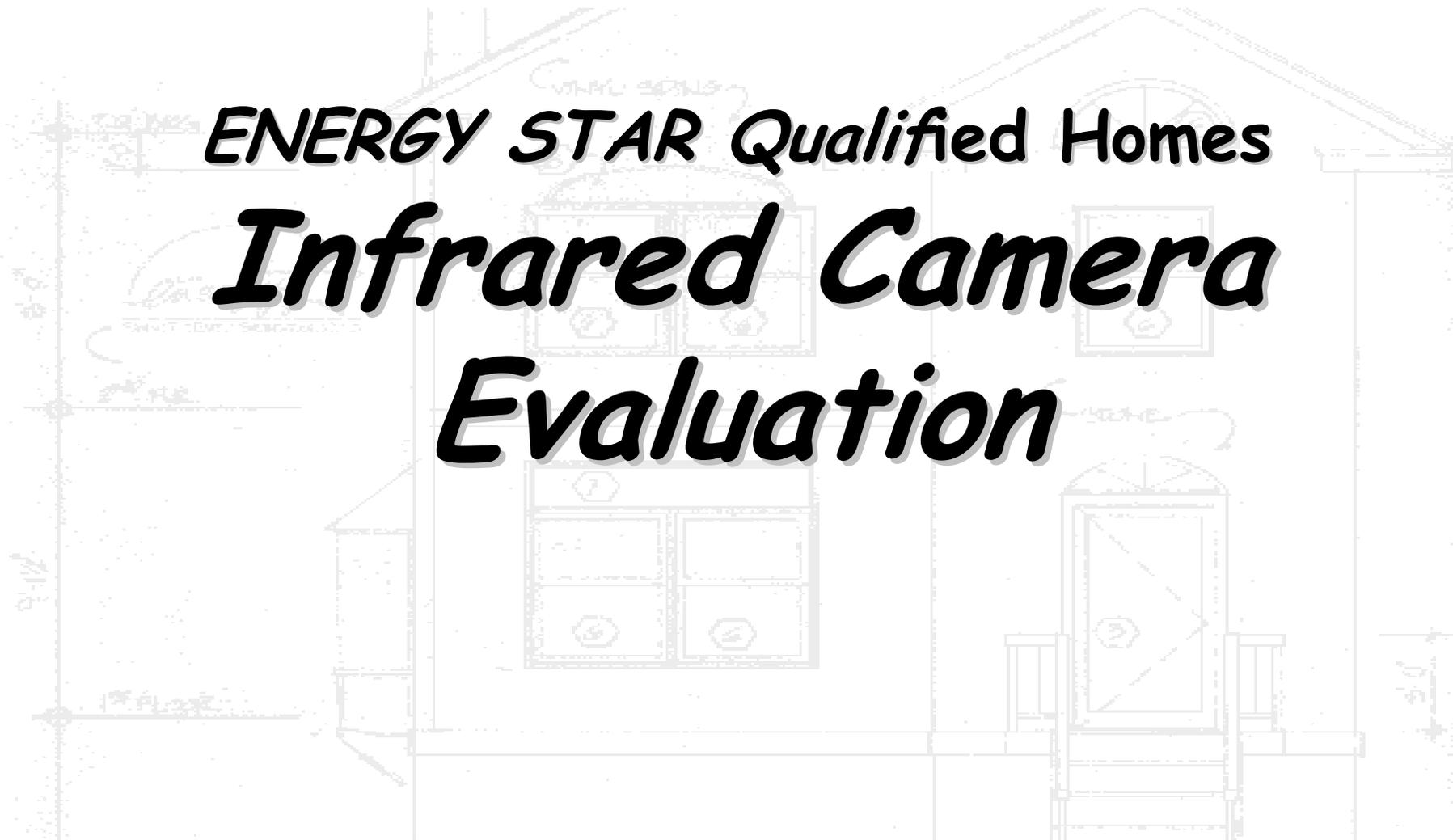


ENERGY STAR FOR HOMES



***ENERGY STAR Qualified Homes  
Infrared Camera  
Evaluation***



# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION FOUR CITY STUDY



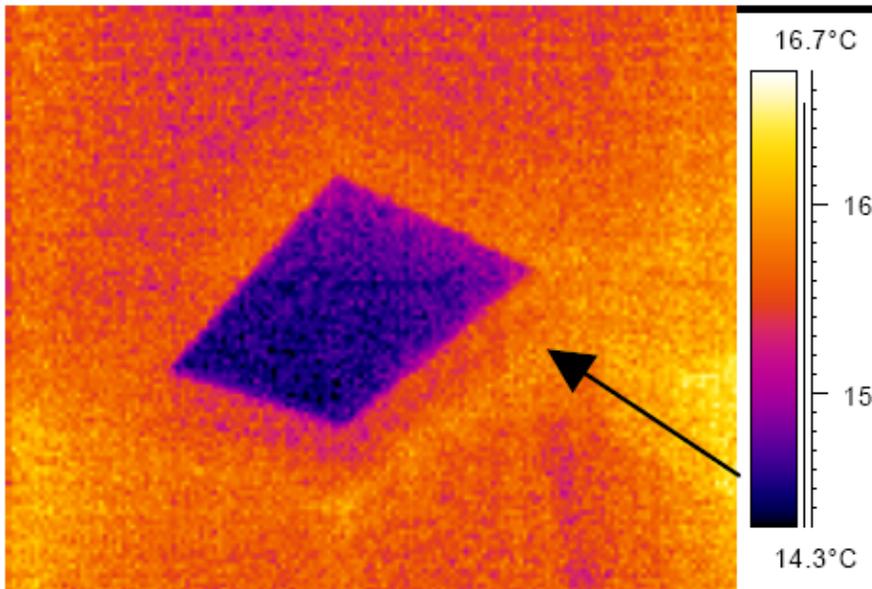
- ***Columbus, OH***
- ***Salt Lake City, UT***
- ***El Paso, TX***
- ***Minneapolis, MN***



# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION COLUMBUS OHIO



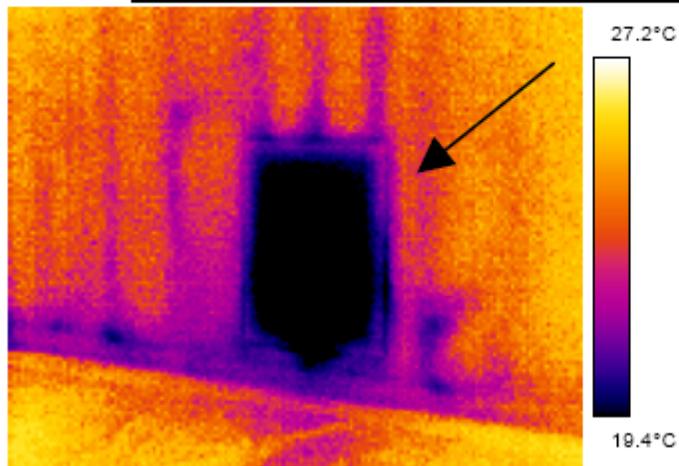
Attic access panel, IR-5, showing either no or improperly installed  
3. (not attached directly to panel cover) insulation on back side



# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION COLUMBUS OHIO



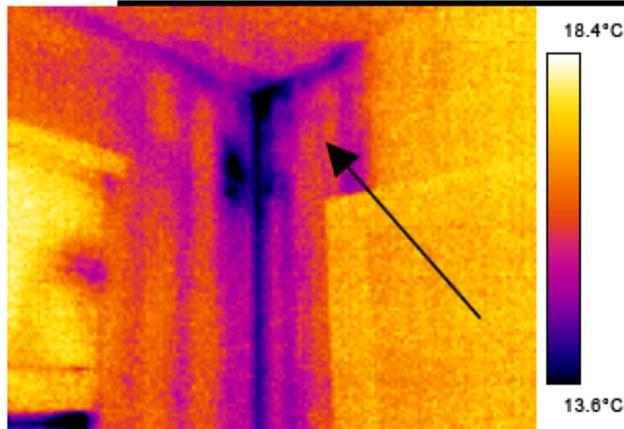
Attic access panel, IR-27, showing either no or improperly installed (not attached directly to panel cover) insulation on back  
**3. side (not match)**



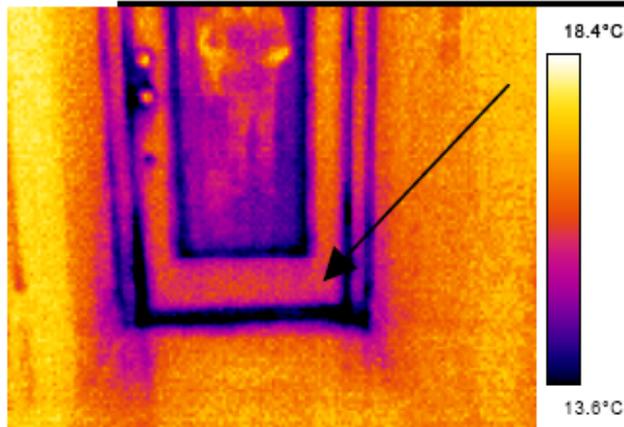
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION COLUMBUS OHIO



## 1. Dining room upper NE corner showing air infiltration IR-14



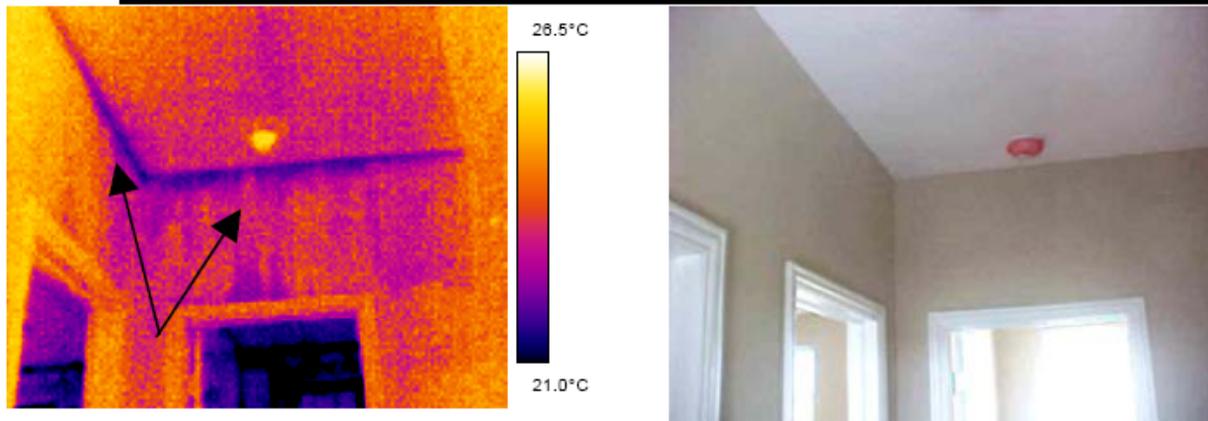
## 2. Front door air infiltration (weather-strip installed) IR-15



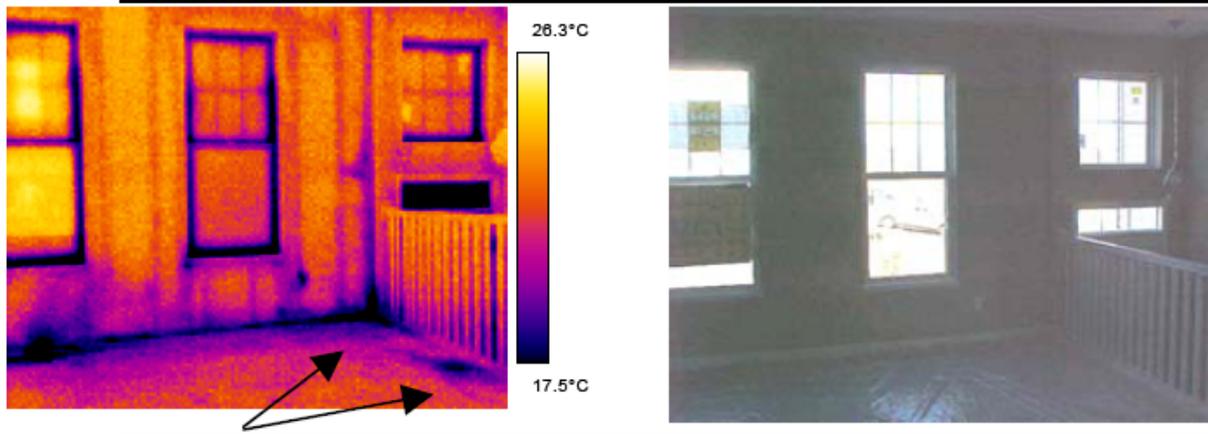
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION COLUMBUS OHIO



Upstairs hall interior walls showing air infiltration from attic along  
**5. top of wall IR-23**



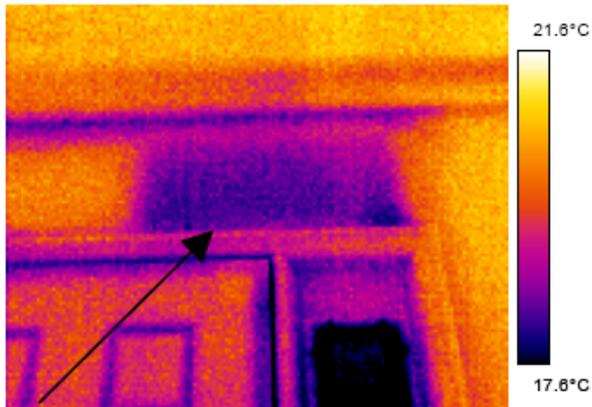
North wall front room first floor showing air infiltration along base  
**6. of floor and in floor cavity which is above garage IR-24**



# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION SALT LAKE CITY

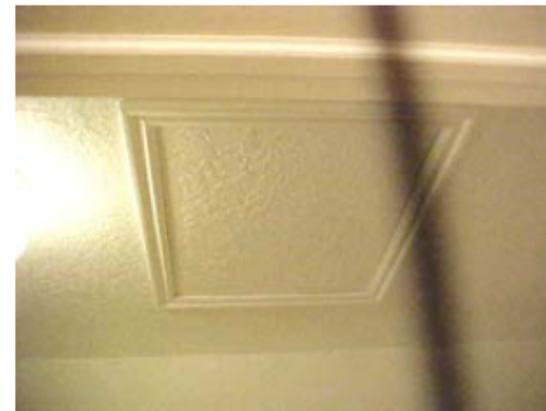
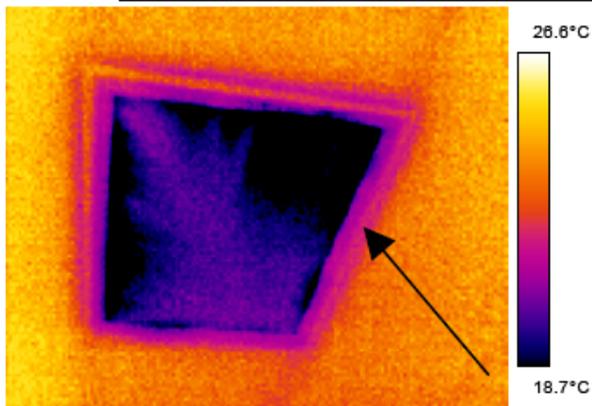


## 1. Above front door showing missing insulation IR-1



Attic access panel in master closet, IR-2, showing either no or improperly installed (not attached directly to panel cover)

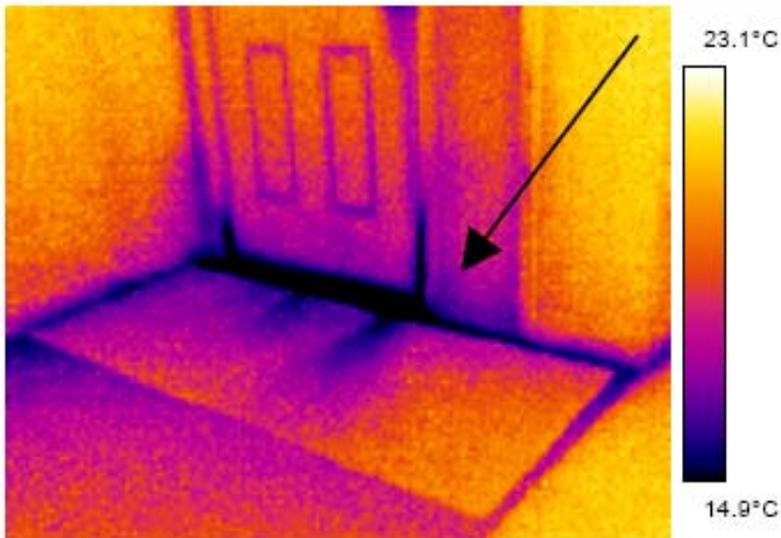
## 2. insulation on back side



# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION SALT LAKE CITY



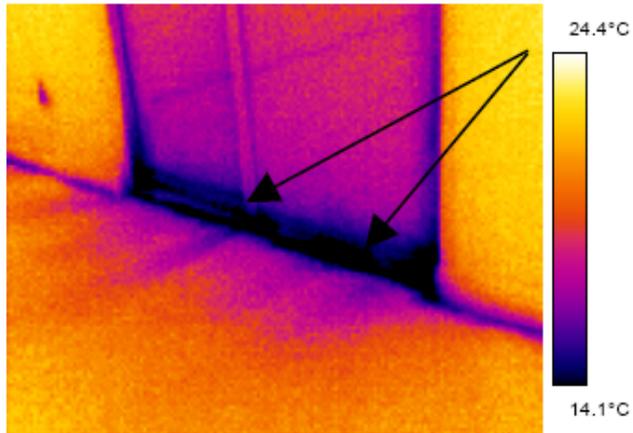
## 1. Base of front door showing air infiltration IR-3



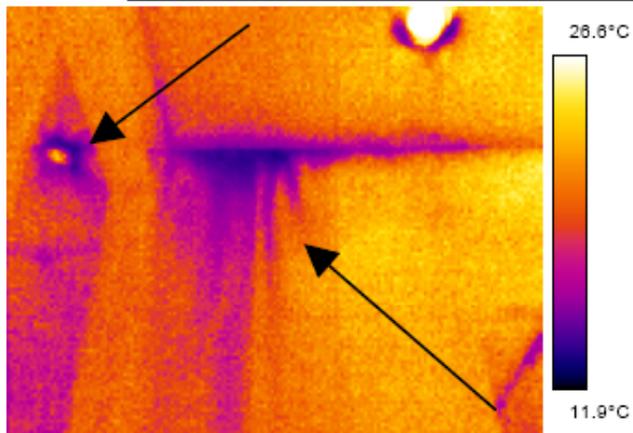
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION SALT LAKE CITY



## 2. Base of patio sliding door showing air infiltration IR-4



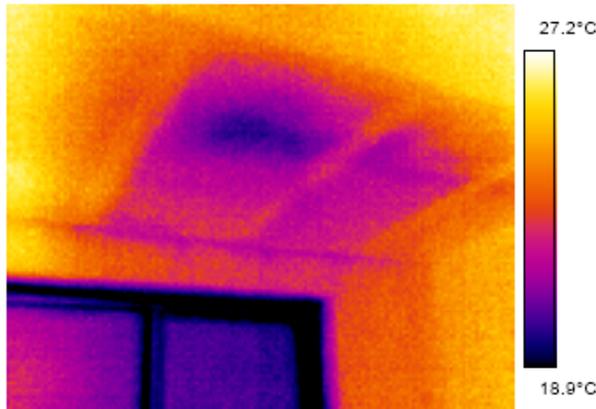
## 3. Interior wall at top of stairs and smoke detector master bedroom showing air infiltration IR-5



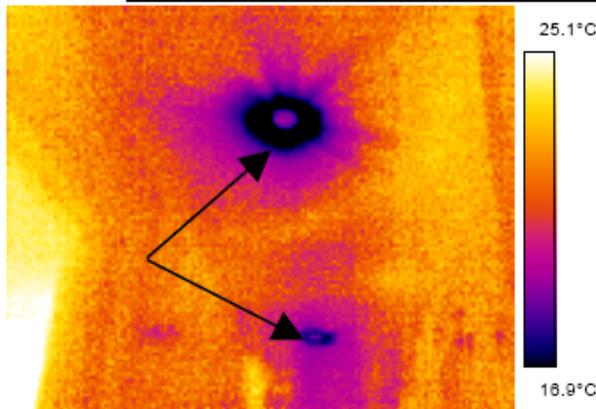
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION SALT LAKE CITY



Bulkhead type ceiling in basement bedroom below study showing  
2. air infiltration IR-20



Upstairs hall can lights-typical throughout showing air infiltration  
3. IR-21

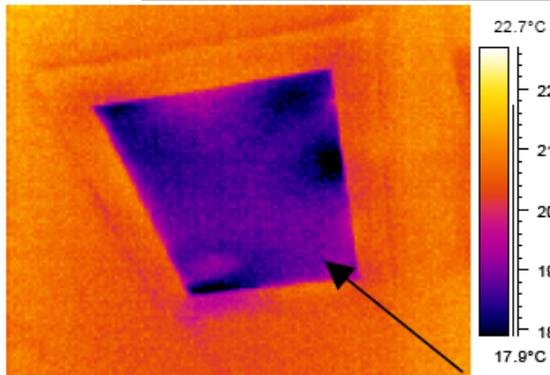


# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION SALT LAKE CITY



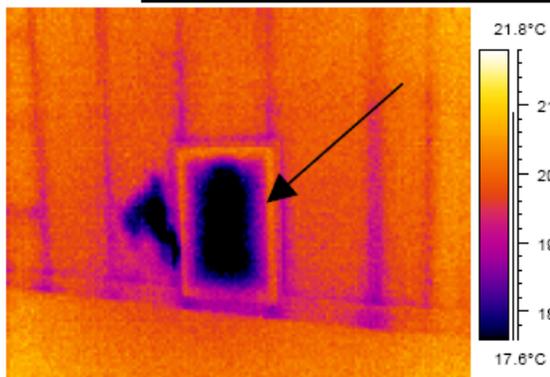
Attic access panel in ceiling west bedroom IR-25, showing either no or improperly installed (not attached directly to panel cover)

## 1. insulation on back side



North wall attic access panel and adjacent cavity in west bedroom IR-26, showing either no or improperly installed (not attached directly to panel cover)

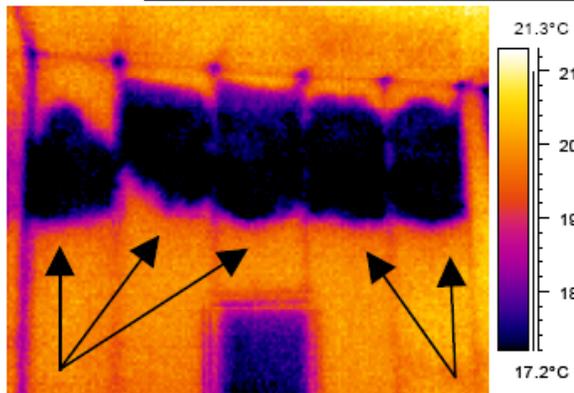
## 2. directly to panel cover) insulation on back side



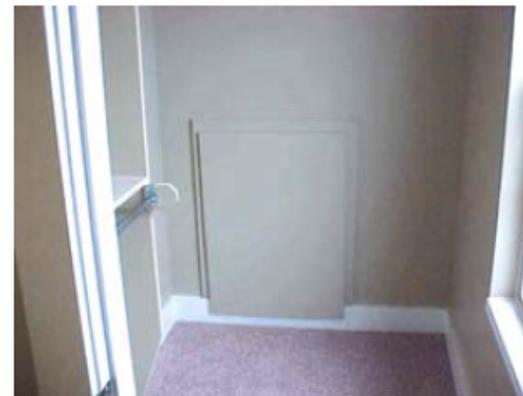
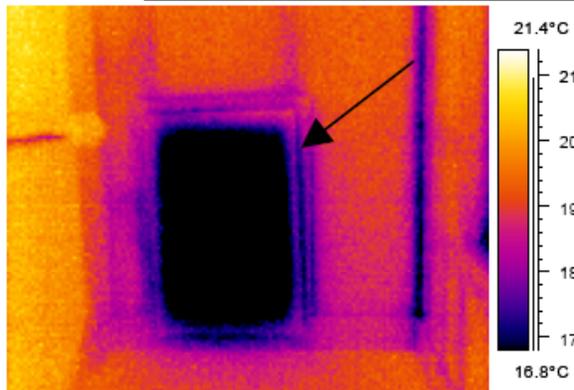
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION SALT LAKE CITY



South wall insulation voids in cavities above attic access east  
4. bedroom (entire length of wall IR28)



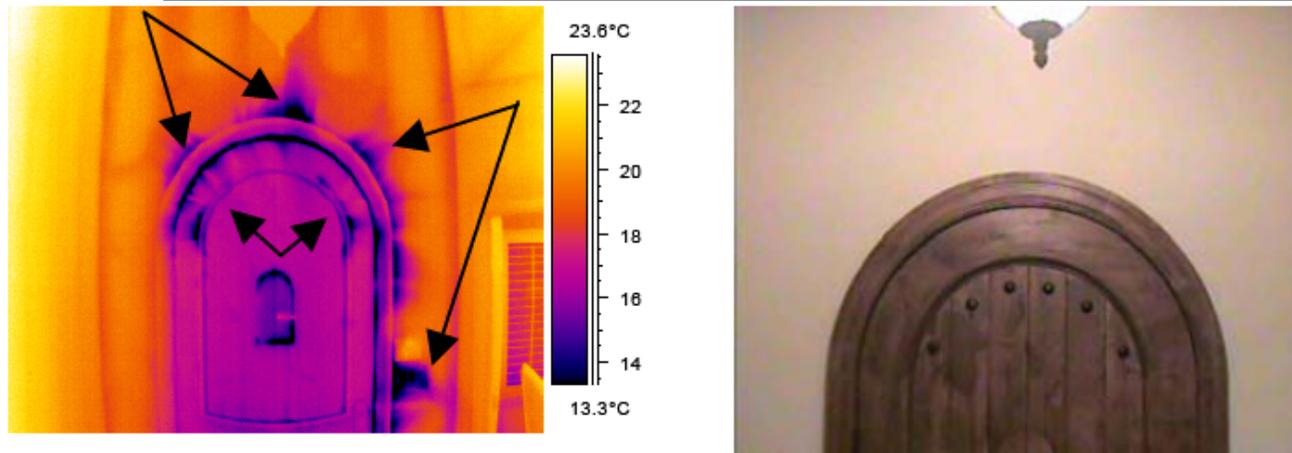
North wall attic access panel in east bedroom closet IR-29,  
showing either no or improperly installed (not attached directly to  
5. panel cover) insulation on back side



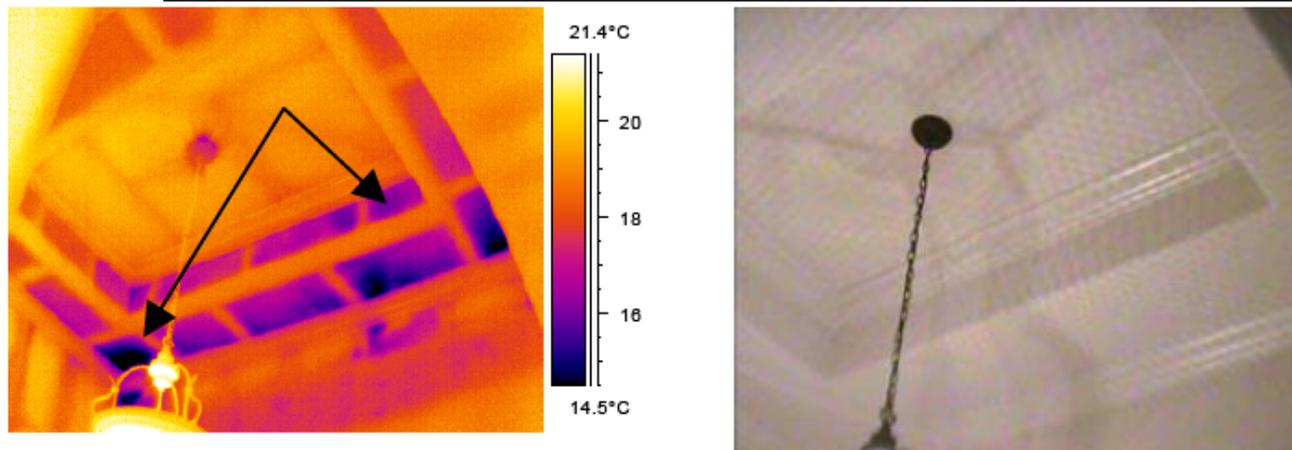
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION EL PASO



## 1. IR13 Front exterior door showing areas of air infiltration



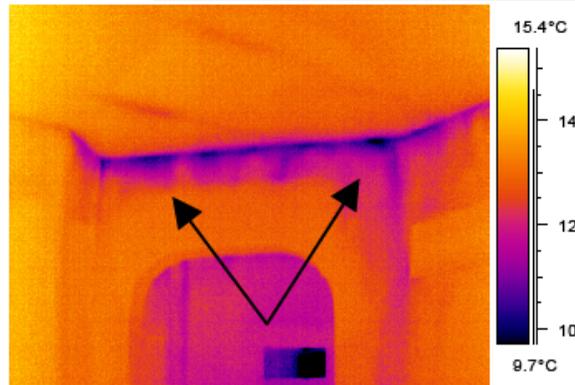
## 2. IR15 Front entry ceiling bulkheads showing air infiltration throughout



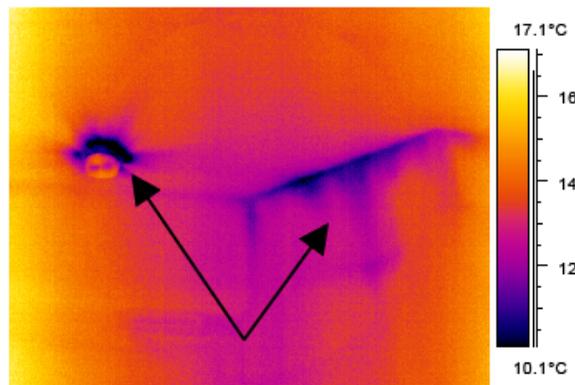
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION EL PASO



IR29 Top of wall between master bedroom and bath showing air  
1. infiltration within wall cavity



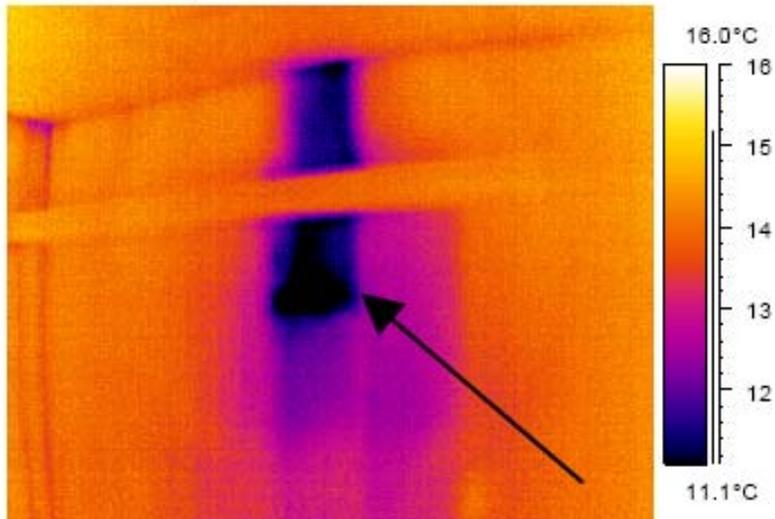
IR31 Master bedroom entry looking at smoke detector and top of  
2. wall to right showing air infiltration to the interior from detector  
and within wall cavity



# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION EL PASO



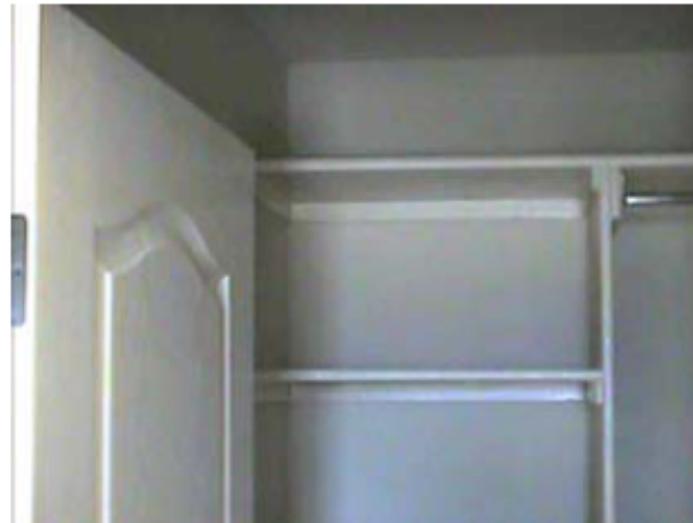
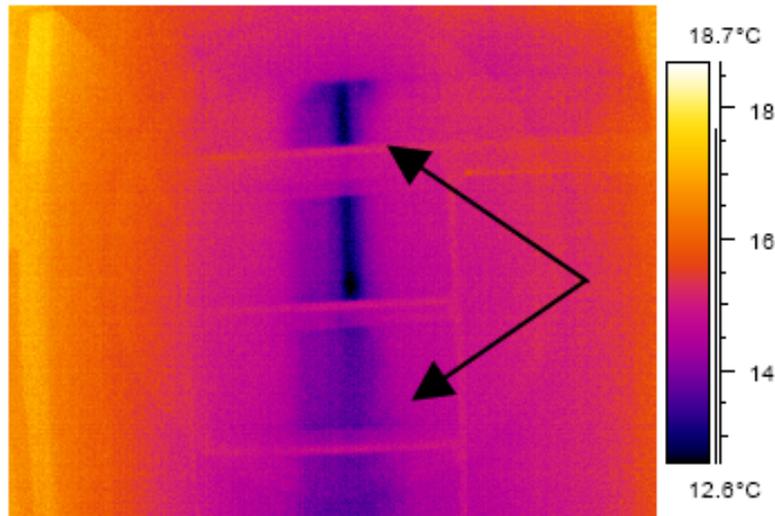
IR35 South bedroom wall common with kitchen exhaust showing  
1. open to attic



# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION EL PASO



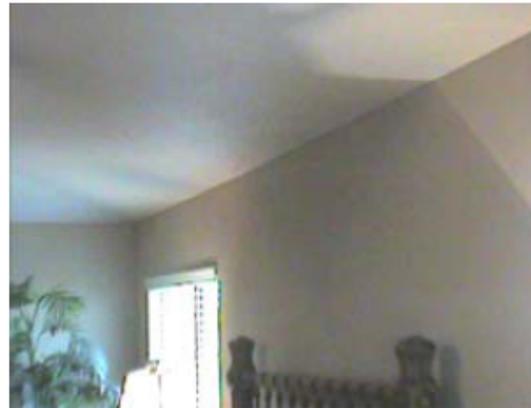
IR49 Maser closet back wall common with dryer vent showing air  
**4. infiltration within the wall cavity**



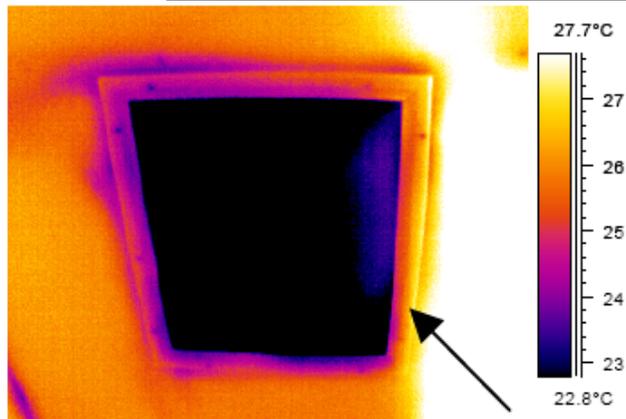
# ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION EL PASO



IR99 East wall/ceiling of master bedroom showing air infiltration  
**4. within the wall cavities**



IR87 Attic access master closet showing lack of or improper  
**10. application of insulation (not attached or in contact with the drywall)**



## ENERGY STAR QUALIFIED HOMES IR CAMERA EVALUATION CONCLUSIONS



- *IR provides valuable feedback for continuous improvement*
- *Need to work with builders and raters to improve compliance*
- *New opportunities identified for 2011 specifications (e.g., Grade 1 insulation, top wall sealing)*

## HOW TO GET MORE INFORMATION



*On the Web at:*  
*<http://www.energystar.gov/homes>*

