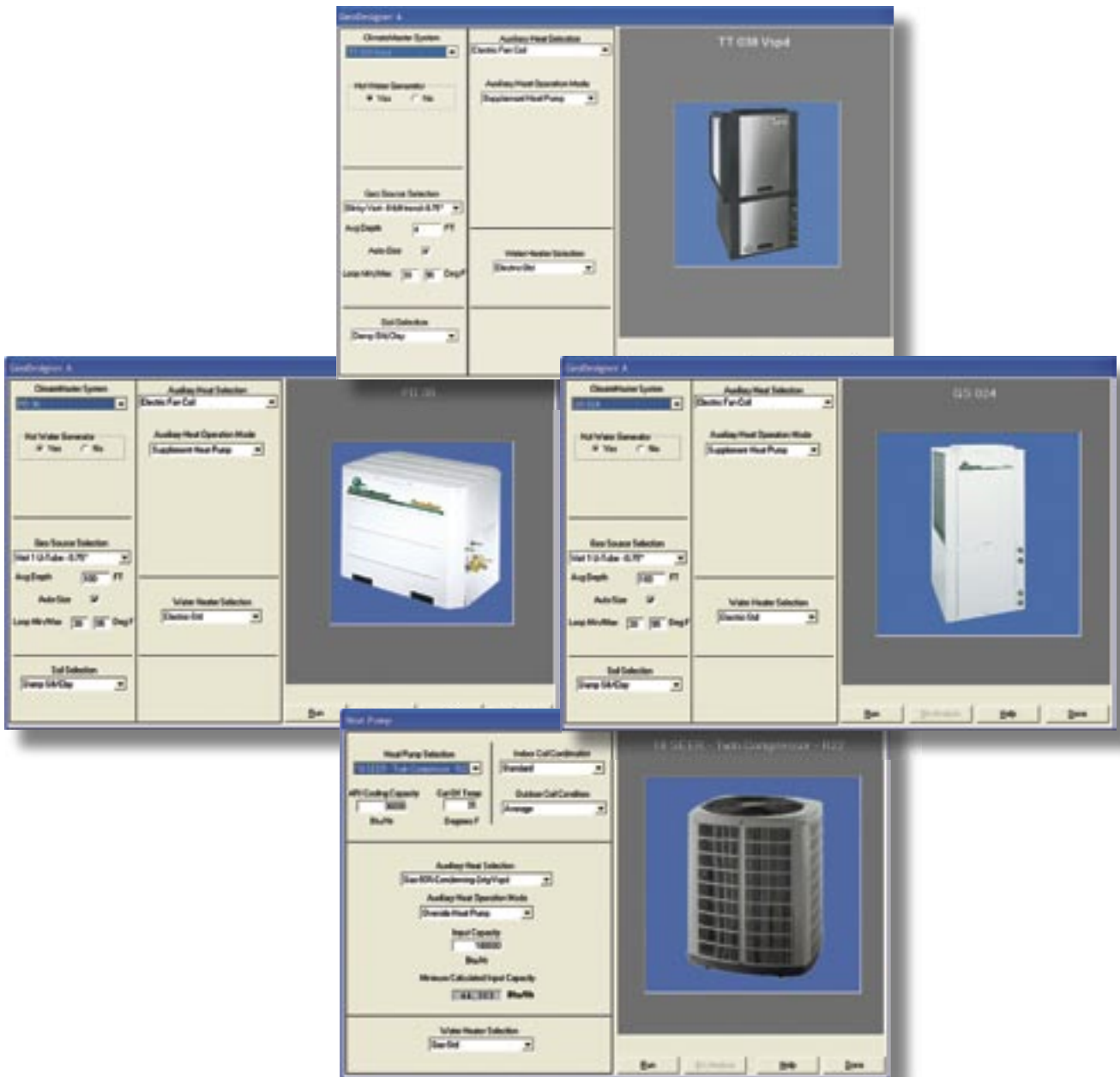


# GeoDesigner<sup>®</sup>

Energy & System Analysis Software





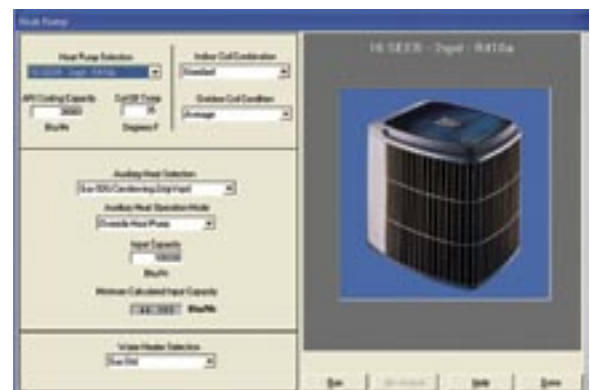
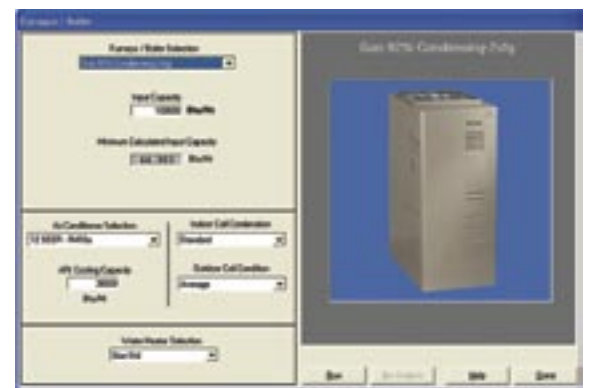
## GeoDesigner® 3.1 Overview

Revision 3.1 extends the system design and analysis capabilities of GeoDesigner® to the leading edge of modern residential heating and cooling technology. Advanced features such as variable-speed fans and two-stage operation are now available for all system types, including geothermal, furnaces, air conditioners, or air-to-air heat pumps. GeoDesigner® 3.1 also includes the latest models for each system, including those utilizing alternative refrigerants, and now offers the choice of the appropriate indoor coil combination and outdoor coil condition for air-source units. In addition, hydronic capabilities have been added for geothermal systems, including a dedicated water heating option.

GeoDesigner®, in revision 3.1, has been upgraded to 32 bit. This provides better Windows® and Windows XP® compatibility, larger and easier to use screen views, longer file names, enhanced directory browsing, and faster calculation speed. GeoDesigner® 3.1 is backward compatible with project files that have been saved with prior versions.

Major new capabilities of GeoDesigner® 3.1 are:

- Geothermal selections now include over 100 models, including the exciting new Tranquility27™ series, Genesis™ GSW series water-to-water units at three distribution temperature ranges, Genesis™ GSS splits and Paradigms™ mated with variable-speed furnaces or air handlers, and the Genesis™ GR line.
- Furnace and auxiliary heat choices now include over 25 selections ranging from 65 to 93 percent in efficiency for fossil fuels, plus three for electric resistance, with options for variable-speed fans and two-stages of capacity. Any of these selections can be combined with a single or two-stage geothermal or air-to-air heat pump with a choice to either supplement or override the primary system. The complicated effects of up to four stages of operation can be accurately analyzed.
- Air conditioners and air-to-air heat pumps are now offered in standard SEER ratings from 8 to 18, with options for variable-speed fans and two-stages of capacity. Because manufacturers typically provide ARI ratings for a number of different indoor blower and coil combinations, the standard SEER rating can now be fine-tuned by selecting the most appropriate match. In addition, the effects of the condition of the outdoor coil can be included, based upon the results of a study of air-to-air units by the California Energy Commission to determine the impact on system performance.
- A dedicated (stand-alone) geothermal water heating option is now available for all system types.



### Features and Benefits:

GeoDesigner® 3.1 incorporates all of these new capabilities, yet retains the accuracy and ease of use for which it is well known. There simply is no other software program for residential system sizing, design, and comparisons that comes close. If you have never used GeoDesigner®, you can download a free demo version at [www.climatemaster.com](http://www.climatemaster.com). Order your GeoDesigner® 3.1 upgrade today!

#### Program Features:

- Uses standard ACCA Manual J or ASHRAE loads input
- Climate table featuring over 200 North American cities
- Extensive report capability with color graphing
- All heat pump types support electric or fossil auxiliary heat
- Unlimited storage for utility rate profiles
- Compares operating costs of up to three different systems in one report
- Over 25 pre-configured closed loop layouts plus well water (open loop)
- Eight soil types with comprehensive description
- Extremely easy to use
- Supports single stage, two stage, and split heat pump models
- Features automatic or manual geothermal loop sizing
- Hybrid closed-loop and well water combinations possible with dual circuit units
- Uses ASHRAE algorithms for alternative system performance that includes:
  - Natural gas furnaces and boilers with A/C
  - Propane furnaces and boilers with A/C
  - Fuel oil furnaces and boilers with A/C
  - Electric furnaces with A/C
  - Air source heat pumps with electric or fossil auxiliary heat

ClimateMaster, Inc. GeoDesigner®		Sample Project Title				
<b>Project Information</b>						
Prepared For:	Mr. and Mrs. Sample Customer 1234 Sample Drive Sample City, USA 12345 123-321-1234	Prepared By:	ClimateMaster, Inc. 7300 SW 44th St. Oklahoma City, OK 73179 800-269-8747 405-745-2051			
Notes:	Sample Customer Note	Notes:	Sample Dealer Note			
<b>Design Data</b>						
Heating Load:	45,000 Btu/hr	Heating Setpoint:	72 Deg F			
Htg Load Temp Diff:	65 Deg F	Cooling Setpoint:	75 Deg F			
Cooling Load:	36,000 Btu/hr	Begin Cooling At:	70 Deg F			
Cdg Load Temp Diff:	25 Deg F	Hot Water Setpoint:	130 Deg F			
Sensible Cooling:	26,500 Btu/hr	Hot Water Users:	4			
Reference City:	Oklahoma City, OK	Continuous Fan:	No			
Winter Design:	13 Deg F	Annual Heating:	53.4 Million Btu			
Summer Design:	100 Deg F	Annual Cooling:	37.5 Million Btu			
Wtg Balance Temp:	62 Deg F	Annual Water Heating:	18.1 Million Btu			
Avg Internal Gains:	8,316 Btu/hr	Daily Hot Water Use:	70 Gallons			
<b>Estimated Operating Cost Summary</b>						
System	Heating Cost	Cooling Cost	Hot Water Cost	Constant Fan	Total Cost	Per Month
TT 300 Vaid and Dirty Vaid - 8 R/R Invert 0.72"	\$124	\$173	\$192	\$0	\$509	\$45
12 SEER - R22 System	\$458	\$318	\$302	\$0	\$1,078	\$90
Geo 12% Condensing-2kg System	\$653	\$309	\$302	\$0	\$1,264	\$105
Comments:		<b>Utility Cost</b>		Rate	Summer	Winter
Sample Project Note:		Electric - Geothermal	\$/kwh	075	045	
Sample Proj #		Electric - Heat Pump	\$/kwh	075	045	
		Electric - Furnace	\$/kwh	075	075	
		Natural Gas	\$/therm	1.00	1.00	
		Propane	\$/gallon	1.25	1.25	
		Fuel Oil	\$/gallon	1.25	1.25	
Due to the variability of weather, system installation, and being habits this analysis is to be considered an estimate.						

