
  - Not energy efficient.
  - No insulation.
  - Rerouting wire.



810 Traditional Fence

ESTIMATED COST PER SQ. FT. \$6.85

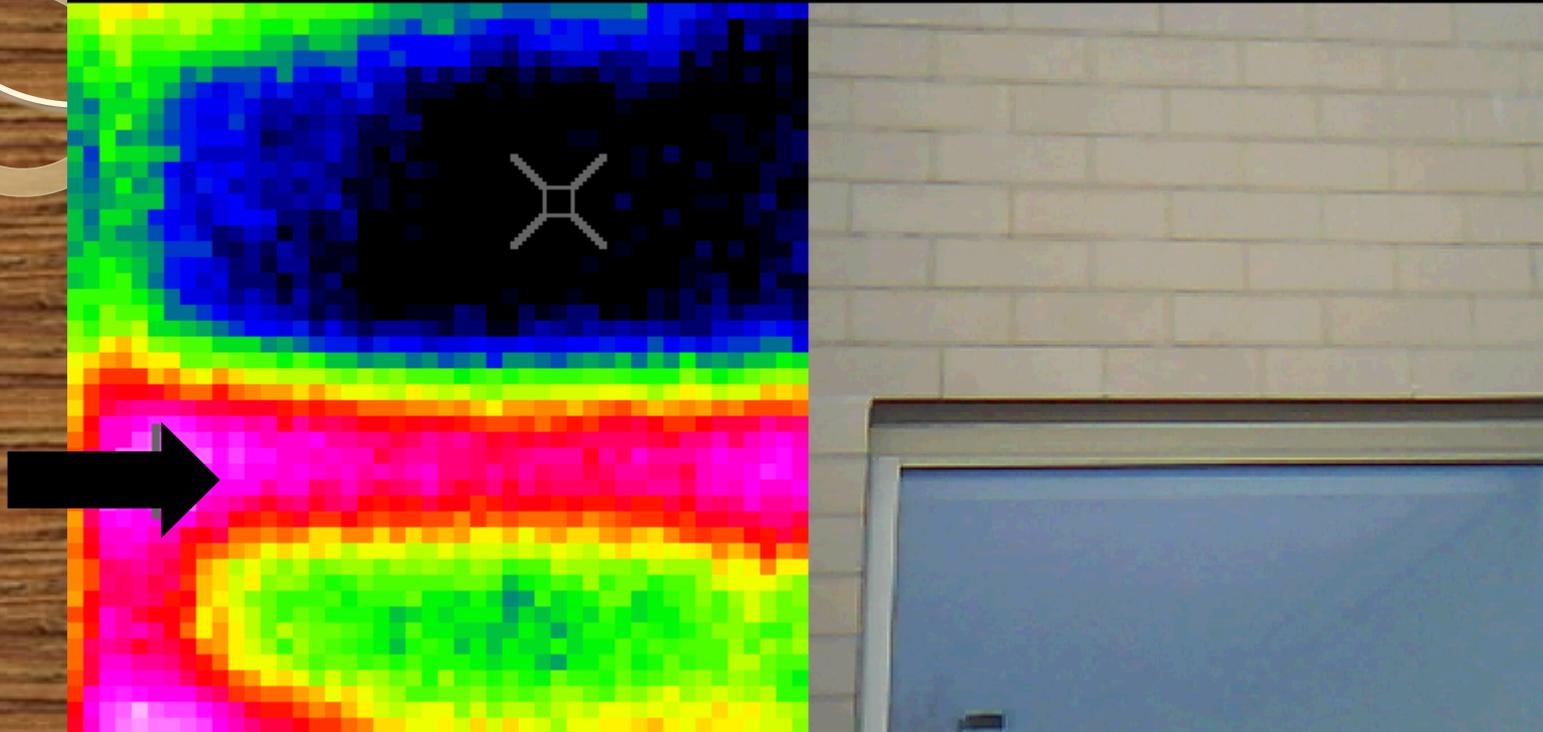
# Procedures

- Thermal imaging: of the wall seems and windows.
- Calculate the energy savings for a building made of ICF and a building made of the traditional wall system
- Calculate payoff time for re-skinning the school
- Analyzing data.
  - Is cost savings worth construction cost?

# Thermal Images

+46.8 X35.5 °F

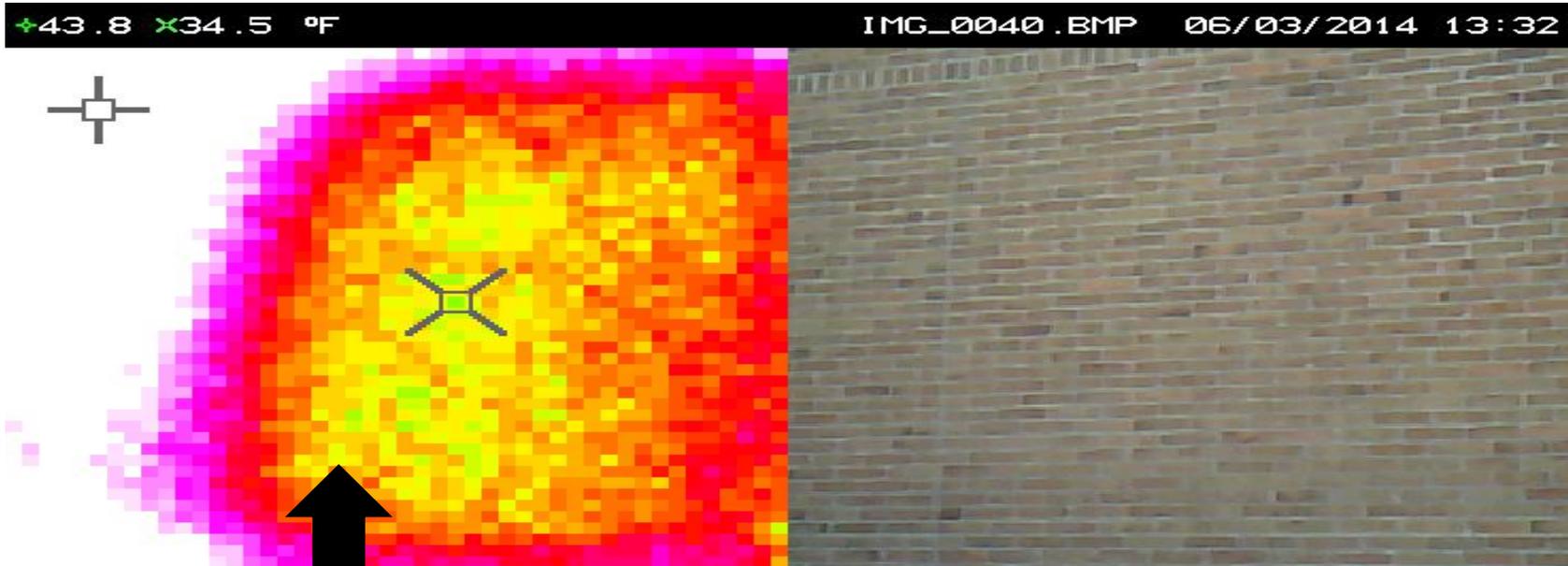
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ICF wall  
system at Scott  
High School

R-value of  
ICF:50

# Thermal Images



R-value of  
Concrete block  
wall: 1-5

Concrete  
Block wall  
system at  
Scott High  
School

# Scott High School

Total sq ft : 150,347 sq feet.

kWh in one month: 445,415

Cost: \$311,790.50





# Cost calculation

- Equest- Energy Modeling Software
- Calculate cost savings
- We will use this information along with estimated construction costs to calculate the payback time for re-skinning Scott High School

# Sources

- <http://www.nudura.com/en/contactnudura.aspx>
- <http://doe2.com/equest/>
- Brad Munro- Sales and technical support for Holdfast Technologies, LLC
- June Fulford-Caron- Nudura customer service representative
- Rob Haney- Executive director of support operations for the Kenton County School District
- Chris Baker- Energy systems coordinator for the Kenton County School District
- Ray Beaufait- Engineer for CMTA