Tax Deduction Qualified Software for buildings placed in service on or after January 1, 2016.

IES Virtual Environment 2023

On the following Department of Energy web page you'll find information about the IES Virtual Environment 2023 Qualified Software for Calculating Commercial Building Tax Deductions, which calculates energy and power cost savings that meet federal tax incentive requirements for commercial buildings: http://energy.gov/eere/buildings/qualified-software-calculating-commercial-building-tax -deductions.

Date Documentation Received by DOE: June 1st, 2023

Statements and information in the right hand column of this table are from the software developer.

Internal Revenue Code §179D (c)(1) and (d) Regulations Notice 2006-52, Section 6 requirements as amplified by Notice 2008-40, Section 4 requirements.	
(1) The name, address, and (if applicable) web site of the software developer;	Integrated Environmental Solutions Limited 834 Inman Village Parkway, Suite 320 Atlanta, Georgia 30307 www.iesve.com
(2) The name, email address, and telephone number of the person to contact for further information regarding the software;	Liam Buckley Integrated Environmental Solutions +1 (617) 840-6101 IES North America support@iesve.com
(3) The name, version, or other identifier of the software as it will appear on the list;	IES VE 2023
(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 manager in charge of software development, made under penalties of perjury, that all statements and information in the right hand column of this table are true and correct.	On behalf of the IES VE 2023 development team, I certify the following:
(a) The software has been tested according to ANSI/ASHRAE Standard 140-2017 Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs (except sections 5.2.4, 7, and 8);	The software has been tested according to ANSI/ASHRAE Standard 140-2017 Standard Method of Test for the Evaluation of Building Energy Analysis Computers Programs.
(b) The software can model explicitly[1]—	The IES Virtual Environment 2023 software (VE 2023) complies with ASHRAE 90.1-2007 and all related requirements below.

(i) 8,760 hours per year;	The IES VE 2023 complies.
(ii) Calculation methodologies for the building components being modeled;	The IES VE 2023 complies.
(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;	The IES VE 2023 complies.
(iv) Thermal mass effects;	The IES VE 2023 complies.
(v) Ten or more thermal zones;	The IES VE 2023 complies.
(vi) Part-load performance curves for mechanical equipment;	The IES VE 2023 complies.
(vii) Capacity and efficiency correction curves for mechanical heating and cooling equipment; and	The IES VE 2023 complies.
(viii) Air-side and water-side economizers with integrated control.	The IES VE 2023 complies.

(c)[2] The software can explicitly model each of the following HVAC systems listed in Appendix G of Standard 90.1-2007[1]:

(i) Packaged Terminal Air Conditioner (PTAC), constant volume (CV) fan, DX coil cooling, hot-water fossil fuel boiler.	The IES VE 2023 models this system.
(ii) Packaged Terminal Heat Pump (PTHP), CV fan, DX coil cooling, electric heat pump heating.	The IES VE 2023 models this system.
(iii) Packaged Rooftop Air Conditioner (PSZ-AC), CV fan, DX coil cooling, fossil fuel furnace heating.	The IES VE 2023 models this system.
(iv) Packaged Rooftop Heat Pump (PSZ-HP), CV fan, DX coil cooling, electric heat pump heating.	The IES VE 2023 models this system.
(v) Packaged Rooftop Variable-Air-Volume (PVAV) with reheat, Variable-Air-Volume (VAV) fans, DX coil cooling, hot-water fossil fuel boiler.	The IES VE 2023 models this system.
(vi) Packaged VAV with parallel fan-powered boxes (PVAV with PFP boxes) with reheat, VAV fans, DX coil cooling, electric resistance heating.	The IES VE 2023 models this system.

(vii) Packaged Rooftop VAV with reheat, VAV fans, chilled water cooling, hot-water fossil fuel boiler.	The IES VE 2023 models this system.
(viii) VAV with PFP boxes with reheat, VAV fans, chilled water cooling, electric resistance heating.	The IES VE 2023 models this system.
(d) 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	The IES VE 2023 complies.
(ii) Design load calculations to determine required HVAC equipment capacities and air and water flow rates.	The IES VE 2023 complies.
(e)[2] The software can explicitly model:	
(i) Natural ventilation.	The IES VE 2023 models natural ventilation.
(ii) Mixed mode (natural and mechanical) ventilation.	The IES VE 2023 models mixed-mode ventilation.
(iii) Earth tempering of outdoor air.	The IES VE 2023 models earth tempering of outdoor air.
(iv) Displacement ventilation.	The IES VE 2023 can model displacement ventilation.
(v) Evaporative cooling.	The IES VE 2023 models evaporative cooling.
(vi) Water use by occupants for cooking, cleaning or other domestic uses.	The IES VE 2023 models water use by the occupant.
(vii) Water use by heating, cooling, or other equipment, or for on-site landscaping.	The IES VE 2023 can model water use by heating, cooling, and other equipment explicitly. However, the VE 2023 cannot model on-site landscaping.
(viii) Automatic interior or exterior lighting controls (such as occupancy, photocells, or time-clocks).	The IES VE 2023 models automatic interior and exterior lighting controls.
(ix) Daylighting (sidelighting, skylights, or tubular daylight devices).	The IES VE 2023 models sidelights, skylight, and tubular daylight devices.
(x) Improved fan system efficiency through static pressure reset.	The IES VE 2023 models improved fan system efficiency through static pressure reset.
(xi) Radiant heating or cooling (low or high temperature).	The IES VE 2023 models low and high-temperature radiant heating and cooling.

(xii) Multiple or variable-speed control for fans, cooling equipment, or cooling towers.	The IES VE 2023 models multiple and variable-speed control for fans, cooling equipment, and cooling towers.
(xiii) On-site energy systems (such as combined heat and power systems, fuel cells, solar photovoltaic, solar thermal, or wind).	The IES VE 2023 models on-site energy systems including combined heat and power, photovoltaic systems, solar water and wind systems.

Date Posted: June 1, 2023

1) 90.1-2007 is defined by the PATH Act of 2015 as "Standard 90.1–2007 of ASHRAE and IESNA (as in effect on the day before the date of the adoption of Standard 90.1–2010 of such Societies)." This definition includes 90.1-2007 and the addenda supplement package (Addenda a, b, c, g, h, i, j, k, l, m, n, p, q, s, t, u, w, y, ad, and aw) and addendum r, plus all published errata.

2) Software that cannot explicitly model one or more of the HVAC systems or features in sections 5.c and 5.e of the table can still be listed as qualified software. It cannot, however, be used for 179D analyses of projects that need to model such systems or features. When this is the case, the statement used for the particular requirements shall be as follows: The *AAA Energy Software* cannot model *system or feature X* and shall not be used for projects with this technology.

Tax Deduction Qualified Software — http://energy.gov/eere/buildings/qualified-software-calculating-commercial-building-tax -deductions

The answers to all questions above are submitted on behalf of the IES Virtual Environment development team, and are, to the best of my knowledge, true and accurate statements.

Birajan Bhandari
Senior Building Performance Engineer

Integrated Environmental Solutions, Ltd.