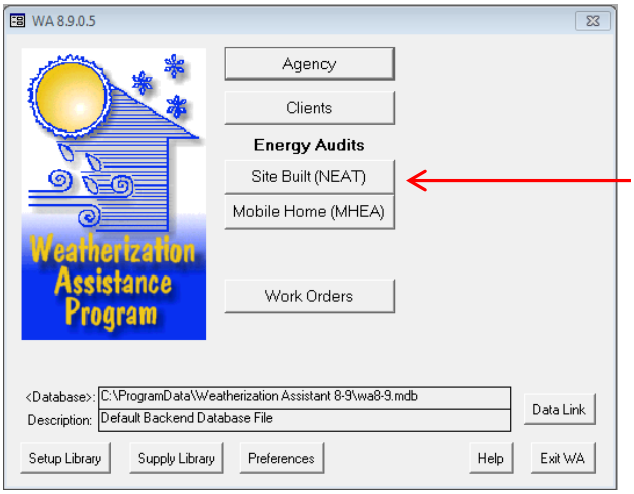
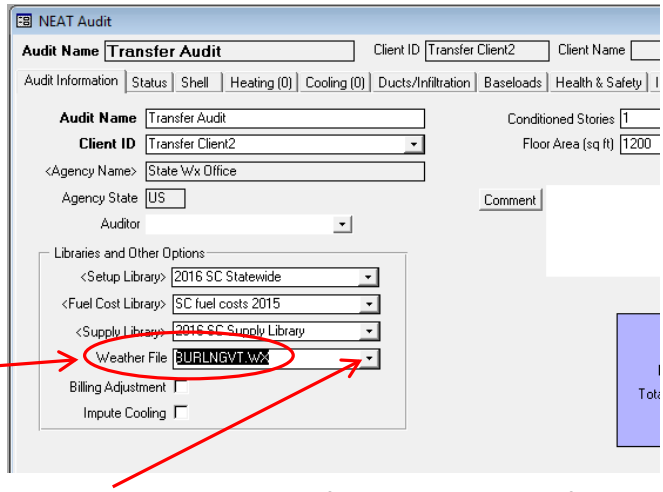
Choosing the best weather station for NEAT/MHEA Audits.

NEAT/MHEA selects the most cost effective measures for any given dwelling based, in part, on the expected temperature and climate data for that particular geographic location.

Such data has been collected from airports around the country and incorporated into Weather Files within the program from which the user must make the best choice for any given energy audit. However, there are a limited number of such files within the program, and choosing the wrong weather station can have a detrimental impact on an audit's effectiveness.

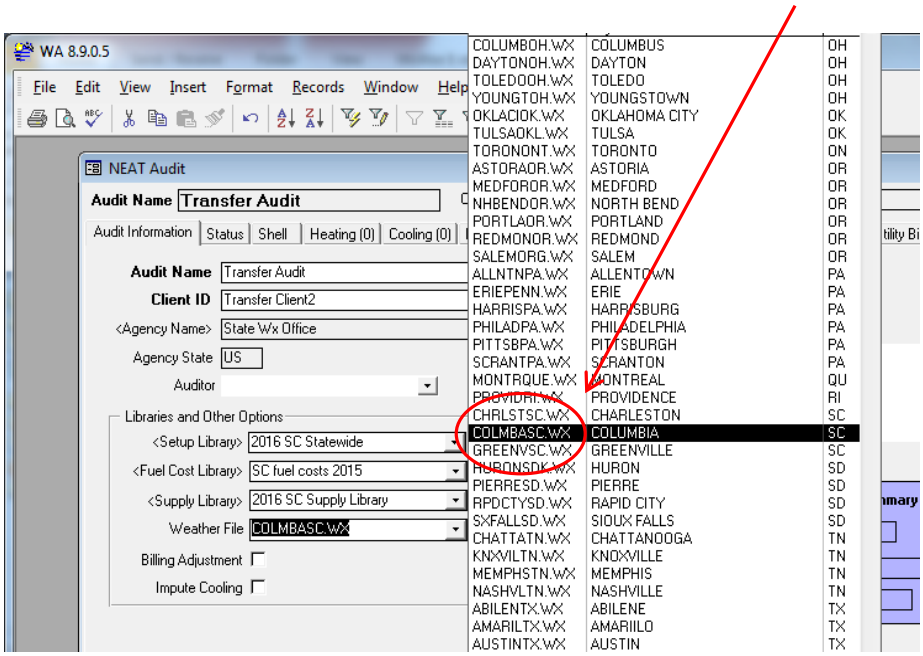


The Weather File is selected on the opening screen of a NEAT or MHEA energy audit.



The Weather File on this screen is for Burlington, Vermont; not the best choice for audits performed in South Carolina.

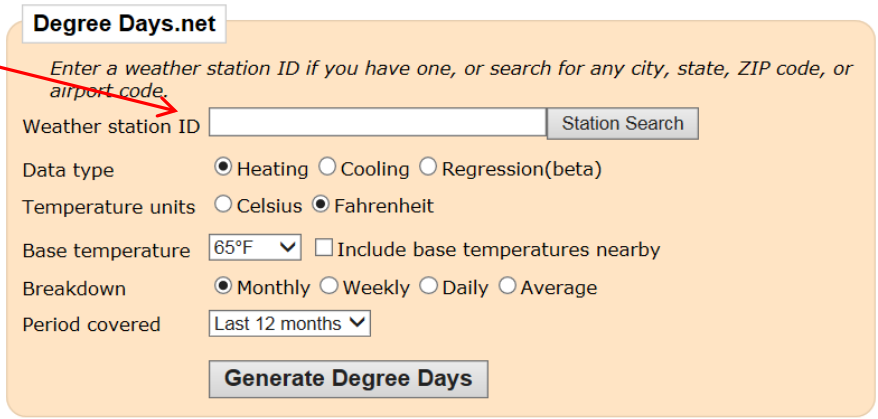
Clicking the Weather File arrow opens a drop down box with Weather Station information collected from major airports in the continental United States. Notice that there are only three Weather Station Files for South Carolina: Charleston, Columbia, and Greenville.



The best approach is to choose the weather file in NEAT/MHEA that has the closest number of **degree days** to the dwelling in question. Degree days are measurement units used to make calculations of a building's heating or cooling needs over a period of time based on records of outside air-temperature. The units *Heating degree days* (HDD) and *Cooling degree days* (CDD), respectively, measure how much heating or cooling was needed over that time period to condition the building comfortably.

The major airport in the NEAT/MHEA list geographically closest to a dwelling isn't necessarily the best choice for the most accurate audit results. You want to choose the NEAT/MHEA Weather File that most closely represents the climate of the dwelling. Nor will the best choice necessarily be in South Carolina, as the example below demonstrates.

The website http://www.degreedays.net/ provides data on many more local airports than NEAT/MHEA does. The chart below was composed using data from the degreedays.net website to illustrate the selection of the best Weather File for a Local Agency energy audit. Start by searching for the dwelling town (or zip code) to see what airports are nearby.



Click the "Station Search" button to reveal a set of airports near the town. Select the closest airport, Data Type (run the test twice; first for heating, then for cooling), set the duration and period for the test, and then click "Generate Degree Days". It will take a few seconds for the data to process, and then a button will appear at the top of the page enabling you to "Download Now". Check your Downloads folder for a file that ends in ".csv". This file will open in Excel where you can paste the downloaded heating and cooling degree days and compare with the NEAT/MHEA Weather File data to determine the best match for your audit.

Description: ***Heating degree days using base temperature of 65F***
Source: ***www.degreedays.net (using temperature data from www.wunderground.com)***

	COLUMBIA, SC			CHARLOTTE, NC			Local Agency Airport	
Month	HDD	CDD		HDD	CDD		HDD	CDD
4/1/2015	76	145		145	76		153	84
5/1/2015	31	306		36	258		67	227
6/1/2015	0	498		3	443		3	408
7/1/2015	0	597		0	500		0	463
8/1/2015	0	508		1	428		3	366
9/1/2015	12	340		22	255		26	245
10/1/2015	131	100		194	55		214	54
11/1/2015	236	48		308	20		329	21
12/1/2015	233	64		311	24		309	36
1/1/2016	647	1		779	0		784	0
2/1/2016	475	14		584	5		595	6
3/1/2016	188	112		254	62		276	69
	2029			**2637**			**2759**	
		2733			**2126**			**1979**

Comparing both the heating (in red) and cooling (in blue) degree days between the weather stations indicates that Charlotte's weather station might be a better match for this sample audit.