



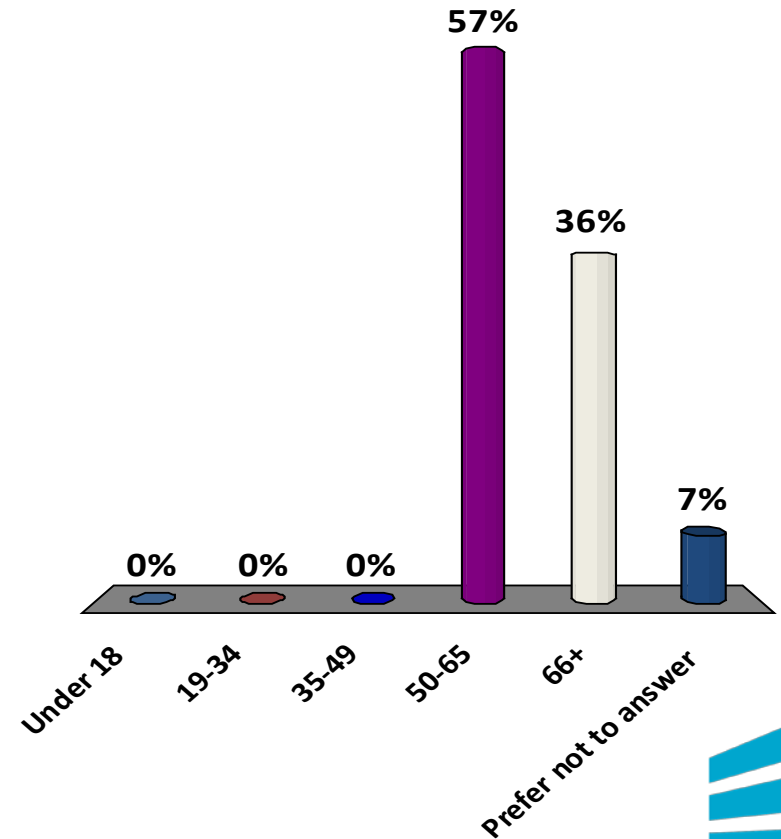
28<sup>th</sup> Annual  
Residential  
Environmental  
Program Series



Fort Collins Senior Center, 1200 Raintree Dr.

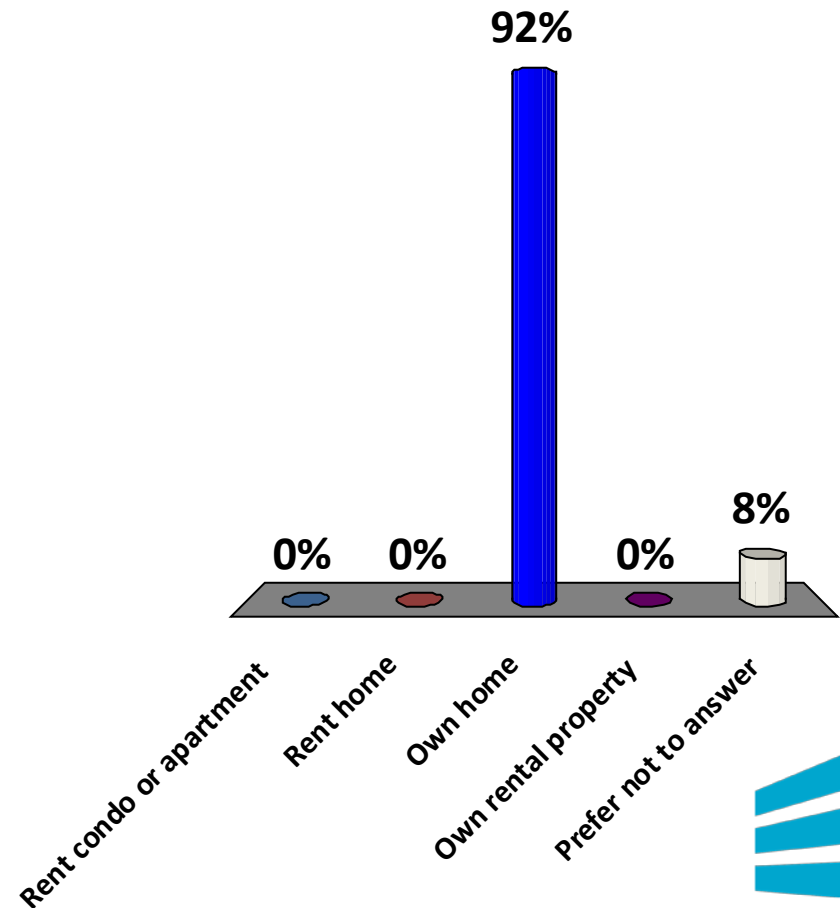
# In what age range are you?

- A. Under 18
- B. 19-34
- C. 35-49
- D. 50-65
- E. 66+
- F. Prefer not to answer



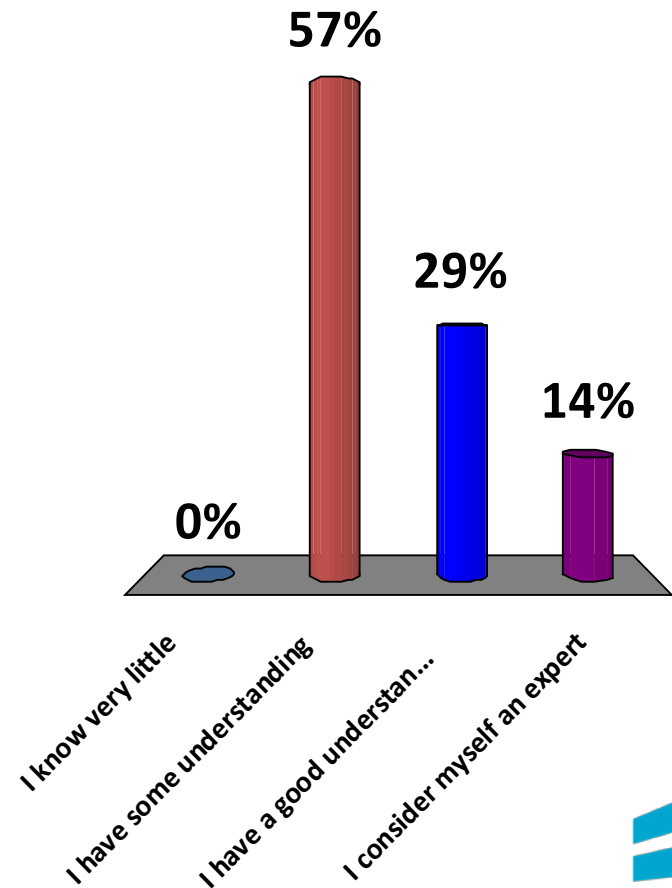
# Do you rent or own your home?

- A. Rent condo or apartment
- B. Rent home
- C. Own home
- D. Own rental property
- E. Prefer not to answer



# How familiar are you with tonight's presentation topic?

- A. I know very little
- B. I have some understanding
- C. I have a good understanding
- D. I consider myself an expert





## **Your Home Energy Roadmap**

**May 20, Prairie Sage Rooms 1 & 2**

The Efficiency Works™ - Home program can map your route to a comfortable, safe and efficient home. Learn about the process, from the initial audit to the final rebate.



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**Efficiency Works™**

Estes Park  
Light and Power

Fort Collins  
Utilities

Longmont  
Power &  
Communications

Loveland  
Water and Power

Platte River  
Power Authority

## Partners:

- Fort Collins Utilities,
- Platte River Power Authority
- Loveland Water and Power,
- Longmont Power & Communications,
- Estes Park Light and Power

## CLEAResult providing:

- Energy Advising, Audits, Training, Quality Control, & Rebate processing

## Efficiency Works Participating Contractors

- Quality Assurance for you



## Energy Efficient Lighting

- Discounted LEDs and controls at local retailers

## Appliance Rebates

Refrigerator recycling

## **Home Energy Audit and Rebates**





In-store markdowns on

- Qualified LED bulbs
- Occupancy sensors & dimmers

Participating retailer list  
online

Pricing and varieties vary per  
store

Discounts year round

Proper disposal encouraged

Recycling available for CFL  
bulbs



# Where does your house leak?



# Where does your fresh air come from?





# What pollutants do you have in your home?

- **VOC's, chemicals, CO, and smoke particles are very big concerns.**
- Do you have chemicals stored in the house: paint thinners or cleaners?
- Wood smoke is toxic

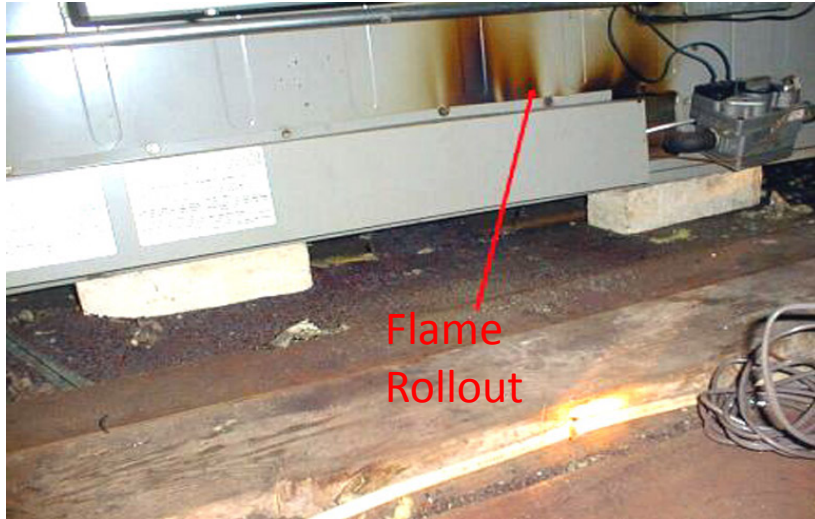


## Gas Combustion Must Vent Outside

- **Gas ovens and cooktops can produce high levels CO and NO<sub>2</sub>**
- **Water heaters are easily back-drafted**
- **Do not use unvented space heaters!**



# Do your heating systems need replacing?



Flame  
Rollout

**Old & improperly operating space and water heating systems cost you money.**

**They can add pollutants to the air you breath.**

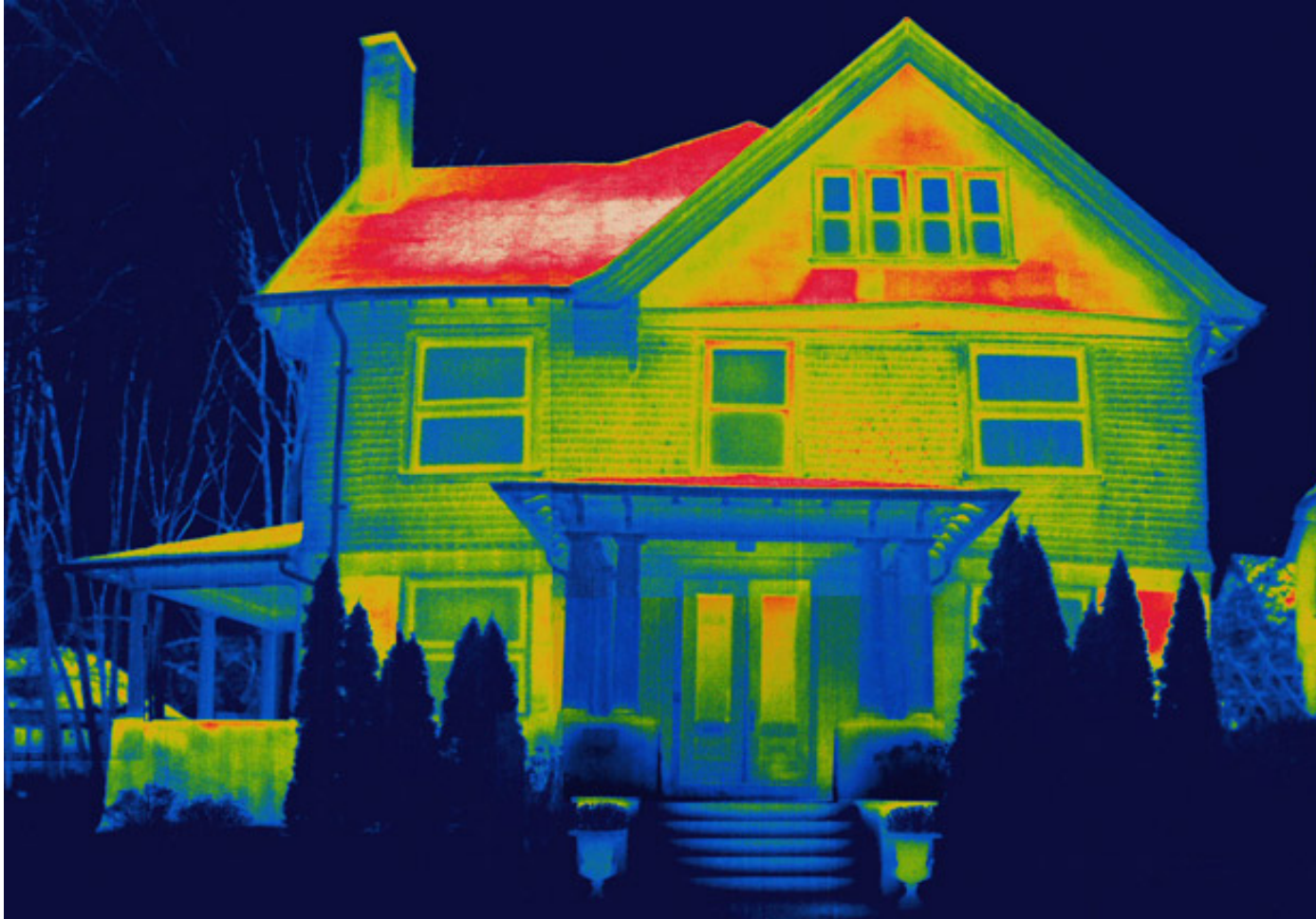


Got asbestos?

**What do you have?**

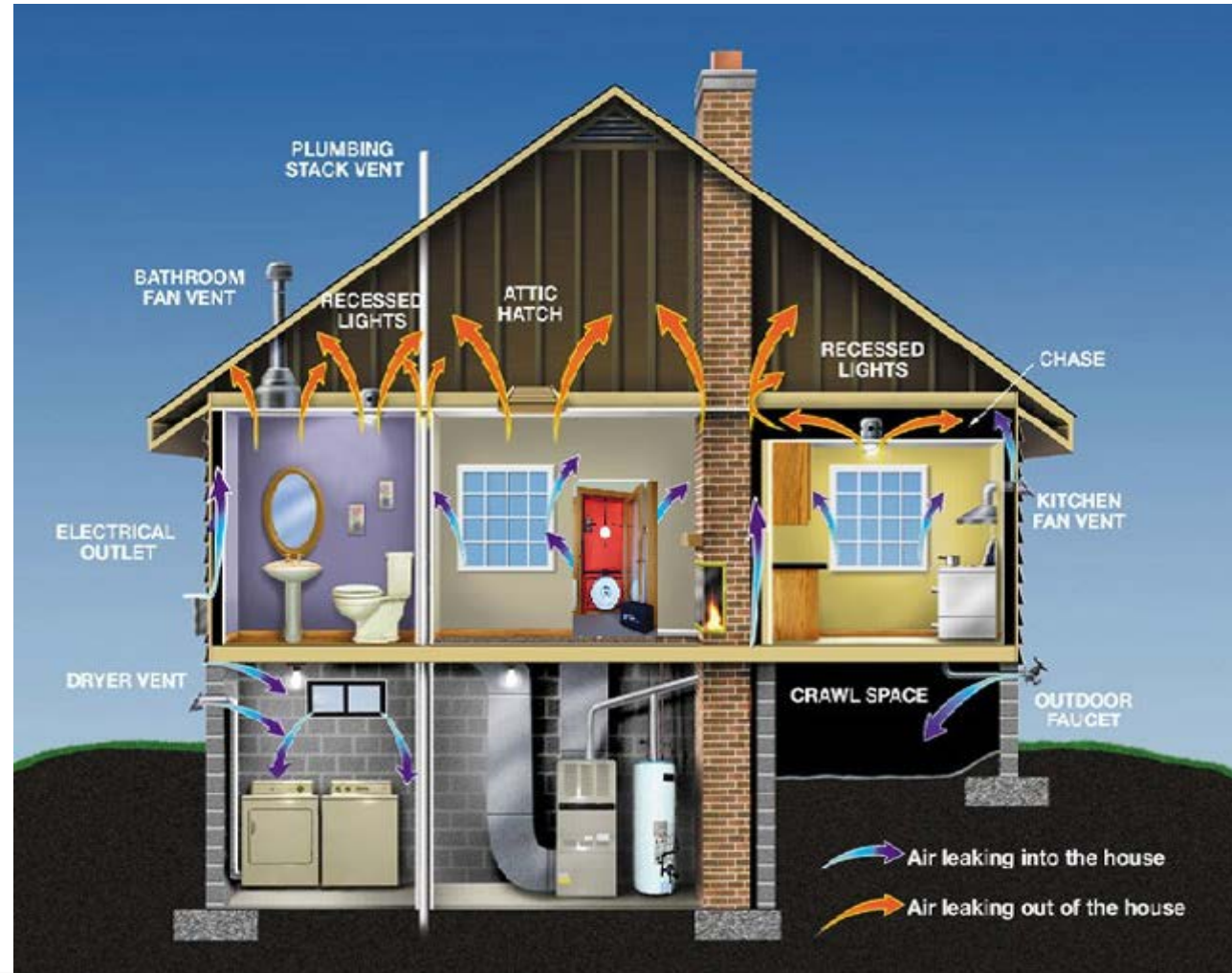


# How well insulated is your home?





**Efficiency Works-**  
energy advisors  
can help you  
prioritize what to  
do first



- **Be a Fort Collins Utilities Electric customer**
- **Complete an Efficiency Audit (\$60) prior to project (exceptions for furnaces, A/C and water heaters)**
- **Occupy an existing single-family home or townhome with separate heating system (multi-family homes and condos not eligible)**
- **Use one of our Participating Contractors to complete project (no rebates for homeowner installations)**





1. **Schedule Audit: call Energy Advisor at CLEAResult**
  - a) Schedule [online](#) or by calling 877-981-1888
2. **Audit is performed by CLEAResult**
3. **Direct installs – free LED bulbs & water saving devices**
4. **Audit report delivered within a week**
5. **Energy Advisor can help with contractors or bids**
6. **Work completed by participating contractor**
7. **Contractor submits rebate application**
8. **Quality assurance performed by CLEAResult**
9. **Rebate check mailed to customer**



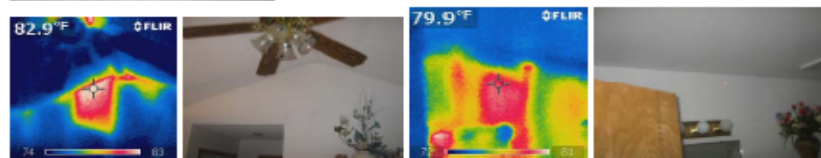
- **Prioritized health, safety and EE recommendations**
- **IR images & pictures**
- **Blower Door: identify where the air leaks and measures how much**
- **Analysis of your energy and water use**
- **Combustion Safety Test does your gas appliance back-draft?**

**Install air barrier on attic knee walls [High Priority]:**

Your attic knee walls are insulated but not encased on all sides with an air barrier. Fiberglass insulation loses most of its effectiveness if it is not encased by an air barrier. We recommend installing an air barrier on your attic knee walls. Insulation dams were not installed in the area above your attic knee walls allowing insulation to fall over the edge and leaving ceiling areas exposed or un-insulated. We recommend adding insulation dams and blowing in more attic insulation after installing an air barrier on your attic knee walls.



*Knee walls in your attic are shown in the photos above. The photo on the left was taken in the main attic above the house and the other two were taken in the attic over your garage. This insulation is not performing well because no air barrier is applied to the attic side. Applying spray foam over the fiberglass insulation is one method for improving exposed attic knee walls. An example is shown in the photo below.*



*The paired infrared and regular photos above were taken in your master bedroom and bath. Red and white in the infrared photos indicates missing insulation in these knee walls. These knee walls are in an inaccessible part of your attic and it will be necessary to create an attic access in order to improve them.*

**Air seal and insulate cantilever floors [High Priority]:**

Cantilevered floors in your home were inspected from outside and were not air sealed. Based on the age of your home and standard construction practices in place when it was built, it is likely that your cantilever floors are not adequately insulated. We recommend air sealing and insulating the cantilever floor areas in your home.



- Installation Standards detail the required best practices for each measure receiving a rebate
- Levels the bidding playing field for contractors
- Homeowners will receive truly comparable bids



# Detailed installation standards



Efficiency Measure	Existing Conditions	Installation Standards	Post-installation Tests	Field Manual, Notes
<p><b>Conditioned Crawl Space Insulation;</b></p>	<ul style="list-style-type: none"> <li>Exterior grade must drain away from foundation or be mitigated as part of the job scope.</li> <li>Auditor will inform customer of any moisture issues discovered in crawl space. Must be mitigated as part of this job scope to receive a rebate.</li> <li>Existing condition: un-insulated or poorly installed insulation being removed.</li> <li>Call first to discuss field stone foundation air sealing and insulation method for approval</li> <li>Auditor shall note foundation cracks and show homeowner. Cracks causing moisture intrusion into crawl space must be sealed as part of this job scope; digital pictures taken before and after repair.</li> </ul>	<ul style="list-style-type: none"> <li>Insulation and moisture barrier must be installed to Field Guide Specifications</li> <li><b>FCU moisture/radon barrier installation standard addendum:</b> <ul style="list-style-type: none"> <li>Remove all debris and major ground surface irregularities</li> <li>Cross laminated polyethylene barrier required; the barrier must seal (urethane caulk) and mechanically fasten at least 6" up crawl space foundation wall and piers.</li> <li>Seams overlapped 6" minimum and sealed / taped w/ poly or manufacturer's recommended tape</li> <li>If part of a radon system must be an approved radon barrier</li> </ul> </li> <li>Field stone foundation wall will need to be air sealed. (see Field Guide)</li> <li>Insulate and air seal rim joists and foundation plate using one of the following methods:           <ul style="list-style-type: none"> <li>Option 1 = Rigid foam board cut to fit, foamed-in place.               <ul style="list-style-type: none"> <li>Minimum R-10</li> <li>Must meet Flame Spread and Smoke Development requirements.</li> <li>Must have thermal barrier unless using Thermax or R-max 8850.</li> </ul> </li> <li>Option 2 = High density, closed cell, 2-part spray foam.               <ul style="list-style-type: none"> <li>Minimum R-10</li> <li>Must meet Flame Spread and Smoke Development requirements.</li> </ul> </li> </ul> </li> <li>Foundation wall insulation must be full vertical extent of foundation wall, using one of the following options:           <ul style="list-style-type: none"> <li>Fiberglass blanket, unfaced (lower rebate).               <ul style="list-style-type: none"> <li>R-19 minimum</li> <li>Installed RESNET Grade 1</li> <li>must use either option 1 or 2 Rim Joist insulating and air sealing method</li> </ul> </li> <li>Rigid foam board (higher rebate)               <ul style="list-style-type: none"> <li>Foam board must be approved for use</li> <li>Must meet Flame Spread and Smoke Development requirements.</li> <li>Must be R-10 minimum</li> <li>Must have thermal barrier unless using Thermax or R-max 8850.</li> </ul> </li> <li>Spray foam, meeting FS and SD requirements, R-10 minimum (higher rebate)               <ul style="list-style-type: none"> <li>Spray foam applied to the walls of a crawl space only accessed for service of utilities must be protected against ignition. (IRC Sec 314.2.3)</li> </ul> </li> </ul> </li> <li>Exterior access to crawl space must be insulated and air sealed</li> <li>Exterior foundation wall insulation, including slab edges:           <ul style="list-style-type: none"> <li>R-10 foam board insulation must extend down to top of footing, and be protected above grade by a non-organic exterior finish. Provide flashing from under existing exterior finish, over top of foam exterior finish.</li> </ul> </li> <li>See Field Guide Notes for conditioned crawl space ventilation methods.</li> </ul>	<ul style="list-style-type: none"> <li><b>Complete Post-Installation Combustion Safety Test procedures and record results on Rebate Application Form.</b></li> <li><b>Blower door test for post improvement house tightness (see air sealing section).</b></li> </ul>	<ul style="list-style-type: none"> <li><b>FCU moisture/radon barrier installation standard addendums:</b> <ul style="list-style-type: none"> <li>Cross laminated poly sheeting products are required in crawl spaces and under slabs the moisture and soil gas barrier must be performance tested to ASTM E-1745 and installed per ASTM E-1643 with a minimum of Class C rated. It must resist deterioration from contact with the soil and maintain a perm of 0.3 or less (per ASTM E-154 section 13). The moisture and soil gas barrier must have a minimum strength of 13.6 lbs/in (ASTM E-154 section 9) and puncture resistance of 475 grams (ASTM D-1709 method B).</li> <li>Field stone and brick foundation details: moisture barrier must run up to fdn plate, and be fastened and caulked; or apply spray foam with an ignition barrier covering all field stone or brick foundation walls.</li> </ul> </li> <li>Code combustion air requirements must be met for Gas fuel HVAC appliances located in crawl space.</li> <li>No dryer vent termination allowed in crawl space.</li> <li>No insulation on wall between crawl space and basement.</li> <li>Rigid foam board must meet flame spread and smoke development code requirements. Thermax and R-max 8850 are approved left exposed to the interior of buildings without a thermal barrier.</li> <li>Rim joist and sill plate can have up to 3.5" of spray foam applied without a thermal barrier (IRC Sec R314.2.7).</li> <li>All spray foams must meet ASTM E-84 Class 1 standards for Flame Spread and Smoke Development.</li> <li><b>Conditioned crawl space ventilation provided by:</b> <ul style="list-style-type: none"> <li>Air supplied through the building HVAC system either indirectly through air transfer grills, or directly through a supply duct (1CFM / 50sf of c.s.), or through waste heat off ducts located in the crawl space.</li> <li>Continuously operated balanced mechanical ventilation system: HRV or ERV (1CFM / 50sf of c.s.).</li> </ul> </li> </ul>





- Required training specific to Installation Standards
- Installation Standards based on Building Science and recognized best practice
- Contractors are mentored
- Contractor Specialties:
  - ❖ Insulation and Air-sealing
  - ❖ HVAC
  - ❖ Window Installation
- Quality assurance



- **24 rebates (HVAC, Insulation/Air Sealing, Windows)**
- **Tiered rebate amounts based on:**
  - a. Gas and electric heated homes**
  - b. Building leakage reduction**
  - c. Insulation materials used**
  - d. HVAC equipment efficiency**
  - e. Water heater type**



- **Loans up to \$15,000 conveniently paid on your Utility bill**
  - **2.5% interest rate with terms up to 20 years**
  - **Easy qualification with 24 hrs.**
- **Qualifying projects include:**
  - **HVAC, Insulation and Air sealing, & Windows**
  - **Solar PV ownership**
  - **water service line repair or replacements**
- **Administered by Energy Smart Partners in Fort Collins**
- **Qualifications:**
  - **FCU electric customer to qualify for EE or Solar loans.**
  - **FCU water customer for water service replacement loan.**
- **For more info visit: [fcgov.com/financing](http://fcgov.com/financing)**



\$25 Dishwasher

\$50 Clothes Washer

Energy Star qualified

For all Utilities customers

Utility bill credit

## Appliance Rebates and Recycling

CASH IN ON CONSERVATION

### \$50 rebate

when you buy  
an ENERGY STAR®  
qualified clothes washer

### \$25 rebate

when you buy  
an ENERGY STAR  
qualified dishwasher

### \$50 or

### \$75 rebate

when you buy a qualified  
WaterSense™ toilet

### \$35 rebate

when you recycle your  
refrigerator or freezer





- Utility bill credit – must be an electric customer
- Pre-1989 models use up to 4x the electricity of newer models
- 95% of materials are recycled
- Purchase of a new model not required

## Refrigerator and Freezer **Recycling**

CASH IN ON CONSERVATION

**\$35 bill credit**  
for recycling your old refrigerator or freezer. Recycling your appliance keeps up to 95 percent of the waste out of the landfill.

**Program details:**

- Must be a Fort Collins Utilities electric customer.
- Free pick up (units must be plugged in and cooling).
- Unit must be removed by Utilities.
- Schedule online at [fcgov.com/rfr](http://fcgov.com/rfr) or call 970-221-6700.



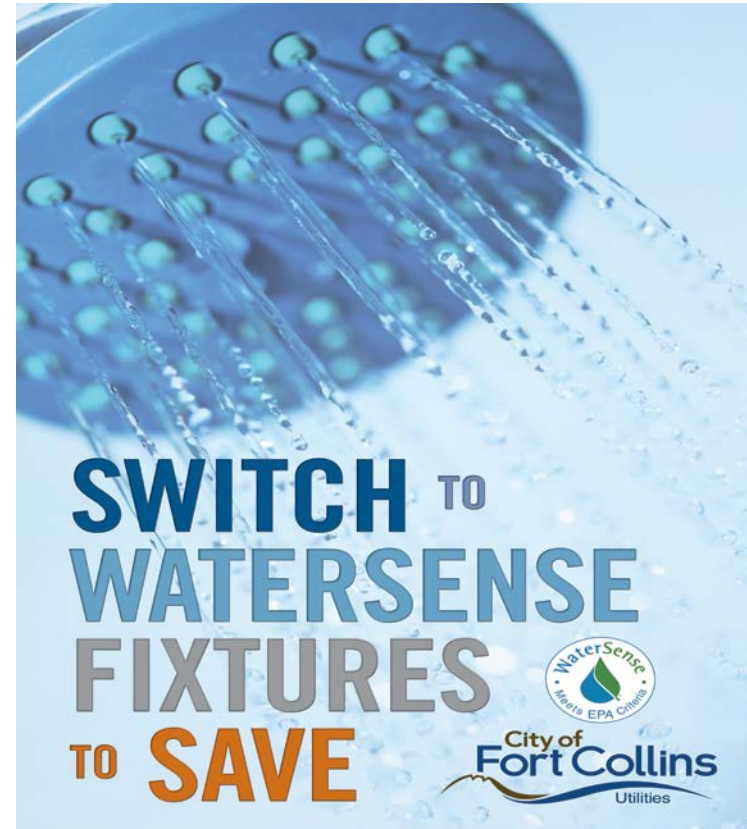
# Participating Retailers

Store	Address	Phone	LED Discounts	CFL Recycling (Contact store for details)	Dimmer & Occupancy Sensor Discounts
Batteries Plus	1107 W. Drake Rd.	970.206.0206	✓	✓	✓
Clay's Ace Hardware	1001 E. Harmony Rd.	970.223.9273	✓	✓	
Home Depot North	1251 E. Magnolia St.	970.224.1239	✓	✓	✓
Home Depot South	4502 John F Kennedy Pkwy	970.206.0774	✓	✓	✓
Josephs' Hardware	2160 W. Drake Rd.	970.493.8000	✓	✓	
Lowe's Home Improvement	4227 Corbett Dr.	970.232.7910		✓	
Sam's Club	4700 Boardwalk Dr.	970.229.0797	✓		
The Light Center	2725 S. College Ave.	970.226.3430	✓	✓	✓
Wal-Mart	4625 S. Mason St.	970.372.3477	✓		
Wal-Mart Supercenter	1250 E. Magnolia St.	970.493.3048	✓		



# Water Fixture Rebates

- \$50 – 1.28 GPF  
WaterSense qualified  
toilets
- \$75 – Less than 1GPF  
WaterSense qualified  
toilets
- \$10 – WaterSense  
showerheads
- Utilities water customers  
ONLY – SW/WW  
FCLWD/ELCO Accounts  
do not qualify
- Old toilet **must** be  
recycled at City Streets



- Free sprinkler audits for residential customers and homeowners associations
- ELCO and FCLWD water customers **are** eligible
- Do-it-yourself sprinkler audit kits available
- Rebates on various sprinkler equipment – see application
- Free Tech Check
- Xeriscape rebates

## Sprinkler Rebates

CASH IN ON CONSERVATION

- \$15 to \$200 rebate on select sprinkler equipment
- Free sprinkler audit



Eligibility requirements:  
Must be a Fort Collins Utilities Water Customer

[fcgov.com/sprinkler-rebate](http://fcgov.com/sprinkler-rebate) • 970-221-6700 • 100 970-224-6003





# Fort Collins Solar Programs



Photo Credit: National Renewable Energy Laboratory



- Residential Rebates
- Commercial Rebates
- On-bill Financing
- Riverside Community Solar
- Green Energy





- WiFi Thermostats
- Digital Control Units (DCU) for electric water heaters
- Free installation
- Reduce electricity usage at peak times
- Incentives for DCU's
- Partnered with Comverge

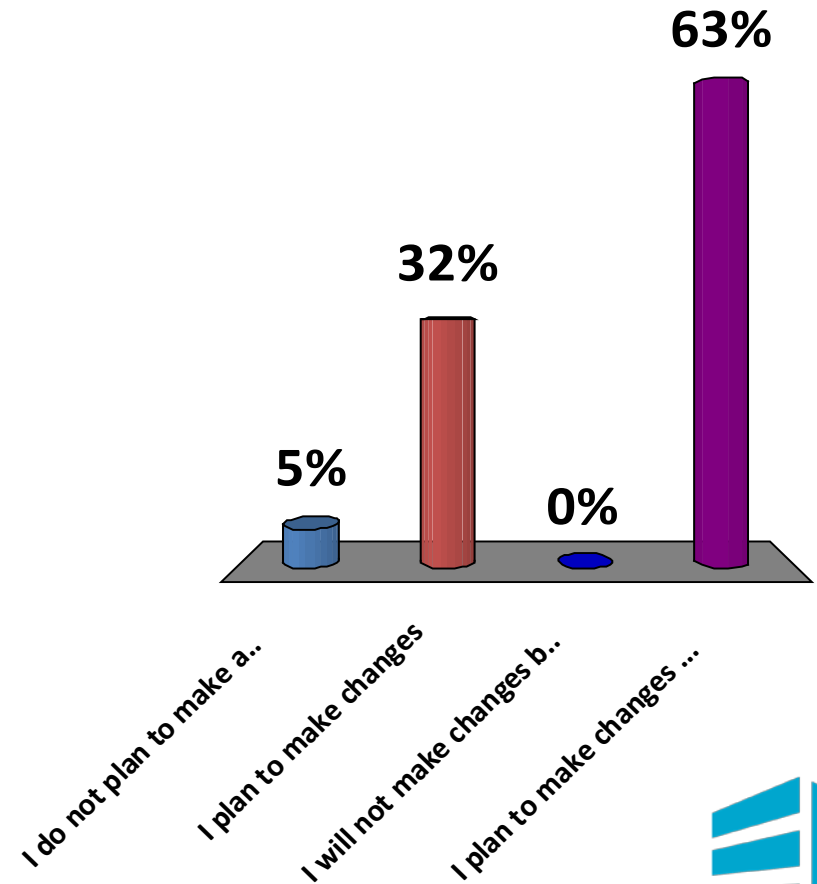


Free online tool  
Monitor your use  
Control your costs  
Conserve resources



# What is your intention to make changes or share information from tonight's presentation?

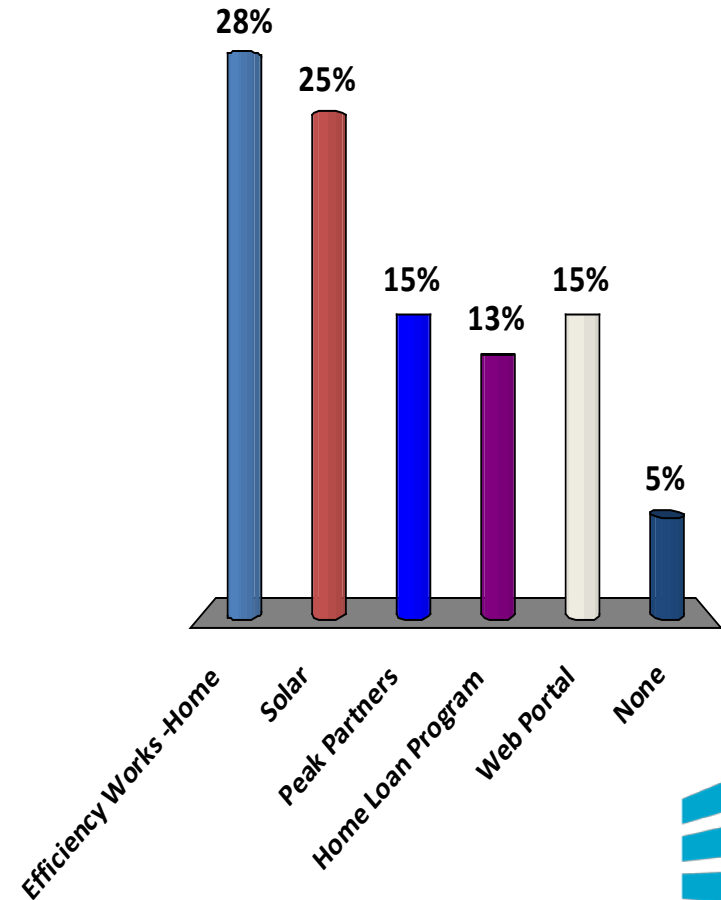
- A. I do not plan to make any changes
- B. I plan to make changes
- C. I will not make changes but will share what I learned
- D. I plan to make changes and share what I learned





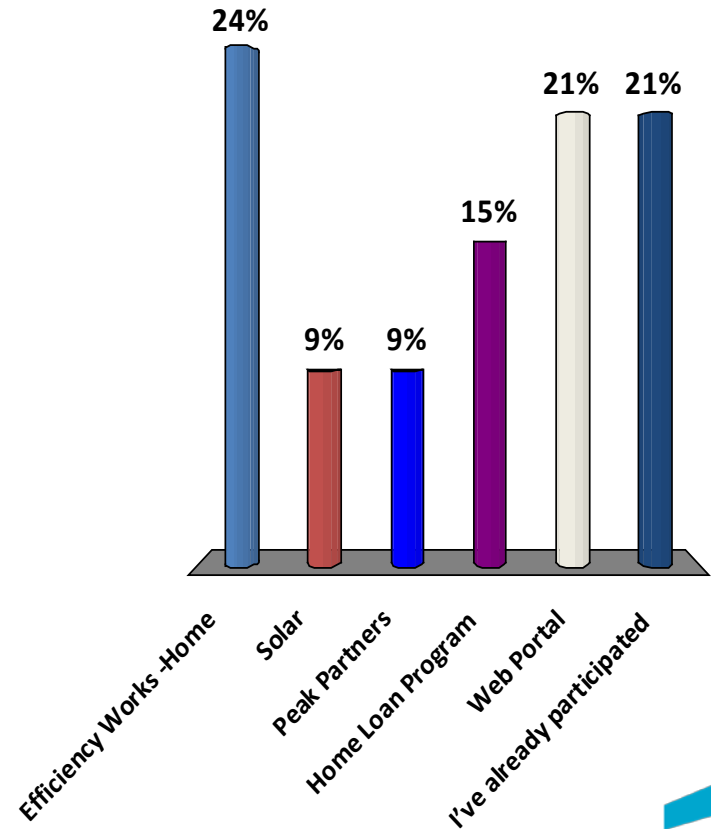
# Which of these programs were you aware of before tonight's presentation?

- A. Efficiency Works -Home
- B. Solar
- C. Peak Partners
- D. Home Loan Program
- E. Web Portal
- F. None



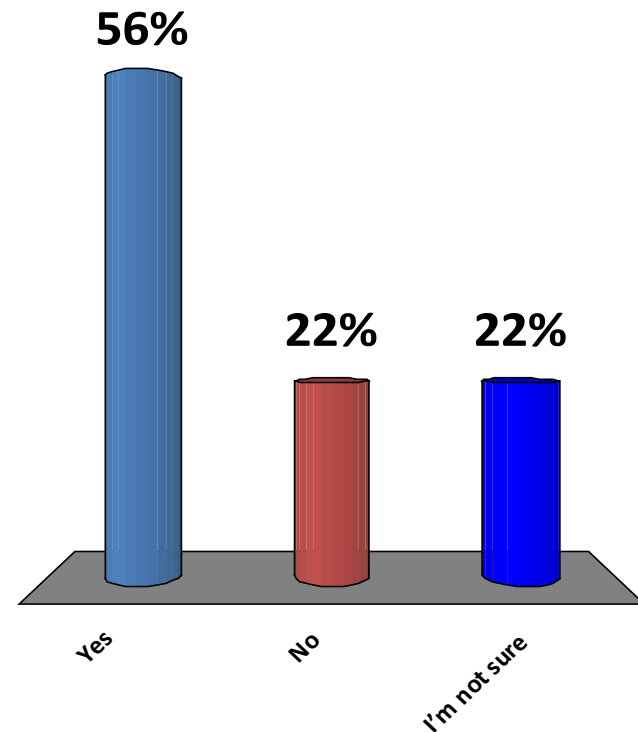
# Which of these programs would you be likely to participate in?

- A. Efficiency Works -Home
- B. Solar
- C. Peak Partners
- D. Home Loan Program
- E. Web Portal
- F. I've already participated



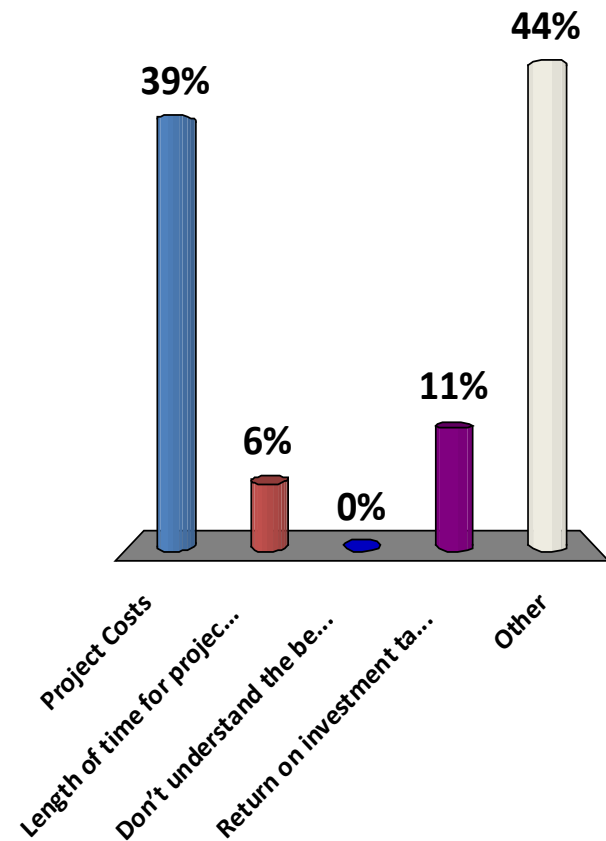
# Does the 2.5% interest rate, with terms up to 20 years, incentivize you to utilize a HELP loan to make your home more energy efficient?

- A. Yes
- B. No
- C. I'm not sure



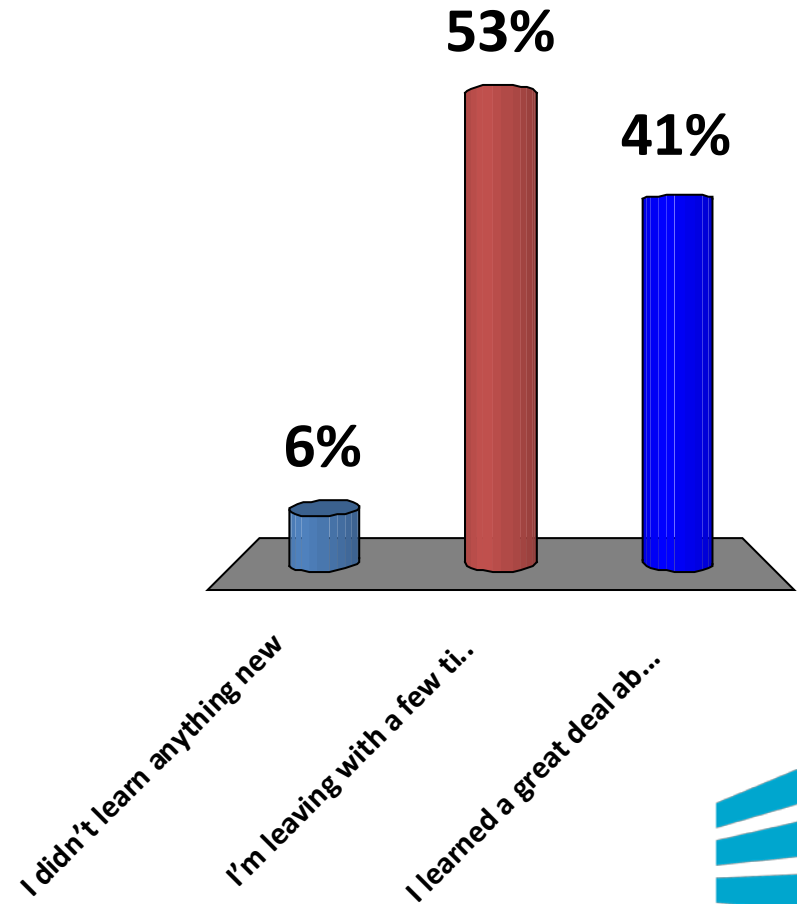
# What are the barriers to participate in the EW-Home?

- A. Project Costs
- B. Length of time for project completion
- C. Don't understand the benefits
- D. Return on investment takes too long
- E. Other



# How much did you learn from the presentation?

- A. I didn't learn anything new
- B. I'm leaving with a few tips and tools
- C. I learned a great deal about the topic



PowerPoint Slides Available at:  
[www.fcgov.com/reps](http://www.fcgov.com/reps)



For more information:  
[www.fcgov.com/homeefficiency](http://www.fcgov.com/homeefficiency)



# Questions?

