Residential Energy Assessment Program Tool User Guide

Version 08 31 2022

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1. Residential Energy Assessment Overview

Overview

To ensure that the latest version is being used, check the NYSERDA website for updates: Become a Participating Auditor

This tool is for use in conducting residential energy assessments in NYSERDA's Residential Energy Assessment Program. To be eligible for reimbursement through the Residential Energy Assessment Program, participating contractors will need to complete an energy assessment following the Residential Energy Assessment Technical Requirements found in the Program Manual, complete the data inputs in this tool, provide a PDF file or a hard copy of the Summary Report to the customer and upload the completed Excel file to the Residential Energy Assessment Workflow in the NY HP Portal.

The Tool includes the following worksheets (tabs) for use by the Participating Contractor including:

Data Collection Worksheet – Use this worksheet to enter the existing conditions of the home and to make energy efficiency improvement recommendations. The existing conditions fields are on the left-hand side of the page; complete this portion first. The existing conditions fields are yellow and depending on the measure type may feature drop down lists to help speed data input. The corresponding Recommended Measure Upgrades consist of green fields and are located on the righthand side of the page.

Summary Report Worksheet – This worksheet is dynamic and will updated based on the inputs entered in the Data Collection worksheet. No data inputs are required in this worksheet. The Summary Report is intended to provide homeowners with a snapshot of their home's existing conditions, including areas performing well and areas in need of improvement. It is not intended to be a workscope quote and therefore does not include costs.

After completion of the data entry in the first worksheet, use the Print button to generate a copy of the Assessment Summary Report to provide either in hard copy or electronically to the customer. The Assessment Tool Excel file must not be provided to customers - only a PDF file or a hard copy of the Assessment Summary Report should be provided to the customer.

Estimated annual savings as displayed on the Assessment Summary report are energy savings as a percentage of total energy usage – these savings percentages *do not represent dollar savings.*

The Tool also includes two tabs or worksheets to support the Green Jobs – Green NY (GJGNY) Residential Financing program. The **Loan Step 1** tab is used to select the upgrade(s) being financed and their cost(s). The **Loan Step 2 Web ProForma Inputs** tab contains information to be entered into the **Green Jobs – Green NY (GJGNY) Residential Loan Fund's Web ProForma tool**. The loan tabs are not a required part of a Residential Energy Assessment**.** For instructions related to the use of these tabs please refer to the Financing Implementation Manual**.**

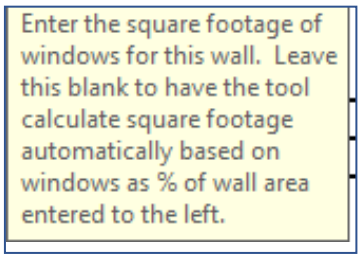
Data Accuracy and Completeness

The Residential Energy Assessment tool requires complete data entry on the Data Collection tab in order to make accurate modeling calculations. If messages display or the results on the Summary Report aren't what is expected, review yellow existing condition fields on the Data Collection tab. Ensure that all fields are filled in and the entries are accurate.

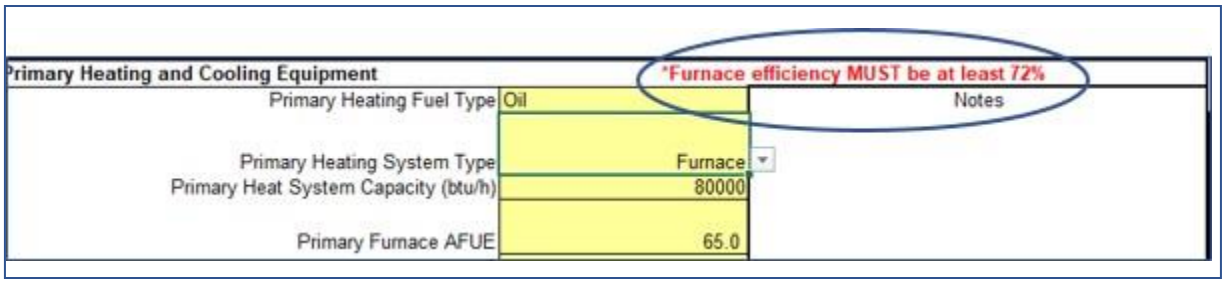
Help Text and Data Validation Messages

The Residential Energy Assessment tool utilizes help text and data validation messages when certain cells are clicked on or when data outside of the validation limits is entered. Please see examples below of typical messaging is used in the Tool.

Help text message example



Data validation messaging example



2. Data Collection - Existing Conditions

The Participating Contractor is required in input data into each existing condition field, if the system is applicable to the home. It is recommended that the auditor completes all Existing Conditions fields prior to entering the recommended upgrades. If a field isn't applicable, leave it blank.

Assessment information & Customer information

Enter the auditor's name, the company name and date of the assessment.

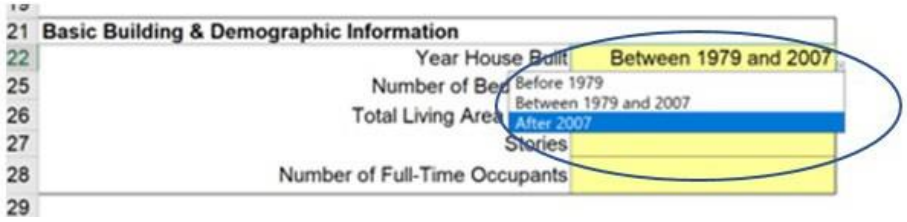
Auditor's Name	Joe Auditor
Company Name	Happy Heat Pumps Inc.
Assessment Date	August 22, 2022

Complete all of the customer information.

Customer Information	
Name	Customer
Address	123 Main Street
City	Albany
State	NY
Zip	12203
Phone Number (Primary)	555-555-5555
Email Address (Primary)	xyz@e-mail.com

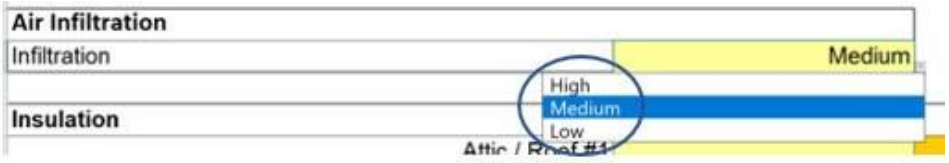
Basic Building and Demographic Information

Complete all the yellow fields in this section. Select the Year House Built by clicking the dropdown arrow then clicking the appropriate choice.



Air Infiltration

Categorize the air infiltration of the home by selecting High, Medium or Low air infiltration from the drop-down list.



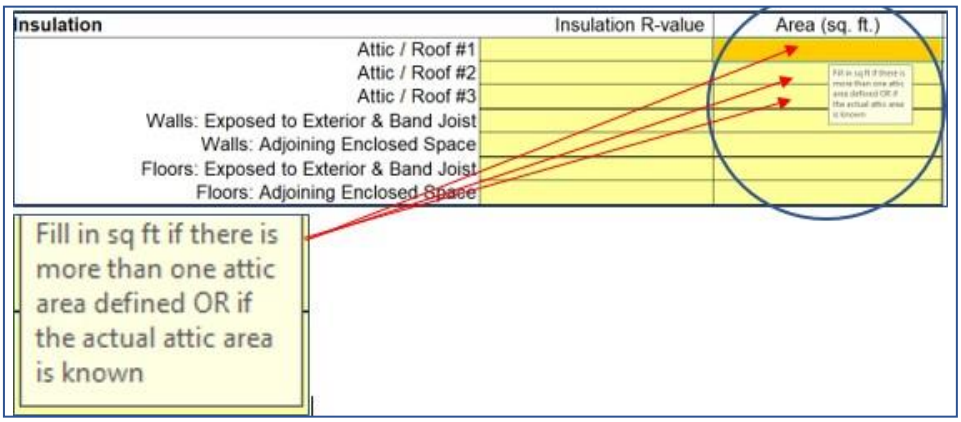
Insulation

Insulation	Insulation R-value	Area (sq. ft.)	
Attic / Roof #1			Notes
Attic / Roof #2			
Attic / Roof #3			
Walls: Exposed to Exterior & Band Joist			
Walls: Masonry			
Walls: Adjoining Enclosed Space			
Floors: Over exterior area			
Floors: Over basement, crawlspace, other enclosed space			
Foundation Insulation	Insulation R-value	Perimeter (linear ft.)	
Basement Wall Insulation			
Crawlspace Wall Insulation			

For each insulation area, choose the R-value from the drop-down list that most closely represents the level of existing insulation in that area. Choose the closest R-value to the existing condition that is higher than the existing condition. For example, if the existing condition is R-9, select R-11 from the drop-down list. Choose "1: None" if that area doesn't have any insulation.

Assessment Data Collection Field	Building Area(s) To Include
Walls: Exposed to Exterior & Band Joist	Exterior wall and rim joist insulation
Walls: Masonry	Masonry exterior wall insulation
Walls: Adjoining Enclosed Space	Attic knee walls and house wall between house and garage
Floors: Over exterior area	Floors over cantilevered exterior area and walls over pier structure
Floors: Over basement, crawlspace, other enclosed space	Floors over a basement, crawlspace or other enclosed area
Basement Wall Insulation	Do not include rim joist (include rim joist in wall insulation) Enter linear feet of basement wall
Crawlspace Wall Insulation	Do not include rim joist (include rim joist in wall insulation) Enter lineal feet of crawlspace wall

- For all areas, indicate the square footage of that area of the structure.
- Discount or de-rate insulation levels for incomplete areas where some insulation is missing.
- Discount insulation levels for poor installation.
- Only complete the insulation areas that are relevant to the home being evaluated. For example, not all homes will have multiple attic areas. If the home being evaluated has only one attic area, leave Attic/Roof # 2 and Attic/Roof # 3 blank.



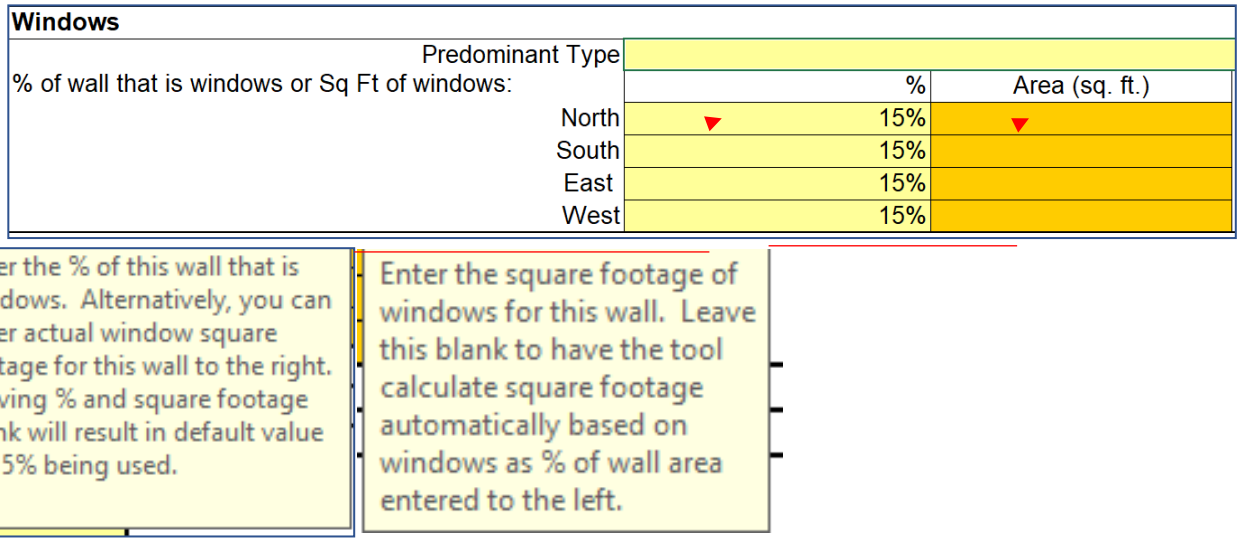
Windows

Windows: Predominant Window Type

Choose the predominant type of windows present in the home from the drop-down list.

Make sure that a selection is made in the window drop down. Leaving this field blank will result in errors.

Windows: Window Area

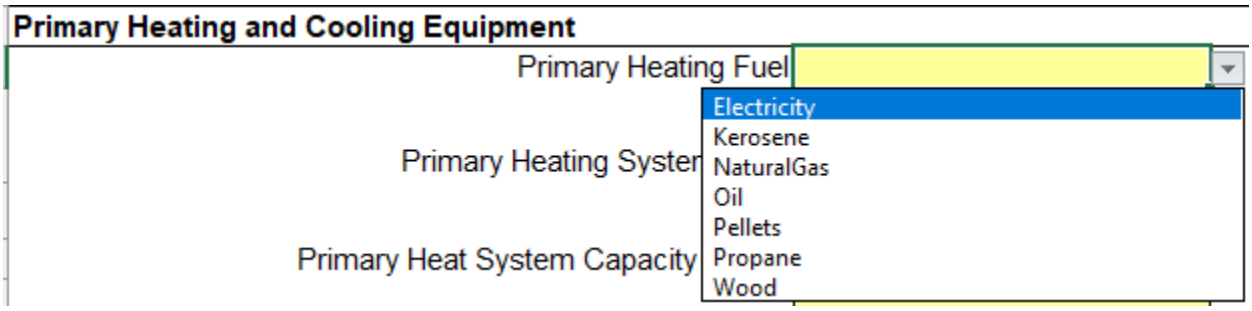


Primary Heating and Cooling Equipment

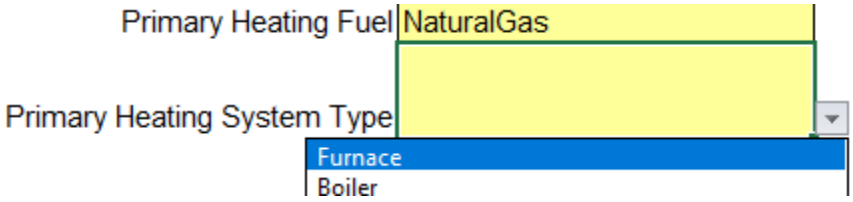
Primary Heating Fuel Type

The Primary heating system is the one serving most of the house and usually permanently installed to service at least the main or original portion of the home. In homes with one heating system, enter all details under Primary Heating and Cooling Equipment.

Choose the primary heating fuel type from the drop-down list.



Options in the Primary Heating System Type will vary depending on the Primary Heating Fuel selected. Changing the fuel will change the heating system types available to select.



After selecting the Primary heating fuel and system type, select the capacity, efficiency, and other information. Some of these prompts will vary depending on the system and fuel.

Primary Heat System Capacity (btu/h)	
Primary Furnace AFUE	
Primary Furnace variable speed fan?	
Primary heating system year of mfg	

Primary Cooling Equipment Capacity and SEER

If the home has central air conditioning, enter the capacity and efficiency.

Primary A/C Capacity (btu/h)	
Primary A/C SEER	

Primary Duct System

Primary Duct System – Duct Location

If the home has any ducts, these fields will be displayed. Complete all fields to avoid calculation errors and increase accuracy of the assessment. Use the Rval fields to enter the duct insulation R-values.

Primary System Ducts	
Primary Supply Location	
Primary Return Location	
Supply Insulation Rval	
Return Insulation Rval	
Ducts currently sealed adequately?	

Leaving the Rval fields blank will result in R-0 being used as the duct insulation levels.

If the home has ductless mini-splits, select “Conditioned Space (all ducts)” as the Primary Supply Location and Primary Return Location

Secondary Heating Equipment

If there is a secondary heating system use the drop-down list indicate the type of system. Also input the secondary heating system capacity and the year of manufacture. If there is no secondary system, leave blank.

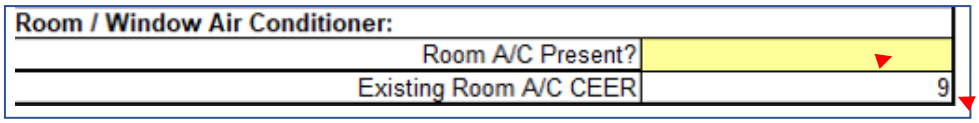
Secondary Heating Equipment	
Secondary Heating System Type	Heat Pump
Secondary Heat System Capacity (btu/h)	12000
Heat Pump HSPF	8.0
Secondary heating system year of mfg	2020

Thermostat

Thermostat:	
Current Thermostat	

Enter in the drop-down the current type of thermostat.

Room/Window AC

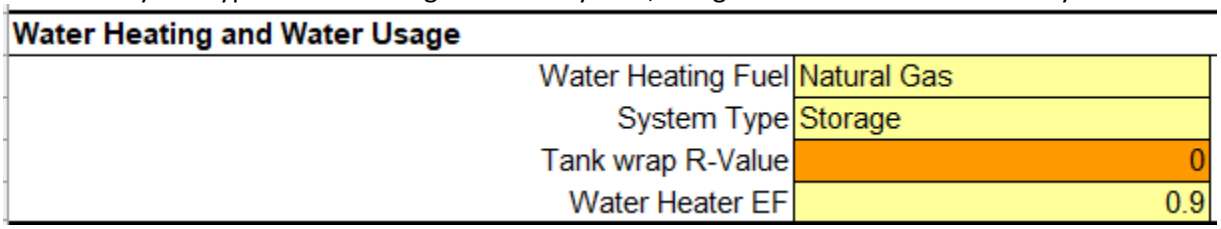


Room / Window Air Conditioner:	
Room A/C Present?	
Existing Room A/C CEER	9

Select yes or no from the Room AC present field. Existing Room AC CEER defaults to 9 and cannot be changed.

Water heater and Water Usage

Select the fuel and system type of the existing hot water system, along with insulation and Efficiency Factor.



Water Heating and Water Usage	
Water Heating Fuel	Natural Gas
System Type	Storage
Tank wrap R-Value	0
Water Heater EF	0.9

Appliances

Select the appropriate efficiency designation from the drop-down for each of the appliances in this section. If an appliance is not present in the home, leave the field blank.

Electrical

Electrical

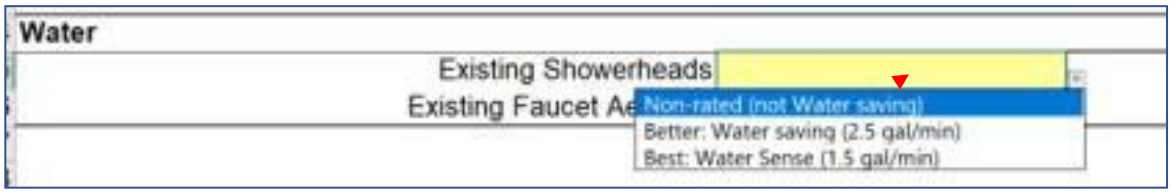
Lighting	
Existing Incandescent % of Lighting	50%
Existing CFL % of Lighting	25%
Existing LED % of Lighting	25%

Electrical Panel	
Panel Type	Breakers
Main Breaker Size	100

Enter the estimated percentage of existing lighting by bulb type listed. The total percentage listed must equal 100%.

Enter the electrical panel type and main breaker size. This data is being collected to support future residential electrification efforts, so at this time this information does not print on the Summary Report and no upgrade fields are available.

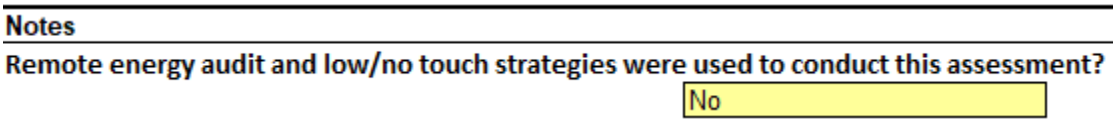
Water



Select from the drop-down to indicate the relative efficiency of existing shower heads. If there is a mix of showerheads in the home, select the applicable type of water savings shower heads from the drop down.

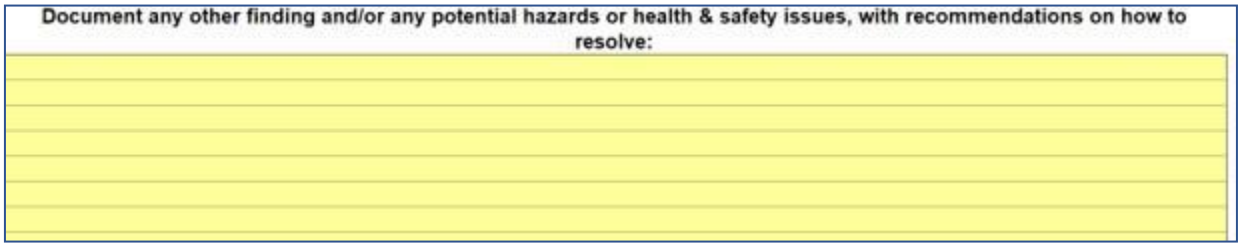
Select yes or no from the drop-down to indicate the existence of faucet aerators. If some faucets have aerators and others do not, then select yes from the drop down.

Remote Assessment Indicator



Use the Yes/No drop-down list to indicate if remote and low/no touch strategies were used to conduct this Assessment.

Health and Safety



Document all health and safety issues and recommendations for resolution. Include any other notes from the home. Notes entered into this field will automatically populate to the Summary Report for the customer. All comments shall be written in a manner that is helpful to the customer.

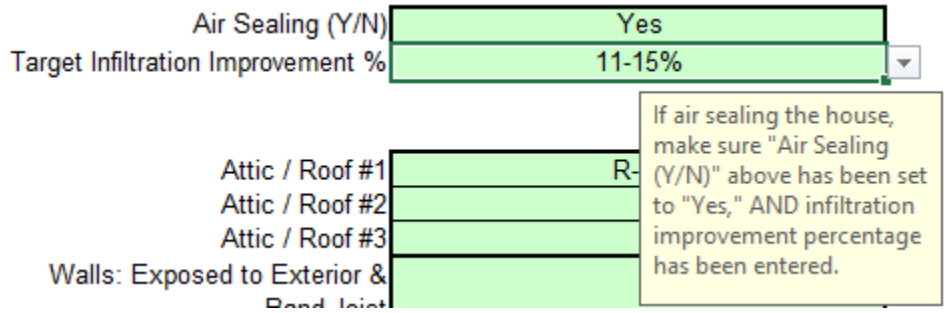
3. Recommended Measures Upgrade

Complete the **Recommended Upgrade Measures:** section for each measure that should be upgraded, regardless of whether your company sells or installs those measures. These recommendations must provide homeowners with a complete view of the path to a more efficient, more comfortable home.

If an area does not need an upgrade, leave the field blank.

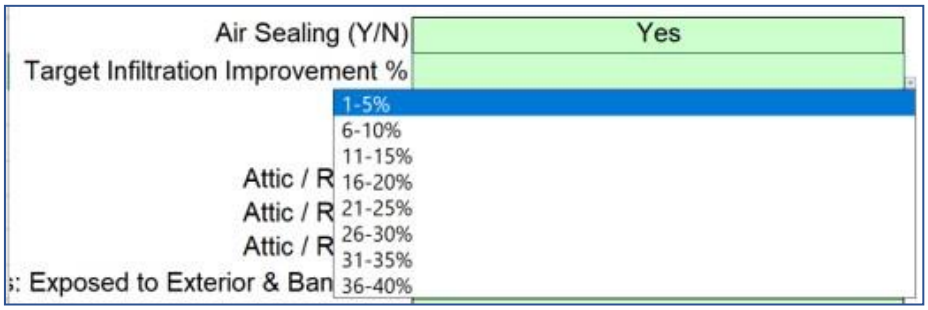
Air Infiltration

Select yes or no from the dropdown to indicate if air sealing is being recommended.



If Infiltration is selected as "Low" in the existing conditions, then an air sealing improvement cannot be recommended.

Select the Target Infiltration Improvement percentage as a result of the proposed air sealing.



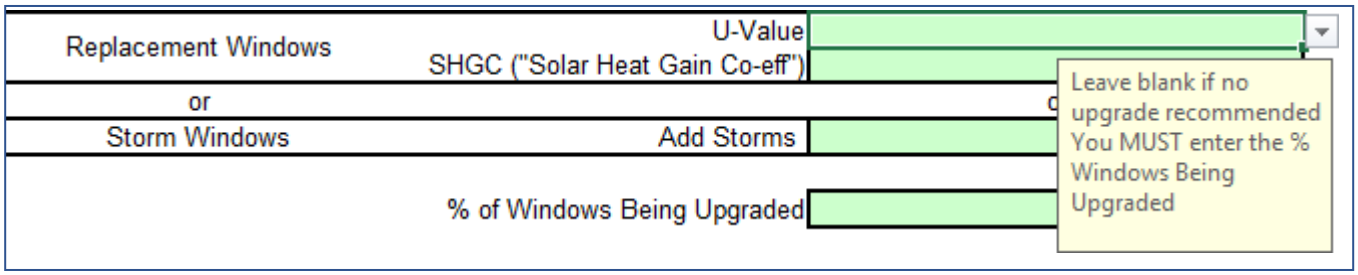
Insulation

For each of the insulation areas where recommendations are being proposed, select the R-value from the drop-down list that represents the R-value of the area after the upgrade.

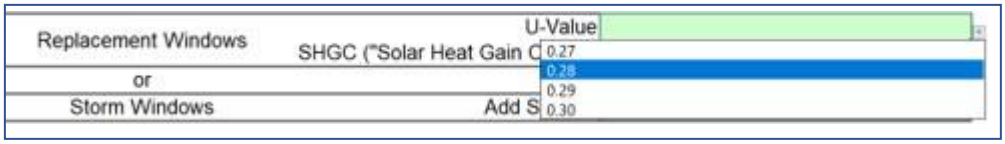
When you are recommending basement or crawlspace insulation upgrades, the number of linear feet of basement or crawl space walls must be entered in the existing conditions section of the tool in order to generate results in the Summary Report.

Windows

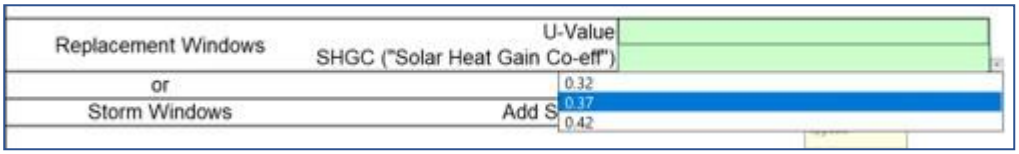
If window upgrades are recommended, enter the details here:



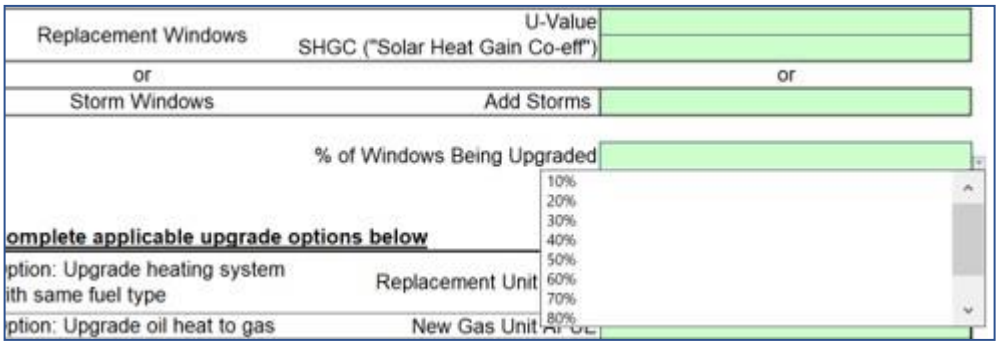
Select from the drop down list the u-value of the recommended window.



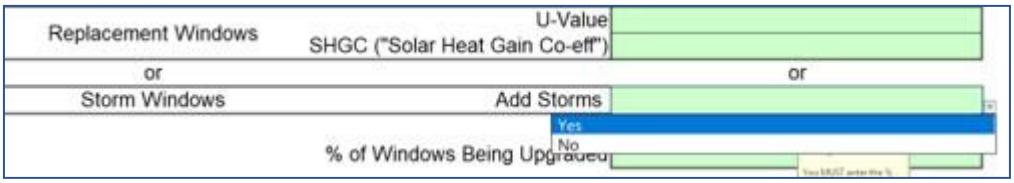
Select from the drop down list the Solar Heat Gain Coefficient of the recommended window.



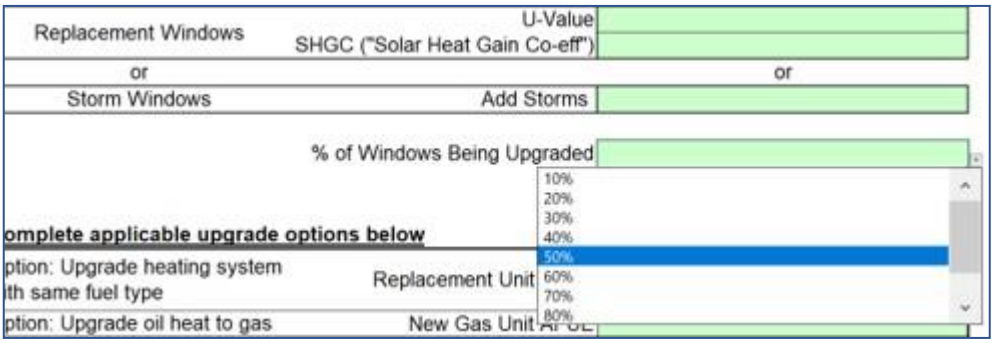
From the drop-down list select the percentage of the home's windows that are being recommended for upgrade.



If the existing windows are single-pane then storm windows will be an option. Select from the Yes / No drop-down list to indicate whether storm windows are recommended.



From the drop-down list select the percentage of the windows that are being recommended for upgrade by adding storm windows.



Primary Heating and Cooling Equipment

In the Primary Heating and Cooling recommended upgrade fields enter the information for the efficiency and size of the recommended equipment.

These fields are dynamic, and the available options will change depending on the existing fuel type and the type of existing equipment.

Example 1

In example 1 below, the existing fuel is natural gas so the options of upgrading to a more efficient gas unit or air-source heat pumps are available.

Complete applicable upgrade options below

Option: Upgrade heating system with same fuel type	Replacement Unit AFUE	98
Option: Upgrade Heating & Cooling with Air-Source Heat Pump (ASHP)	ASHP Type/Scenario	

Example 2

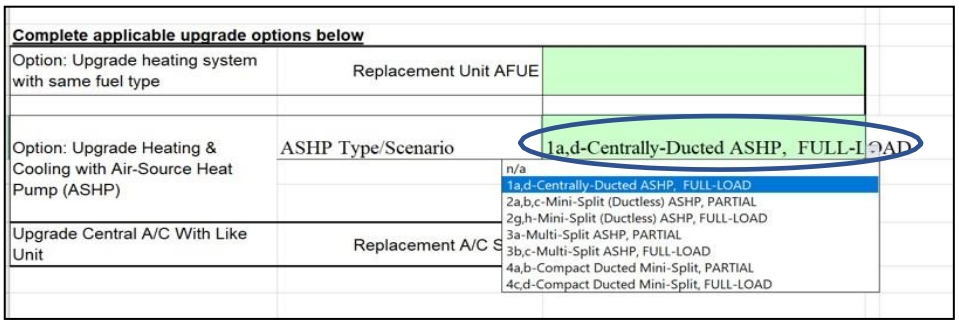
In example 2 the existing fuel is oil so the only option is to upgrade to air-source heat pump(s).

Complete applicable upgrade options below

Option: Upgrade Heating & Cooling with Air-Source Heat Pump (ASHP)	ASHP Type/Scenario	

When selecting Air-Source Heat Pump(s)

Select recommended ASHP type and scenario from the drop-down list.

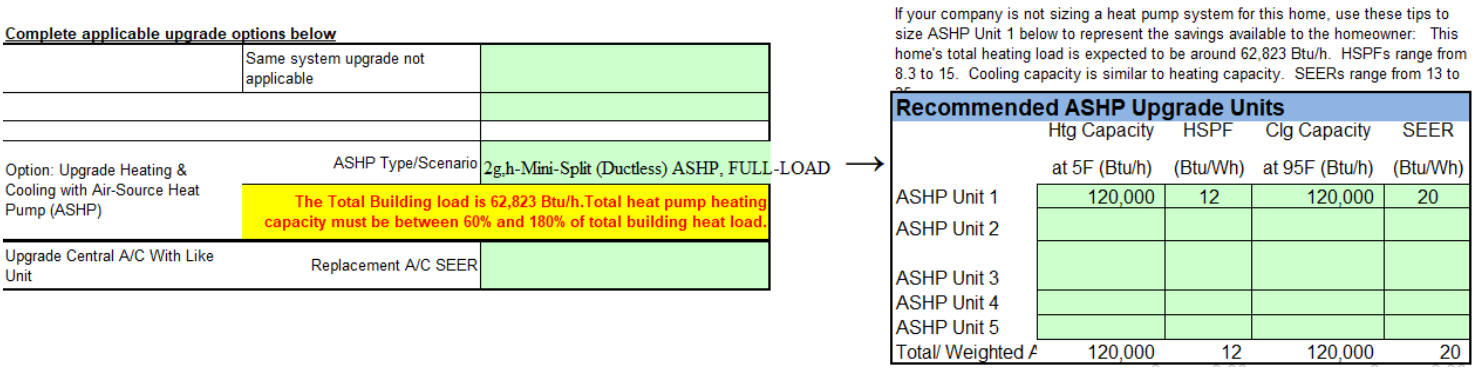


For each ASHP unit being installed enter the heating and cooling capacity, the HSPF and the SEER in the appropriate fields.

Recommended ASHP Upgrade Units

	Htg Capacity at 5F (Btu/h)	HSPF (Btu/Wh)	Clg Capacity at 95F (Btu/h)	SEER (Btu/Wh)
ASHP Unit 1	100,000	8	80,000	15
ASHP Unit 2				
ASHP Unit 3				
ASHP Unit 4				
ASHP Unit 5				
Total/ Weighted Avg	100,000	8	80,000	15.0

The total heat pump capacity must be aligned with the home's heating load. If the value entered in the heating capacity field is too large or too small, a message will display indicating that you must enter a heating capacity value that falls in this range.



Entering a valid system capacity in the Heating Capacity field will resolve the error message.

Example 3

If you are recommending upgrading an existing heat pump to a new higher efficiency heat pump, then use the inputs

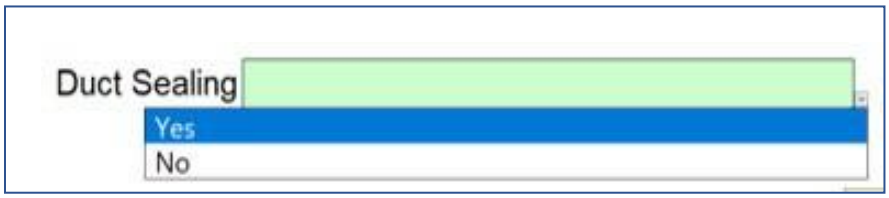
illustrated in the image below. Do not input information into the ASHP/Scenario field when upgrading from an existing heat pump to a new higher efficiency heat pump. In instance where you are recommending an upgrade to a heat pump from any other type of system use the process described below in example 4.

Primary Heating and Cooling Equipment	
Primary Heating Fuel	Electricity
Primary Heating System Type	Heat Pump
Primary Heat System Capacity (btu/h)	100000
Heat Pump HSPF	6.5
Primary heating system year of mfg	2000

Option: Upgrade heating system with same fuel type	Replacement Unit HSPF	8
Option: Upgrade Heating & Cooling with Air-Source Heat Pump (ASHP)	ASHP Type/Scenario	#N/A

Primary Duct System

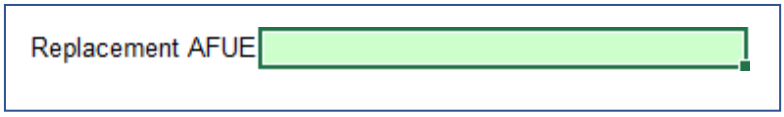
Primary Duct System – Duct Sealing



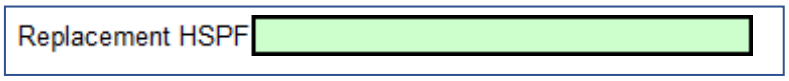
Options available in the duct sealing drop down list are dependent on the selection of the existing condition for duct sealing. If the existing condition indicates that the ducts have been sealed prior to the Assessment, skip this upgrade recommendation.

Secondary Heating Equipment

Example 1

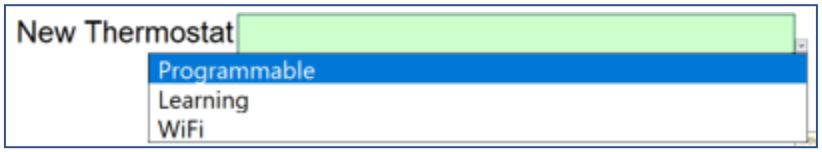


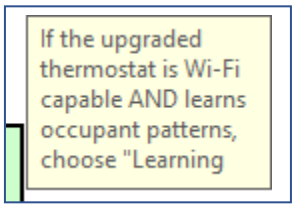
Example 2



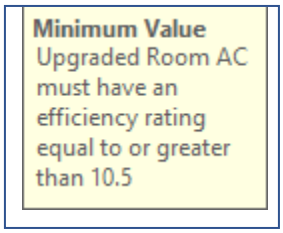
Like the primary heating equipment, the recommended upgrade fields are dynamic, and the available inputs will change based on the type of existing equipment selected on the secondary heating system existing conditions inputs. In Example 1 the existing secondary heating system is a fossil fuel furnace therefore the input for the new system is an AFUE. In Example 2 the existing secondary heating system is a heat pump so the input for the new system is an HSPF.

Thermostat





Room/Window AC



Water heater

These fields are dynamic, and the available options will change depending on the existing fuel type and the type of existing equipment.

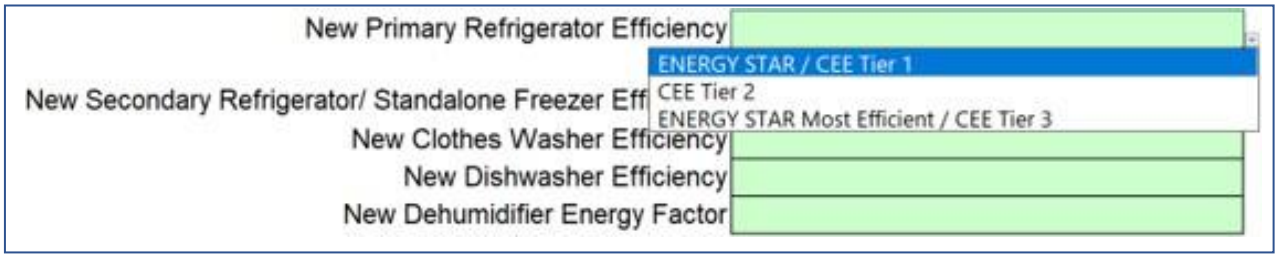
Select the water heater fuel of the upgraded system from the drop-down list.
Select the water heater type of the upgraded system from the drop-down list.

Water Heating Fuel	Electricity
Replacement Type	Heat Pump (independent)
UEF	2.2
3' sections of pipe insulation	

Enter the UEF of the recommended system. For new heat pump water heaters use 2.2 for the UEF unless otherwise specified by the manufacturer.

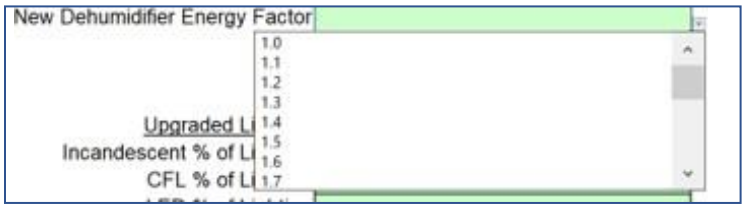
Enter a value of no greater than 3 in the 3' section of pipe insulation field.

Appliances



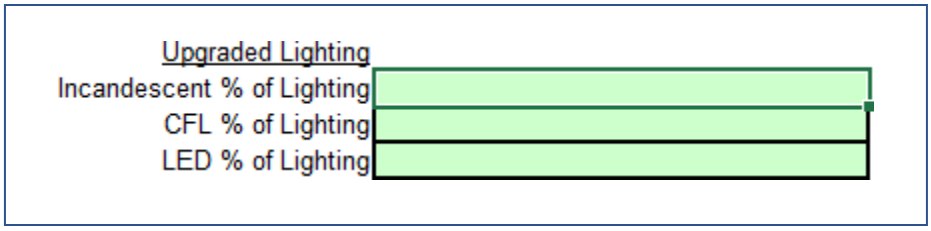
Select the appropriate efficiency designation from the drop-down for each of the appliances in this section.

Appliances – Dehumidifier Energy Factor



Select the appropriate dehumidifier Energy Factor from the drop-down if recommending a dehumidifier.

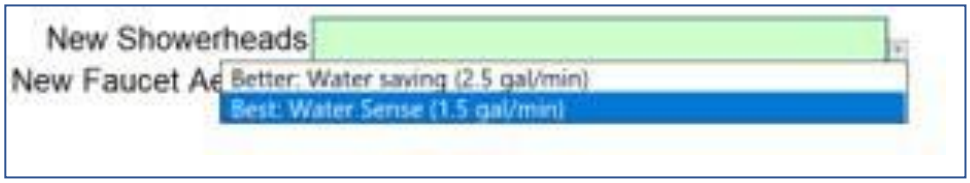
Lighting



Enter the recommended percentage lighting by the type listed. The total percentages listed must total 100%.

Water

Water – Shower Heads



Select from the drop down the upgraded shower head.

Water – Aerators

Select from the drop down indicating in new faucet aerators were recommended.

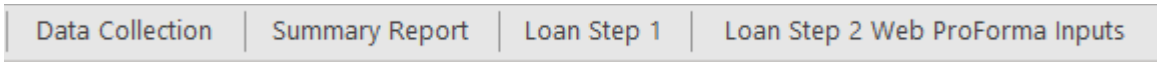
When data entry is complete, click the 

button to move on to the next tab in the Excel workbook file. Entries on the Data Collection tab will be automatically checked and messaging will display if any required fields are not completed.

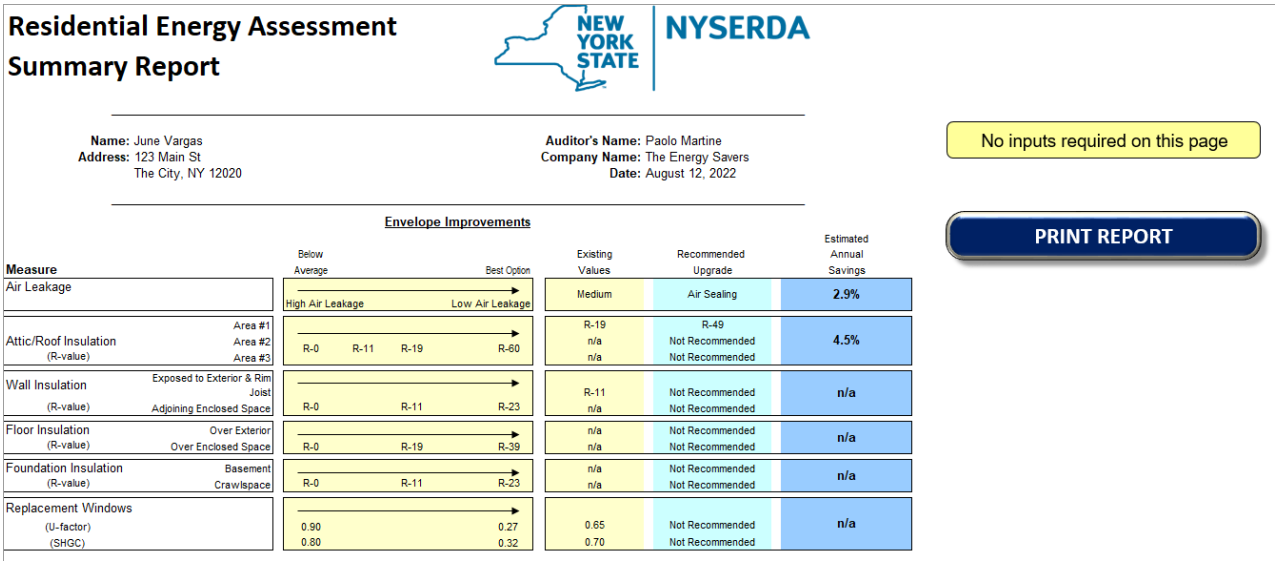
If a macro security message displays, use the information from this page to learn how to enable macros for the NYSERDA Residential Energy Audit Tool:

https://support.microsoft.com/en-us/topic/a-potentially-dangerous-macro-has-been-blocked-0952faa0-37e7-4316-b61d-5b5ed6024216

If you're unable or uncomfortable enabling macros, then Tool will still work. Use the Excel tabs at the bottom of the screen to navigate to the Summary Report.



4. Summary Report



Residential Energy Assessment
Summary Report

NEW YORK STATE | NYSERDA

Name: June Vargas
Address: 123 Main St
The City, NY 12020

Auditor's Name: Paolo Martine
Company Name: The Energy Savers
Date: August 12, 2022

No inputs required on this page

PRINT REPORT

Envelope Improvements

Measure		Below Average → Best Option	Existing Values	Recommended Upgrade	Estimated Annual Savings
Air Leakage		High Air Leakage → Low Air Leakage	Medium	Air Sealing	2.9%
Attic/Roof Insulation (R-value)	Area #1	R-0 R-11 R-19 R-60	R-19	R-49	4.5%
	Area #2		n/a	Not Recommended	
	Area #3		n/a	Not Recommended	
Wall Insulation (R-value)	Exposed to Exterior & Rim Joist	R-0 R-11 R-23	R-11	Not Recommended	n/a
	Adjoining Enclosed Space		n/a	Not Recommended	
Floor Insulation (R-value)	Over Exterior	R-0 R-19 R-39	n/a	Not Recommended	n/a
	Over Enclosed Space		n/a	Not Recommended	
Foundation Insulation (R-value)	Basement	R-0 R-11 R-23	n/a	Not Recommended	n/a
	Crawlspace		n/a	Not Recommended	
Replacement Windows					n/a
(U-factor)		0.90 → 0.27	0.65	Not Recommended	
(SHGC)		0.80 → 0.32	0.70	Not Recommended	

This worksheet is dynamic and will update based on the inputs entered in the Data Collection worksheet (tab). No data inputs are required or allowed.

After completion of the data entry, select the Print Report button to generate a copy of the Summary Report to provide either in hard copy or electronically to the customer. The Assessment Tool Excel file must not be provided to customers - only a PDF file or a hard copy of the Summary Report should be provided to the customer.

Estimated annual savings as displayed on the Assessment Summary report are energy savings as a percentage of total energy usage – these savings percentages do not represent dollar savings.

A fact sheet for home electrification has been created for contractors to provide to homeowners along with each energy assessment. A copy can be downloaded from here. Provide a PDF copy or hard copy to each customer.

5. Support

For questions or suggestions on this tool, contact HomeAudits@nyserda.ny.gov.