HOME ENERGY 101

MAKING A HOME ENERGY 101 APPOINTMENT

___A resident who is interested in the Home Energy 101 program may sign up in a number of ways:

___They may sign up through the Holland Energy Fund website: (https://hollandenergyfund.com/apply/)

They may call, email, or visit your offices directly if they know your organization is participating. If they go this route, you or your staff should first confirm that they are a resident of Holland (City limits). Next,

- You can either help them use the HEF link above to enroll, or
- You can send or provide them with a pdf/printed version of the sign-up sheet
  - Email the completed pdf or paper forms to Dan at City Hall

It is very important that Dan has a dedicated contact person with your organization that he can contact to schedule the Home Energy 101 visits. Please provide this person's contact info to Dan ASAP and update it as needed during the year.

Once Dan receives the info of the interested resident through either of the processes described above, he will set up a project in Snugg Pro for that address

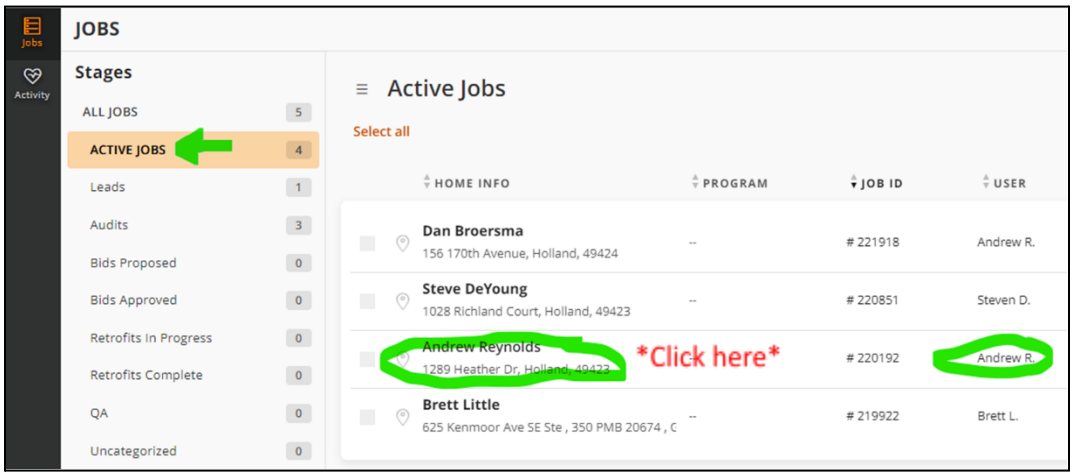
Once the project is created, Dan will reach out to your organization's **contact person** (see above) to give you the resident's contact info and to let you know to reach to to the resident to schedule the Home Energy 101 visit.

Once you confirm the visit date/time, circle back with Dan one more time to confirm the timing, which will also reserve the City's thermo camera for your use (if desired). If you do want to use the camera, make sure to stop by City Hall (during City Hall business hours) to retrieve it shortly before your home visit. Return the camera to City Hall as soon as possible the following day.

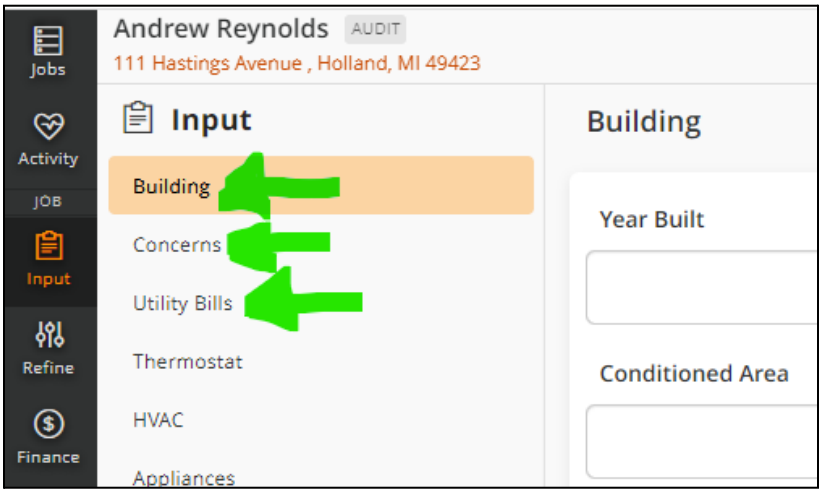
BEFORE YOU GO

___Review details about the home in Snugg Pro:

- o ___Log in to Snugg Pro; you will see the home you are visiting already populated in the list of "Active Jobs". Click on the project/house to move on and see the details.



- o ___City staff will have already entered info about the home under the "Building," "Concerns," and "Utility Bill" tabs



- o ___Some things to glance at in the Building details:
  - ▪ ___Year built: Just to give you a general idea of what you're walking into. For example:
    - ● ___Homes built before the mid-1960s may not have been required to have insulation in their walls
    - ● ___Lead paint was very prevalent starting in the 1950s and wasn't banned until 1978 (though it is still possible it was used after this date)

- Various asbestos products were banned in the 1970's and 80's
- Older homes are less likely to have larger electric service panels

▪ Photo of the home: Look for early hints of energy issues

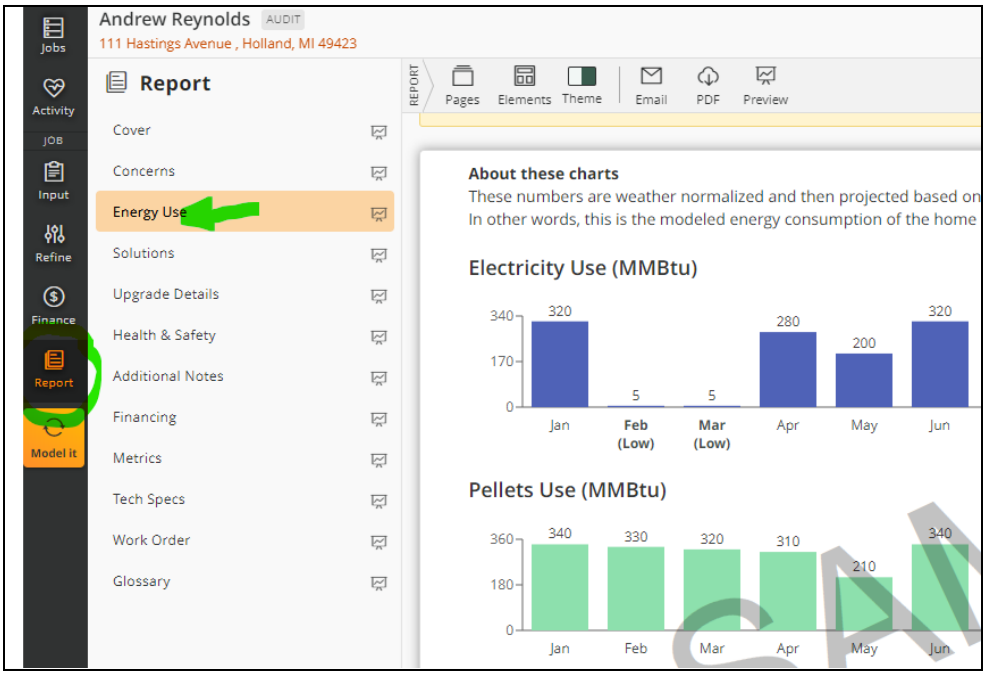
- If a photo has not been uploaded, go to Google Maps and look at the aerial image and/or street view to get a sense for the type of construction and location of the home on its block
- What is the home's orientation to the sun? That is, does it have good southern exposure to help warm it in the coller months? Are there trees?
- Is it a split-level home? Does it appear to have knee walls, gable windows, or other potential insulation challenges?

o If the homeowner entered any concerns during the sign-up process, those may be pre-populated under the "Concerns" tab, but it is likely that will need to be something you discuss with the resident at the start of your visit.

o Dan will enter utility bill information under the "Utility Bills" tab

▪ **The average home in Holland uses about 7,500 kWh of electricity per year and 800 therms per year of natural gas per year.**

o Jump over to the "Report" section of the job to see the annual summary of energy use based on the utility bill inputs



___When you confirm the appointment time with Dan (see "Making a Home Enrgy 101 Appointment" above), you can reserve the City's thermal camera.

o NOTE: The camera will probably be most effective in the summer and winter seasons due to the noticeable temerature different between indoors and outdoors. If weather is mild, it will be harder to point out things like air leaks around doors and windows. An infrared temperature sensor (included in the kit) can still be good to demonstrate heat loss from non-LED bulbs, uninsulated piping, etc.

BRING WITH YOU

Home energy history graphs and Energy Use Intensity (EUI) scores (PRINT OUT)
Case with energy efficiency measures and tools:

- Tools:
  - Thermal camera (if using) OR infrared temperature sensor
  - Gloves
  - Tape measure
  - Shoe coverings
  - Safety glasses
  - Flashlight
  - Air quality monitor (TBD)
- Measures:
  - Demonstration rope caulk
  - Demonstration duct seal tape
  - Demonstration outlet gasket
  - Demonstration piece of weather stripping
  - Demonstration piece of pipe wrap
  - LED A-19 and BR-30 bulb
  - All other measures can also be used for demonstration purposes if desired

Folder with flyers and program fact sheets

INTRODUCTIONS

Introduce yourself and who you work for
Thank the resident for participating!
Ask the resident how they heard about the HER program

- There is room to note their answer later under the “Concerns” tab

Give them a quick overview of why we are doing this program:

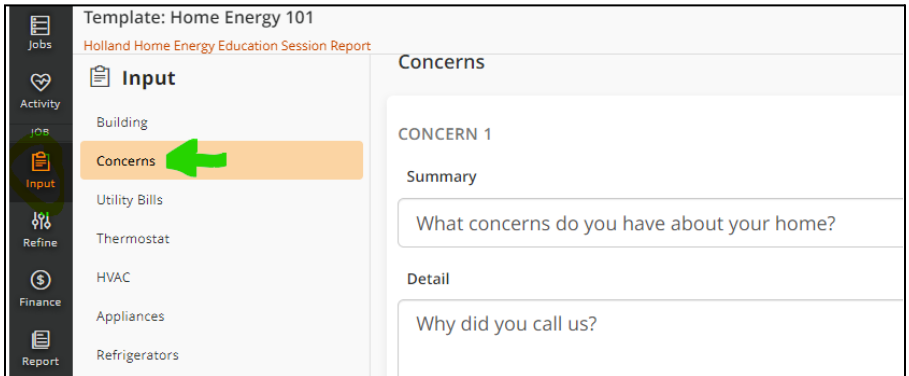
- To help residents save energy = money,
- To help Holland achieve CEP/carbon goals,
- To make their home more comfortable to live in

Give them a quick overview of what the program includes:

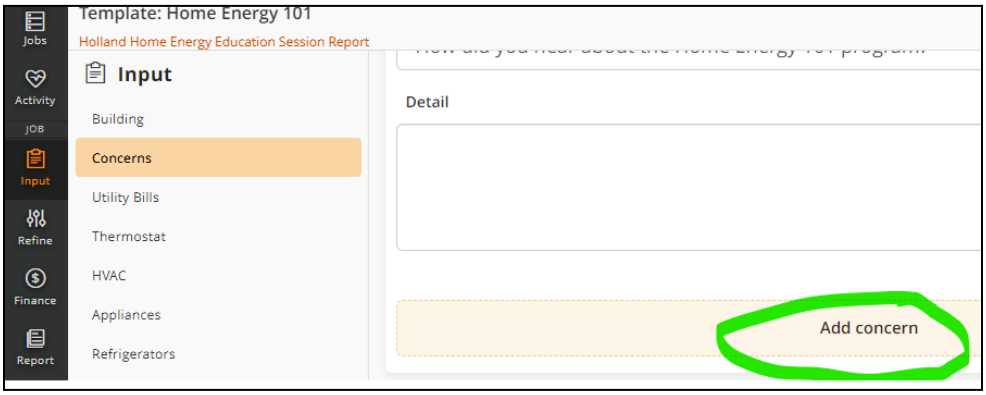
- An 60-90 minutes of one-on-one home energy education and tips
- Free measures **in the mail within the next 2 weeks**

Ask if they have any specific energy or home comfort concerns before you start

- Note any of the resident’s home energy concerns in the Snugg Pro “Input” section.
- There are some standard questions included as prompts, but you can add any additional concerns by clicking



"Add Concern" at the bottom of the concerns list.



HOME STATS/ENERGY USE

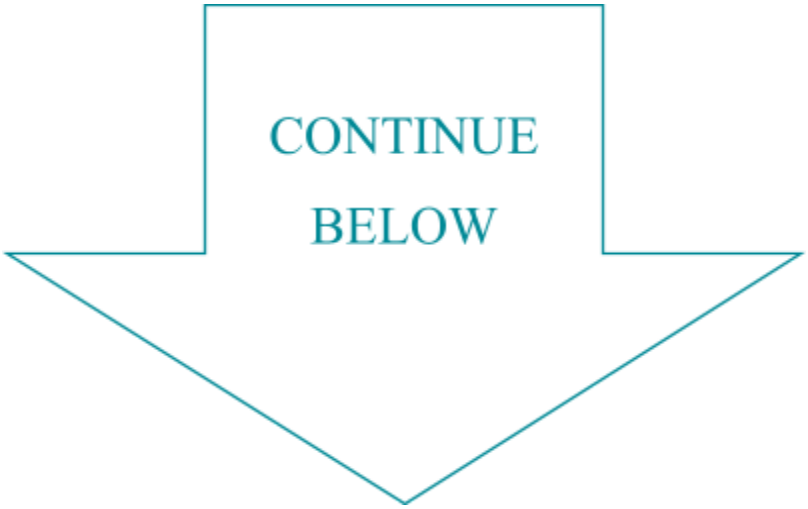
Share the printed copy of the resident's historical energy use (EUI) charts/tables with them

- Discuss how they stack up to neighbors/averages
- *We want to share this information up front so we know how much room there is for improvement as we do the walkthrough*

Share average breakdown of energy use by type for average home (pie charts?)

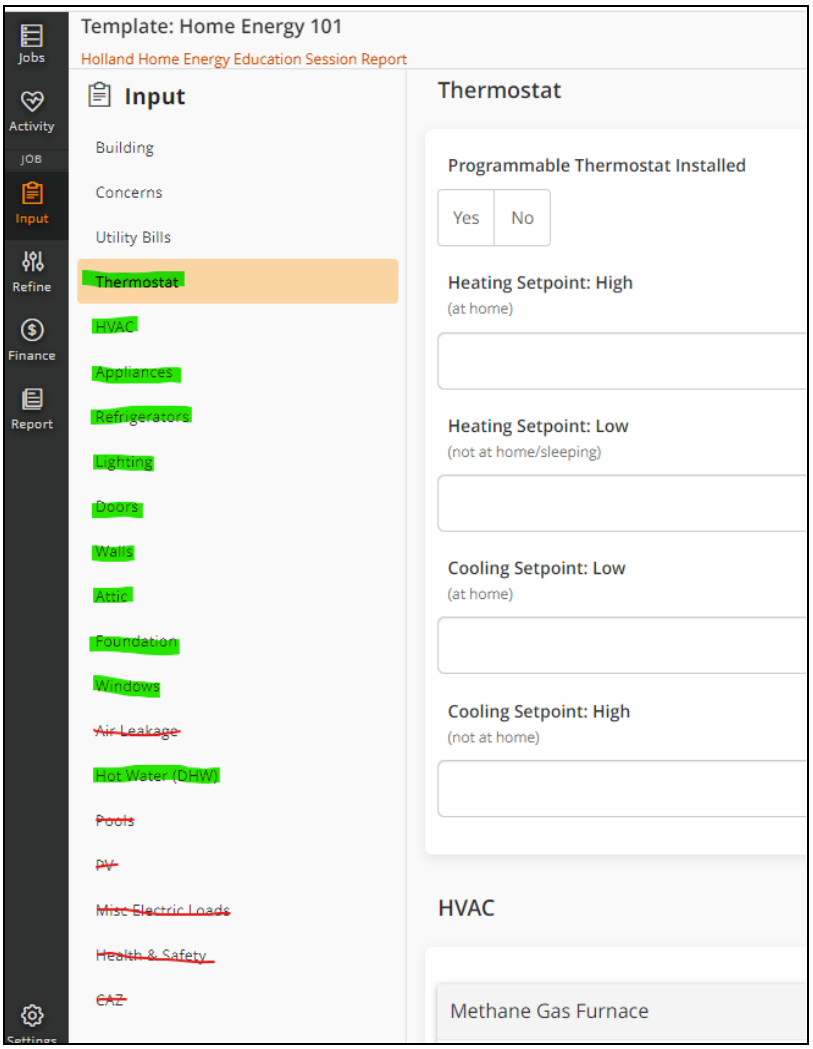
MORE DETAILS TBD

Once you have completed the introduction with the homeowner and reviewed with them how they are currently doing with their energy bills and any specific concerns they may have, it's time to start walking through the home with the resident and entering data into Snugg Pro as you go.



INPUT section

Snugg Pro's "Input" section is where you will be entering most of your info as you walk through the home. Most of the data entry in this section is brief info about the systems in the home (e.g. age of refrigerator or furnace fuel type) that can be typed in quickly or selected from drop-down menus.



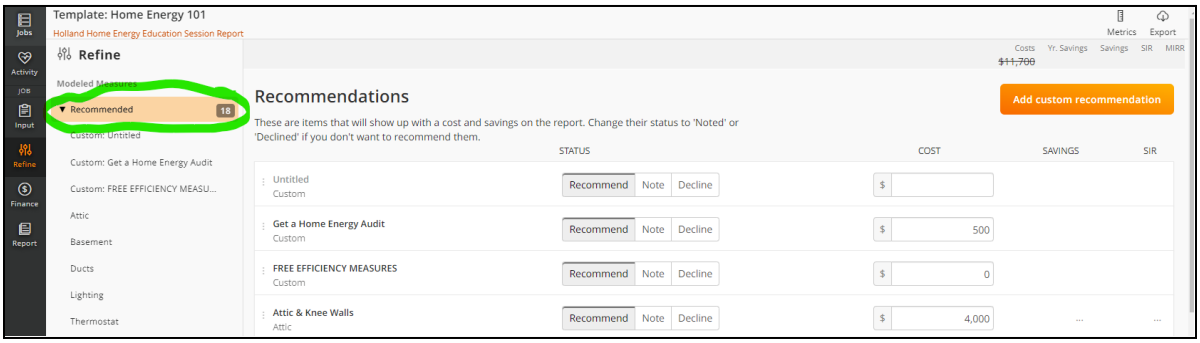
- For most homes, you only need to enter data in the fields highlighted in GREEN in the image to the right. If any of the RED fields do apply, you many enter data there as well if you choose.
- The order of the topics on the "Input" list is set by the tool, but it may not be the natural order you want to discuss different topics in your walkthrough, so you may have to scroll between sections as you go.
- Do your best, but don't worry if there are pieces of information you can't find. It is better to keep the flow of the visit going than to spend 2 minutes trying to look up an appliance model number on google to determine the age. If you take down model numbers you can always look them up later. It is ok if model numbers are not visible – just move on.

REFINE section

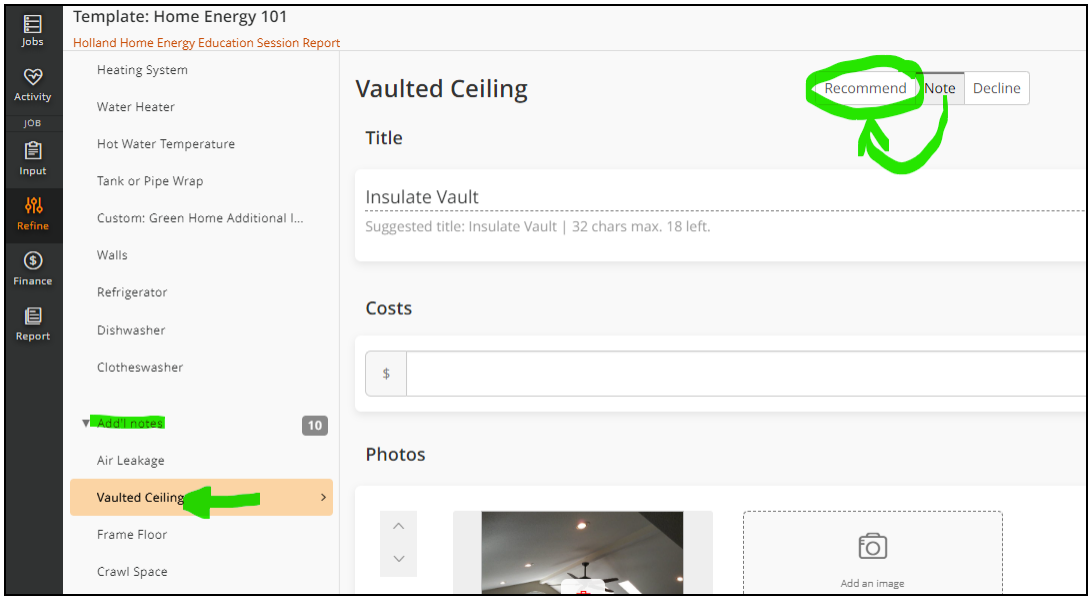
Snugg Pro's "Refine" section contains multiple pre-populated recommendations that you can select for inclusion into the resident's final report.

It is probably not necessary to complete the "Refine" section during the visit itself, but it should be completed soon after the visit so you do not forget any of the items you discuss with the resident.

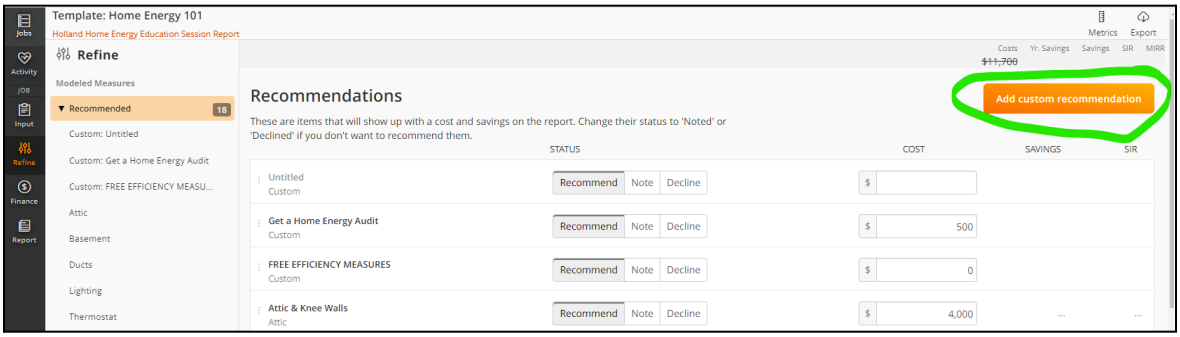
- The base template for each project will include roughly 18-20 "Recommended" items, and there will also be about 10 "Add'l Notes" farther down the list that may or may not be applicable.
- Clicking on "Recommended" at the top of the Refine section will show you a summary of all 18 rec'd measures at once, letting you either:
    - Leave them as recommended
    - Move them to the Add'l notes section (NOT SHOWN IN THE FINAL REPORT)
    - Decline the recommendation (NOT SHOWN IN THE FINAL REPORT)



- To add one of the "Add'l Notes" to the "Recommended" group, select the note from the list along the column on the left and then click "Recommended" at the top of the screen (see below). You can decline recommendations the same way.

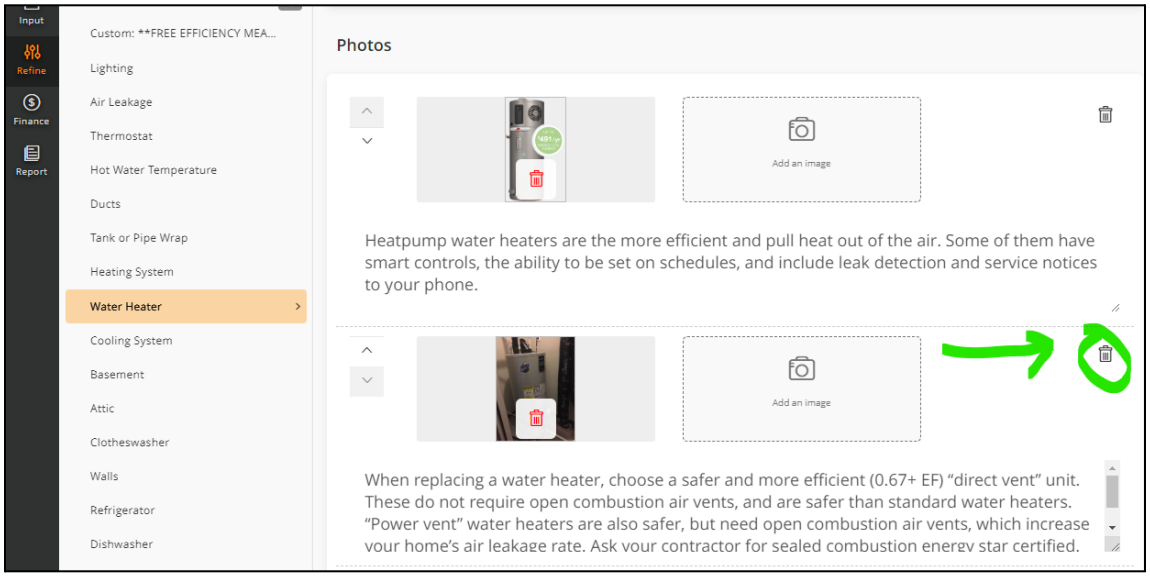


- If you have a custom recommendation that is not included in the template, you can add it by clicking the "Add Custom Recommendation" button in the top right. An example of a custom recommendation might be: "Upgrade you home electric service panel"



- If you have specific details from your visit that you want to document in the recommendations, consider typing those into the "Notes to Homeowner" section of a given recommendation.

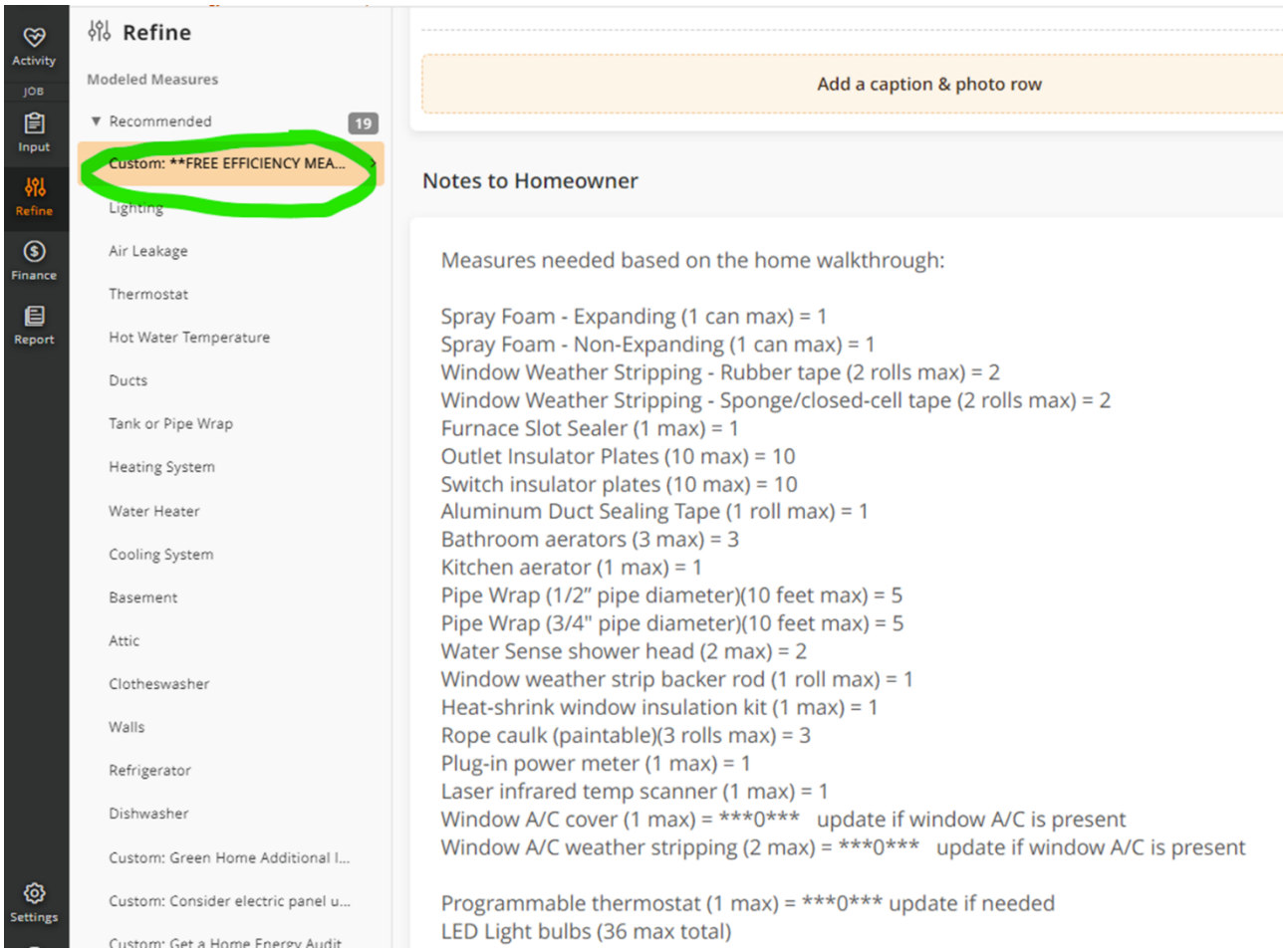
- You may also want to delete existing text in a given recommendation if it contradicts something you spoke about with the resident or if it's not useful.
    - *o* For example, in the Water Heater recommendation, if a resident already has a direct vent model of water heater, you can delete that particular piece of the recommendation (by clicking on the trash can icon) but leave the part about a future upgrade to a heat pump water heater.



FREE ENERGY EFFICIENCY MEASURES

One piece of the “Refine” Section you will need to edit is the “Custom **FREE EFFICIENCY MEASURES**” recommendation.

Make sure to update the quantities in this list based on what the resident actually needs (or is allowed to use, for some renters). Every measure except for window air conditioning kits and LED light bulbs is assumed to be needed, but you can still reduce the number of other measures if the resident does not want or need anything on the list. When in doubt, assume they need it and keep it on the list.



BEFORE YOU LEAVE

- Thank the resident again for their participation
- Have the resident sign the "Completion of Education Form" to certify that the visit was completed. After you sign as the advisor, turn the form back in to Dan at the City.
- Provide the resident with the folder of educational materials and give a brief overview of its contents:
    - *o* Summary sheet of multiple rebate programs from the City and BPW
    - *o* Partner programs (your own non-profit and/or others)
    - *o* Dan's contact info if they have any questions about next steps
- Remind them of the following:
    - *o* They will be receiving free energy efficiency measures in the mail within the next two weeks
    - *o* They will receive a hard copy and emailed copy of their walkthrough report within the next two weeks as well, along with a feedback survey about the program
    - *o* The City will send them a letter once every year for the next three years to give them status updates on how they are doing saving energy

TALKING POINTS

Feel free to use these talking points and tips to facilitate the conversation with the resident. If you have suggestions for other items to add to this list, let Dan know and we can update this document!

Items in *italics* are intended to be talking points, and regular text are reminders to you as the educator about content to cover.

AIR SEALING AND INSULATION

- *Heating and cooling the air in your home is responsible for about 50% of your total utility bills for most homes, so it is the largest energy user.*
    - *That is why air sealing and insulation are going to be a big focus of what we talk about today.*
- *If you add all the individual air leaks in a home together, the average home has gaps the size of a bathroom window letting air in and out, 24 hours a day, 7 days a week, all year long.*
- *Air leaking out causes air to leak in (in other places):*
    - *Warm air rises, leaks out the top of your home, and cold air is pulled in at the bottom of your home to replace the lost warm air*
- *Air leaks are bad because they cost you money year-round, not just in the heating season or the cooling season, or when you use a certain appliance*
- *Energy loss can also mean uncomfortable areas that are either too hot or cold, as well as moisture problems or air quality problems that could contribute to mold or structural damage that might require expensive repairs*
- Walk through the interior of the home and point out potential air leaks around doors and windows (exterior walls)
    - Check to see if exterior doors shut tightly
    - Look for light around closed exterior doors even if you can't feel air moving (light = leak)
- Run your finger along places that could use caulking or weather stripping
    - Mention the difference between caulks they might find at the hardware store
        - Different uses: interior/exterior, window and door, bathroom
        - Paintable vs non-paintable
        - Water clean-up vs chemical
    - *We have tried to provide the most easy-to-use option (rope caulk), but there are more varieties in the store that are very affordable*
    - *If you want to caulk exterior areas, wait until the humidity is relatively low and the temperature is above 45 degrees, or as suggested on the packaging*

    - *If you use up all the free caulk we are going to give you as part of this program, in general the cost of caulk pays for itself in less than 1 year in energy savings, so you should go buy more if you need it.*
- Feel for any leaks and have resident feel them too when you find them
    - Use thermal gun to help "prove it" when you find a leaky spot
    - If windows aren't leaking, try an outlet on an exterior wall to see if you can feel any leaks there
- If you have a hard time feeling any leaks, suggest the resident try again on a windy day when there is a difference in temperature between indoors and outdoors of at least 20 degrees
- If you have time and you are comfortable doing so, you can install one outlet or switch gasket as an example (on exterior wall)
    - Let resident feel draft coming through outlet before installing gasket (if noticeable)
- Check for presence of fireplace(s)
    - If yes, is the damper closed? *This is a huge potential air leak since it lets hot air pass quickly straight up and out*
- *While it can't be covered during today's visit, there are lots of potential air sealing and insulation items to address in your attic*
    - *You can have a professional come and seal gaps around wiring penetrations, chimneys, recessed light fixtures, vents, etc. and also assess if you have adequate insulation.*
    - Show example pictures of poorly-sealed attic penetrations

- <u>Check out the basement (if applicable and safely accessible):</u>
- Look for rim joist insulation and point area out to the resident
- *Sealing gaps in the basement can reduce humidity and reduce opportunities for pests to enter the home, so there are multiple benefits beyond just energy savings*
- Point out duct work seams and potential for air leaks (when fan running if possible so they can feel the air loss)
    - If you have time and are comfortable doing so, show how the duct seal tape can be applied directly over ductwork seams
    - Suggest they dust the duct seam area first so the tape seals well
- Describe importance of pipe wrap insulation for hot water pipes and demonstrate using free materials if there is time

<u>LIGHTING</u> (don't forget to list LED bulbs needed in the "Refine" section under the free measures)

- *Lighting accounts for around 15% of an average home's electricity use, and the average household saves over $100 in energy costs per year by using LED lighting based on local electric rates*
- *LEDs don't waste nearly as much heat, which means they are safer to touch*

- *They also do not contain any mercury (unlike CFLs), and are usually made of plastic, not glass, so they are less likely to break, and if they do break, there are no harmful chemicals released.*
- For any outdoor lighting, *LEDs perform better in cold temps than CFLs*
    - Ask resident if they use their outdoor lights; do they turn on automatically or is it controlled by a switch? Are outdoor lights necessary?
- *You can receive up to 36 free LEDs based on what is identified in the home as your needs*
    - *Don't wait to install these until your old bulbs die- save money ASAP!*
- *You can recycle any CFLs at Holland BPW's lobby or some big box home improvement stores; old incandescent bulbs can go in the trash*
- *NOTIFY RESIDENTS: Not all LEDs are dimmable, and even putting LEDs into a dimmable fixture may require an LED-specific dimmer switch to allow a wider range of dimming*
    - *Try LEDs with your existing dimmer first to check for flickering. They may not have any issues*
    - *LED dimmers are expensive ($20-30+), but they will pay for themselves over time if it is a commonly used chandelier or other multi-bulb fixture.*
- Install LED as example in existing fixture to show how the color temperature is the same as traditional bulbs
    - Explain color temp and that LEDs can be cool or warm as desired
    - Explain lumens as a measure of brightness

APPLIANCES

- Explain relative energy use of appliances versus lighting (refer to charts on energy handout page)
- Talk about difference between Energy Star and Energy Guide (show example)
    - All appliances are required to have the yellow "Energy Guide" label, but this does not mean that something is "Energy Star" rated as being highly efficient
    - Show the resident how the Energy guide sticker tells them how efficient their equipment actually is with the simple graphic shown on the sticker
    - The Energy Star logo will be included on the Energy Guide sticker if a particular appliance is in fact Energy Star rated.
- Talk about BPW appliance recycling program and new appliance rebates (included in leave-behind packet)
- *Water heating is the second-largest energy expense in the home (about 15-20%) after heating and cooling (50%)*
- Cold water clothes washing can save energy and money
    - *When comparing clothes washers, consider tank size, since an efficient machine with a smaller capacity may use more energy over time than a larger less-efficient machine since you will run more loads*
- Check for presence of dishwasher

  - (If yes…) *An energy-efficient dishwasher running a full load of dishes probably will use less energy than washing multiple small loads by hand, since the water heater is firing up every time you run the hot tap for a few minutes at a time*
- Locate dryer vent line
  - Explain that lint buildup in the lint trap and in the vent line itself can cause dryer to work harder and be a fire hazard
  - Possible air leakage around dryer vent pipe

- IMPORTANT NOTE: Ask if the resident is aware of recent federal legislation that will means rebates of over $1,500 to replace existing gas or resistance electric water heaters with heat pump water heaters. Tell them that the City and BPW will be issuing more educational materials once the program details are determined (hopefully in 2023), but that they should ask their HVAC contractor about this before replacing a water heater with a gas model.

HVAC

- Ask resident to confirm if they have heating and cooling?
- What type of each do they have? Gas furnace? Heat pump? Window A/C? etc.
  - Check for air leaks around gas/elec service entrances/pipes into the basement
- Locate their thermostat to determine if it is programmable
  - Ask resident if they use a programming function
- *Setting the thermostat back 7-10 degrees from normal for 8 hours a day can say save 10% (over $75 per year) on your energy bill*
- Is the thermostat located in an ideal place (away from obstructions and temperature influences?)
- *Close blinds/curtains in the summer to reduce passive heating that makes your A/C or work harder*
- *Open blinds of south-facing rooms in the winter since in the cold months you do want the sun to passively heat your home, since it makes the furnace run less*
- Check the furnace filter
  - Ask when it was last replaced
  - Point out how resident can see the filter size printed on the outside and find the same at a big box store
- Describe tune-up rebates for furnaces and A/C from BPW and SEMCO (included in folder)
- Note furnace make and model on Snugg Pro app (and efficiency and year of install if known)
- Describe how more efficient furnace and A/C models can save energy, but not as much as the other free or low cost measures already described in this visit.
- *A newer, more efficient AC or furnace only saves money if you set it at efficient temperatures*
- In milder temps use windows for stack effect and cross breezes
  - Open the top of windows to let heat out more effectively (if possible)

- IMPORTANT NOTE: Ask if the resident is aware of recent federal legislation that will means rebates of over $8,000 to replace existing gas furnace and/or air conditioner with a heat pump system. Tell them that the City and BPW will be issuing more educational materials once the program details are determined (hopefully in 2023), but that they should ask their HVAC contractor about this before replacing their heating and/or cooling system.

GENERAL TIPS AND RECOMMENDATIONS

- *Look back at your home inspection report if you still have it handy from when you bought the home. See if it has any identified issues with insulation, appliances, etc. that might impact your energy efficiency*
- Note any other high-energy uses in the home as you see them: pool, hot tub, plug-in space heaters, dehumidifiers, etc. and point those out to the resident as places for potential savings

WHAT'S GENERALLY NOT COST-EFFECTIVE (if your goal is to save energy/money)

- Replacing windows, unless they are very old, single-pane, or otherwise not functioning
    - Even the best windows will never have the insulation value of a properly constructed wall, so they will always let energy in/out more easily (=inefficient)
- Replacing appliances
    - Energy Star is better, but focus instead on eliminating unnecessary appliances like a second refrigerator if noticeable savings is what you are after
- Replacing HVAC systems with only marginal efficiency improvements over previous (e.g. 14 SEER replacing 13 SEER)