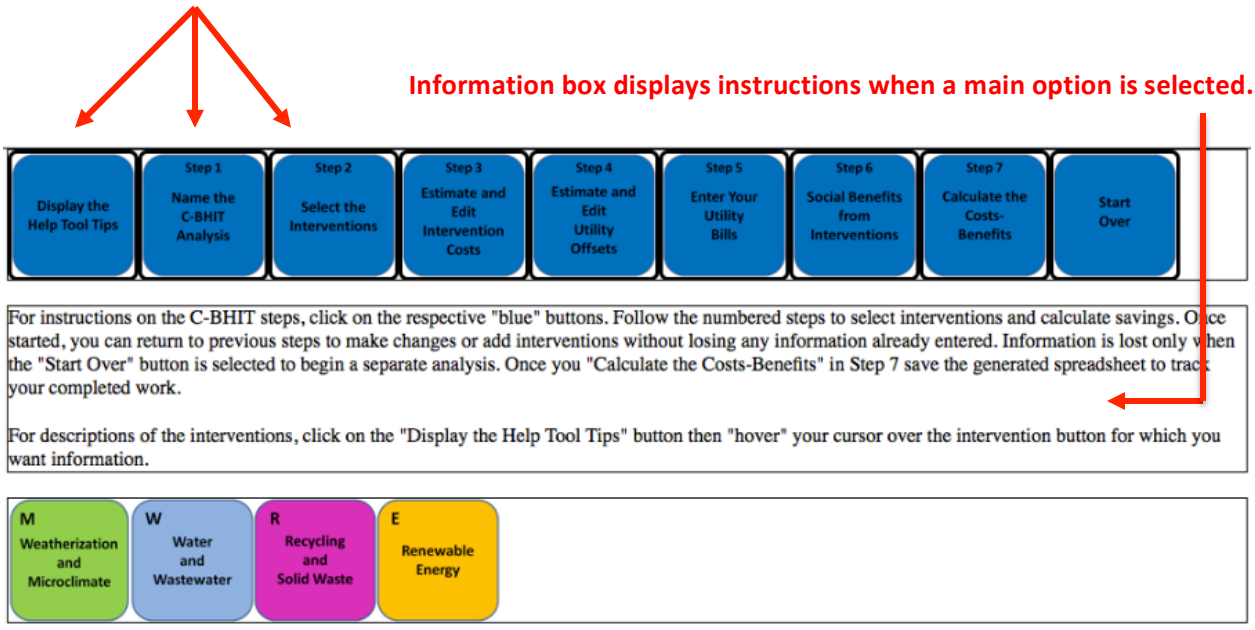
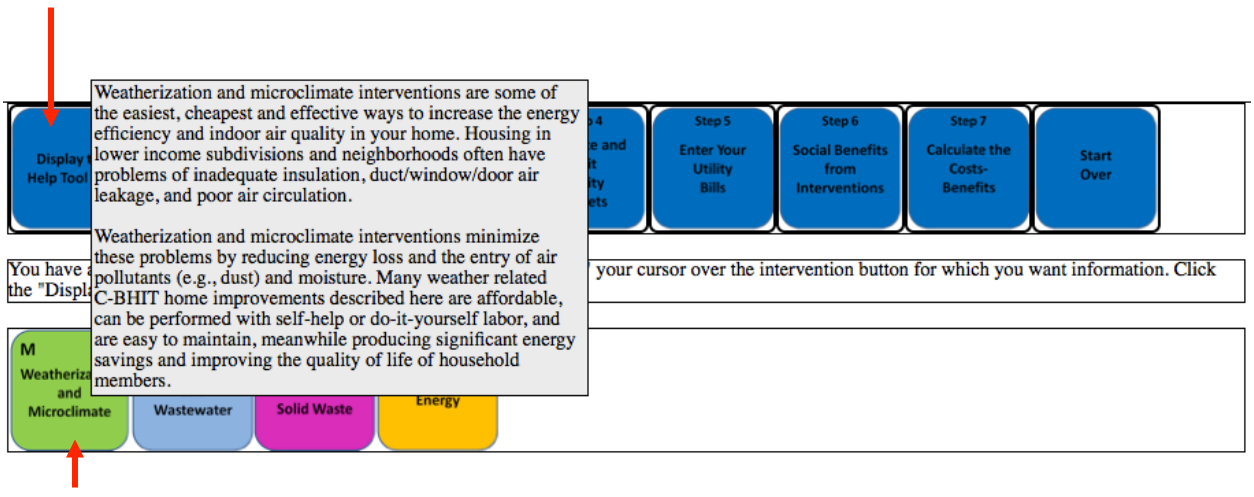
Information and Help Buttons

Follow the "blue button" main option steps to run an analysis. You can return to previous steps to make changes, including selecting additional interventions, without losing any information previously entered.

Information box displays instructions when a main option is selected.



Selecting the "Display the Help Tool Tips" button enables pop-up descriptions when a user hovers the cursor over an intervention.

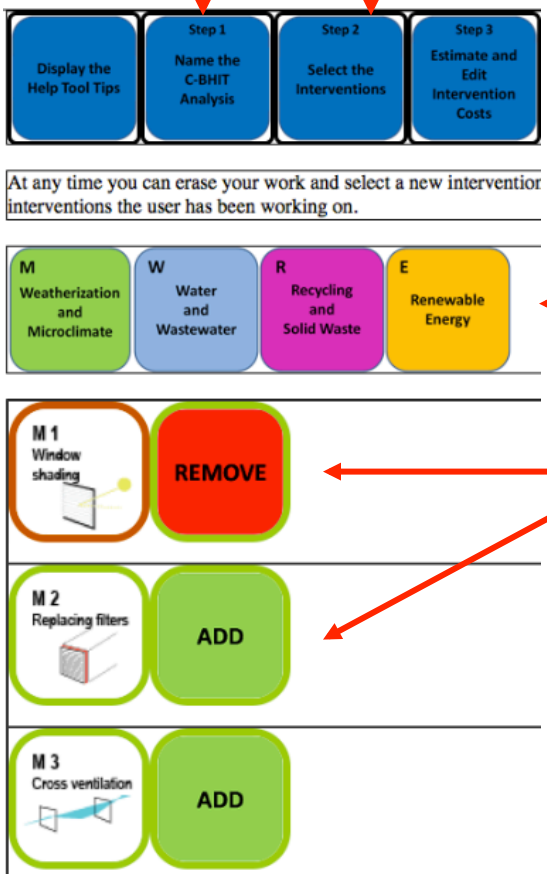


Hovering over "Weatherization and Microclimate" provides its description.

Selecting Interventions

Click on “Select the Interventions” or the main intervention buttons (M, W, R, and E) and a list of detailed interventions appears.

Name your analysis to keep track of it, but naming it is not necessary.



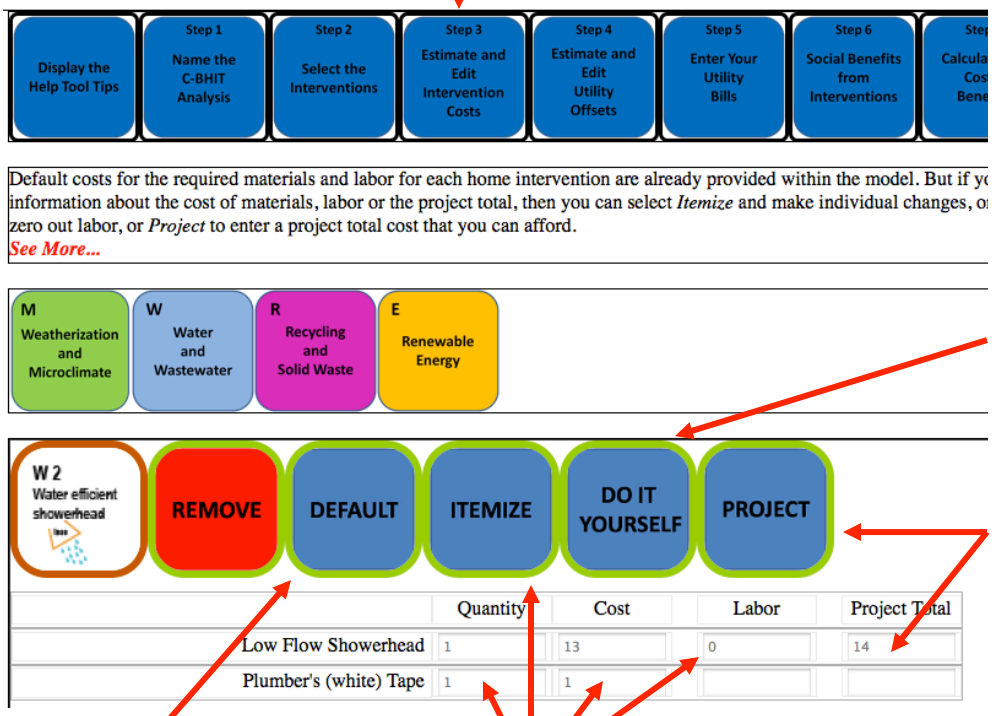
Main Intervention buttons

Detailed interventions

Click on “Add” and the button changes to “Remove”. This means you have included the intervention in the analysis. Click on “Remove” and this removes the intervention from the analysis.

Intervention Costs

After selecting your interventions, click on "Estimate and Edit Intervention Costs" to review the materials and labor costs per intervention. Default costs are provided but can be changed.



If you select "Do it Yourself" the labor cost changes to $0.

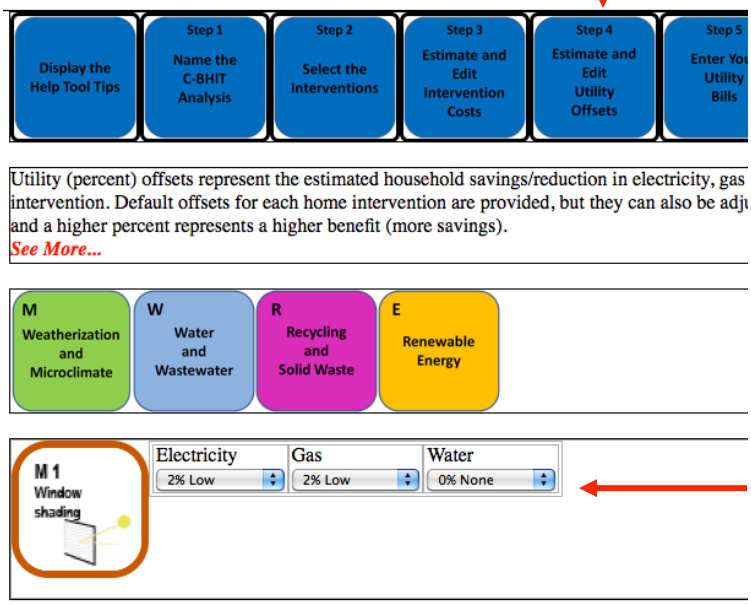
If you do not know the details but know the overall cost of the intervention, select "Project" and enter the project cost.

Select "Default" to take you back to the initial pre-selected costs.

Select "Itemize" to make individual changes to the quantities/costs of the materials or the labor cost of the intervention. Labor cost is based on a materials to labor ratio, for example, 40:60 means that for every $40 of materials there is $60 in labor. If you make a change to the quantity, the labor is automatically calculated based on a ratio (not all interventions have the same ratio). If you have a better estimate of the labor cost, simply change it.

Utility (Savings) Offsets

Selecting the utility offsets tells the model the estimated savings in the variable cost of each utility bill. Default offsets are provided but can be changed. They must be realistic estimated savings otherwise the results will not be valid.

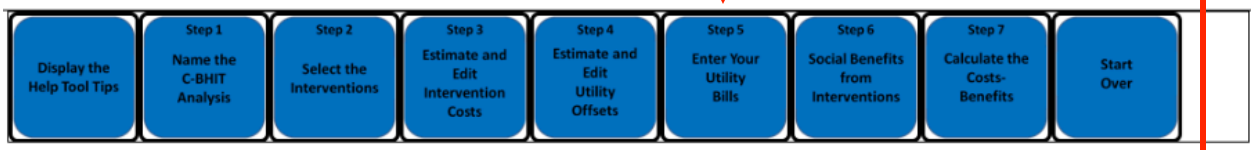


Each utility has a drop-down box to make changes to the default offsets.

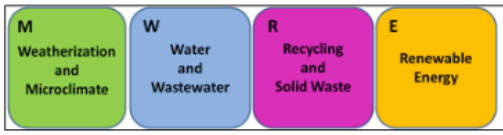
Utility Usage and Rates

In order to personalize the savings to reflect your household and seasonal usage and rates, select "Enter Your Utility Bills". You are asked to enter the electricity, gas and water usage and variable cost of each for a 12-month period. If you do not have access to your utility bills or do not have time, you can forego this step. But if you omit this information, savings (benefits) will not be calculated. However, you can still calculate the individual and total costs of the selected interventions which may be beneficial for those users that wish only to generate cost information.

Click "see bill" to view utility bill examples of where to find the usage and variable costs.



Predictions for utility savings are based on average trends and rates that account for geography and household and seasonal usage. Enter your own household billing information to personalize the electricity (kWh), gas (Ccf), and/or water (gal) usage and **variable cost** for a recent 12 month billing period *(see bill examples)*. Also enter the seasonal months for heating and cooling that apply in your region as well as whether you use electricity or gas to heat your home. *See More...*



Select Heating Source >> Gas

Select Heating/Cooling Months

January	February	March	April	May	June	July	August	September	October	November	December
heating	heating	heating	cooling	cooling	cooling	cooling	cooling	cooling	cooling	heating	heating

Month	Total kWh	Variable Cost
January	808	83.00
February	618	63.48
March	536	55.06

Month	Total ccf	Variable Cost
January	123	57.56
February	145	70.97
March	56	25.74

Month	Total gal	Variable Cost
January	8976	21.76
February	8228	20.31
March	7480	16.32

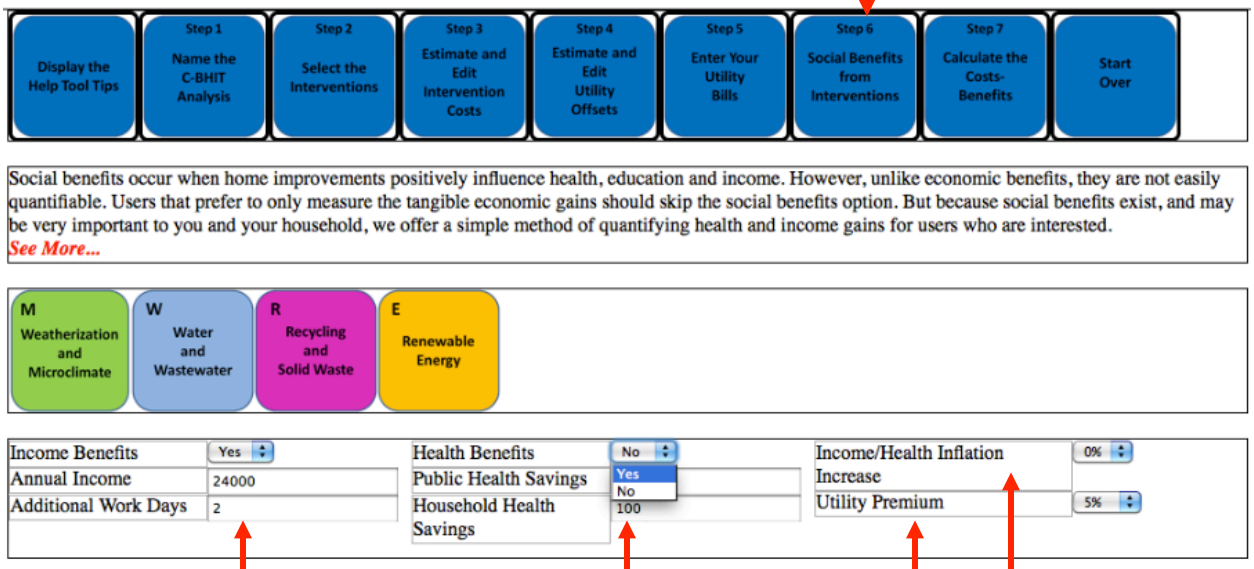
Enter usage and variable costs

Select whether you use gas or electricity to heat your home.

Select the seasonal months for heating and cooling that apply in your region.

Social Benefits

Improving housing conditions can lead to improved health and, thus, reduced health costs, as well as greater wages when, for example, better health leads to less missed work days. Select this step if you would like to include these social benefits.



To include income benefits, change the drop-down from "No" to "Yes" and enter the estimated annual income of the household persons that would benefit from the home improvements. Also enter the additional work days that they would gain from not being sick (based on past experiences).

To include health benefits, change the drop-down from "No" to "Yes" and enter the health savings you estimate from the improved health. Public health savings occur for persons that depend on government assistance for their health needs. Household health savings occur when the family pays less out-of-pocket medical bills and medicines.

Including an inflation index means that the household will benefit more from future wages and from controlling health costs. Keep at 0% for a conservative estimate.

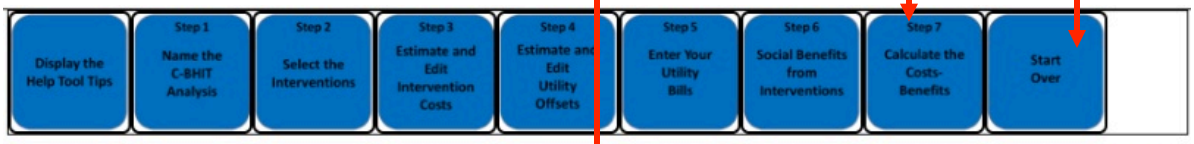
Including a utility premium means that a relatively lower income household will achieve a higher benefit from home interventions than would someone who is better off.

Results

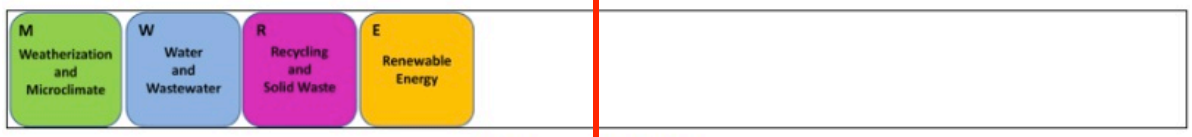
Select "Calculate the Costs-Benefits" to generate the output. The model uses the average historic utility usage rates and utility offsets to estimate savings. The analysis takes into account whether the selected interventions produce savings year round (e.g., compact fluorescent bulbs produce electricity savings year round); seasonally (e.g., weatherization only produces gas savings during cold months if gas is used to heat the home); or not at all (e.g., composting). Since benefits accumulate over the years, savings are *discounted* to account for future inflation and risk. Intervention costs accrue in year 1.

Downloadable spreadsheet of analysis

Select "Start Over" to begin a new analysis.



In evaluating the cost-benefits of home improvements it is important to understand that the cash flows of costs-benefits belong to different time periods. That is, the costs will take place at the beginning while benefits will accumulate over several months and years so we need to (***discount***) the benefits into current (today) prices to account for future inflation and risk. Because of discounting, energy and water savings in the distant future will often appear to be small compared to the upfront initial costs which will appear large. Nonetheless, the benefits will accumulate and, depending on the interventions chosen, will pay off in the long run. This discounting process yields ***present values*** which are reported in the output.
See More...



Click here to download CBA

	Low %	High %
Electricity Savings	0	4
Gas Savings	5	9
Water Savings	5	5

* A low and high savings for utilities is provided since the savings are influenced by seasonal effects so differ monthly.

	DISCOUNT RATE: 3%				DISCOUNT RATE: 5%				DISCOUNT RATE: 7%			
UTILITY PREMIUM: 0%	1-year	3-year	5-year	15-year	1-year	3-year	5-year	15-year	1-year	3-year	5-year	15-year
BENEFITS PRESENT VALUE	65	191	309	803	65	185	294	701	64	180	280	617
Electrcity Savings	28	81	131	342	28	79	125	298	27	76	119	262
Gas Savings	23	66	107	278	22	64	102	243	22	63	98	215
Water Savings	15	44	70	183	15	42	67	160	15	41	64	141
Increase Income	0	0	0	0	0	0	0	0	0	0	0	0
Health Savings	0	0	0	0	0	0	0	0	0	0	0	0
COSTS (INITIAL)	156	156	156	156	156	156	156	156	156	156	156	156

	Individual Costs
Weatherization & Microclimate	
Window Shading	92
Weatherstrip (interior)	50
Water & Wastewater	
Water Efficient Showerhead	14

Discount rates of 3%, 5% and 7% used for sensitivity analysis

Energy/water savings and social benefits estimated 1, 3, 5, and 15 years into the future using present value.

Total investment

Individual costs

Range of utility usage savings