REWARD® WALL SYSTEMS

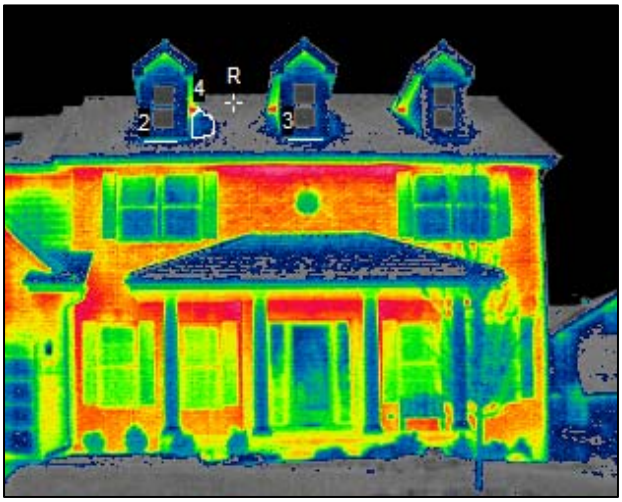
Construction Bulletin for Professional Builders and Sub-Contractors

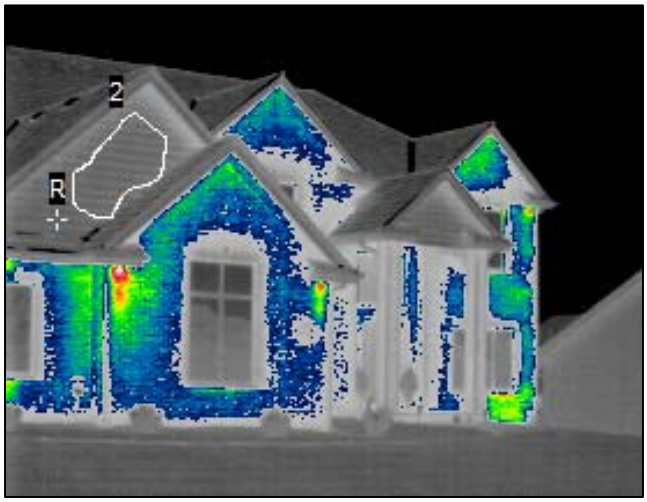
It's one thing to say that a house built with insulating concrete forms is energy efficient, but it's quite another to be able to visually prove it.

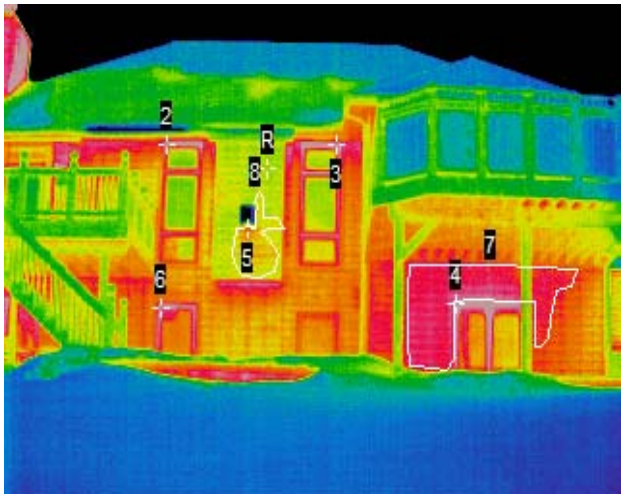
Thermal imaging is a type of infrared imaging science. Thermographic cameras detect radiation in the infrared range of the electromagnetic spectrum (roughly 900–14,000 nanometers or 0.9–14 µm) and produce images of that radiation. Since all objects emit infrared radiation based on their temperatures, thermography makes it possible to "see" one's environment with or without visible illumination. The amount of radiation emitted by an object increases with temperature, and thermography allows one to see these temperature variations (hence the name). When viewed by a thermographic camera, the presence of heat stands out against cooler backgrounds, day or night.

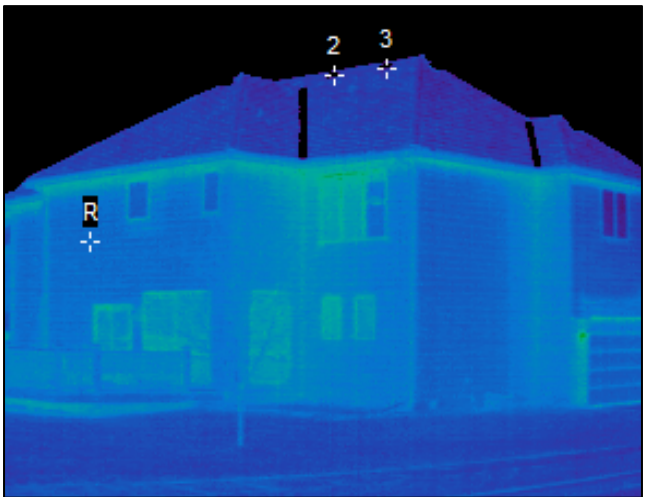
A reference point, 'R', is a temperature point on the building determined by the thermal imaging that is considered normal at the given time and conditions the image was taken. Based on the laws of physics (heat loss/flow), the reference point is then assigned a color.

The change in temperature and color from the reference point indicates a thermal loss. A thermal loss of < 2° is acceptable. A thermal loss greater than 2° is unacceptable and shows some anomaly causing excess thermal loss.









The photos of the two houses above were taken in the same neighborhood within minutes of each other. The house on the left is wood framed, while the house on the right has exterior walls constructed with Reward ICFs. The ICF house shows less than < 2° temperature change. This indicates little to no heat loss. The yellow, orange and red colors indicate heat loss at >10° and up to 20° temperature change.

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Images provided by ThermaScan Solutions

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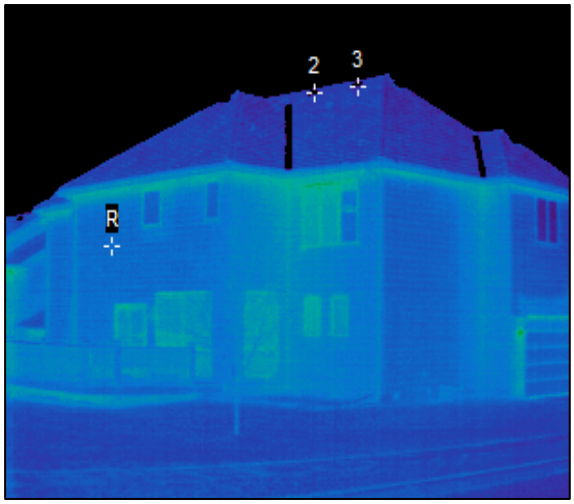
Thermographic photography provides us with visible thermal information, thus allowing us to identify distinguishing heat patterns. These heat patterns can then be measured to reveal building, equipment or environmental flaws (i.e. heat loss through the roof or windows). Ultimately, these thermal images show that an ICF structure delivers a significantly tighter enclosure than that of its wood framed counterpart.

The two photos below show the heating and cooling cost differences that can be directly attributed to the heat loss. *The following pictures are merely a visual representation of heat loss. This is not scientific data.*

Home above shows heat loss throughout the
exterior walls.
Details:
800 square foot ranch
Exterior walls: Wood and typical insulation
Average heat bill $200/month



Home above shows *no* heat loss throughout the
exterior walls.
Details:
3,500 square foot two story
Exterior walls: Insulating concrete forms from Reward Wall Systems, Inc.
Average heat bill $80/month

Even though the homes above are located in the same climactic region, the Reward built home (on the right), which is more than 4x bigger than the wood framed home (on the left), spends 60% less on an average heating bill.

Quote from ThermaScan Solutions photographer, Bryan Dring
"I have not seen any house that compares with the Reward ICF house for being thermally efficient as this one. Even the roof vents were cold when all other houses that we have inspected the roof vents were releasing heat from the attic, the ones on the ICF house were not."

Infrared Photos Color Legend

Blue: **Heat loss (< 2° temperature change)**
Yellow: **Heat loss (3-10° temperature change)**
Red: **Heat loss (11-20° temperature change)**

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