Tax Deduction Qualified Software
Hourly Analysis Program (HAP) version 4.31

On this page you'll find information about the Hourly Analysis Program (HAP) version 4.31 qualified computer software (www.buildings.energy.gov/qualified_software.html), which calculates energy and power cost savings that meet federal tax incentive requirements for commercial buildings (www.buildings.energy.gov/commercial/).

Date Documentation Received by DOE: 17 August 2006

Statements in quotes are from the software developer.

Internal Revenue Code §179D (c)(1) and (d) Regulations Notice 2006-52, Section 6 requirements	
(1) The name, address, and (if applicable) web site of the software developer;	Carrier / United Technologies Corporation Carrier Software Systems Bldg TR-4, Room 400A P. O. Box 4808 Syracuse, New York 13221
(2) The name, email address, and telephone number of the person to contact for further information regarding the software;	Carrier Software Systems software.systems@carrier.utc.com +1 (800) 253-1794
(3) The name, version, or other identifier of the software as it will appear on the list;	Hourly Analysis Program v4.31
(4) All test results, input files, output files, weather data, modeler reports, and the executable version of the software with which the tests were conducted; and	Provided to DOE.
(5) A declaration by the developer of the software, made under penalties of perjury, that—	
(a) The software has been tested according to ANSI/ASHRAE Standard 140-2004 Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs;	"The software has been tested according to the American National Standards Institute/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ANSI/ASHRAE) Standard 140-2004 Standard Method of Test for Evaluation of Building Energy Analysis Computer Programs."
(b) The software can model explicitly—	"The software can model explicitly:"
(i) 8,760 hours per year;	"8.760 hours per year"
(ii) Calculation methodologies for the building components being modeled;	"Calculation methodologies for the building components being modeled"
(iii) Hourly variations in occupancy, lighting power, miscellaneous equipment power, thermostat setpoints, and HVAC system operation, defined separately for each day of the week and holidays;	"Hourly variations in occupancy, lighting power, miscellaneous equipment power, thermostat setpoints, and HVAC system operation, defined separately for each day of the week and holidays"

(iv) Thermal mass effects;	"Thermal mass effects"
(v) Ten or more thermal zones;	"Ten or more thermal zones"
(vi) Part-load performance curves for mechanical equipment;	"Part-load performance curves for mechanical equipment"
(vii) Capacity and efficiency correction curves for mechanical heating and cooling equipment; and	"Capacity and efficiency correction curves for mechanical heating and cooling equipment, and"
(viii) Air-side and water-side economizers with integrated control; and	"Air-side and water-side economizers with integrated controls; and"
(c) The software can—	
(i) Either directly determine energy and power costs or produce hourly reports of energy use by energy source suitable for determining energy and power costs separately; and	"Either directly determine energy and power costs, or produce hourly reports of energy sue by energy source suitable for determining energy and power costs separately; and"
(ii) Design load calculations to determine required HVAC equipment capacities and air and water flow rates.	"Perform design load calculations to determine required HVAC equipment capacities and air and water flow rates"

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