

**Tax Deduction Qualified Software for buildings placed in service on or after January 1, 2016.  
DeST Version 2.0-190709**

On this page you'll find information about the DeST Version 2.0-190709 Qualified Software for Calculating Commercial Building Tax Deductions | Department of Energy <http://energy.gov/eere/buildings/qualified-software-calculating-commercial-building-tax-deductions>, which calculates energy and power cost savings that meet federal tax incentive requirements for commercial buildings.

Date Documentation Received by DOE: November 6, 2019

*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;	Da Yan, Building Energy Research Center, Room 201, Tsinghua University, BeiJing, 100084, China. <a href="https://update.dest.com.cn/">https://update.dest.com.cn/</a>
(2) The name, email address, and telephone number of the person to contact for further information regarding the software;	Da Yan, yanda@tsinghua.edu.cn, 86-10-62789761
(3) The name, version, or other identifier of the software as it will appear on the list;	<i>DeST, Version 2.0-190709</i>
(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 and NREL
(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 <i>DeST</i> development team I certify the following:
(a) The software has been tested according to ANSI/ASHRAE Standard 140-2014 Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs (except for sections 5.2.4, 7, and 8);	The software has been tested according to the American National Standards Institute/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ANSI/ASHRAE) Standard 140-2014 Standard Method of Test for Evaluation of Building Energy Analysis Computer Programs.
(b) The software can model explicitly <sup>(1)</sup> —	The <i>DeST</i> is fully compliant with ASHRAE 90.1-2007 and meets all of the below requirements.
(i) 8,760 hours per year;	The <i>DeST 2.0</i> complies.

(ii) Calculation methodologies for the building components being modeled;	The DeST 2.0 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 DeST 2.0 complies.
(iv) Thermal mass effects;	The DeST 2.0 complies.
(v) Ten or more thermal zones;	The <i>DeST 2.0</i> complies.
(vi) Part-load performance curves for mechanical equipment;	The <i>DeST 2.0</i> complies.
(vii) Capacity and efficiency correction curves for mechanical heating and cooling equipment; and	The <i>DeST 2.0</i> complies.
(viii) Air-side and water-side economizers with integrated control.	The DeST 2.0 complies.
(c) <sup>(2)</sup> The software can explicitly model each of the following HVAC systems listed in Appendix G of Standard 90.1-2007 <sup>(1)</sup> :	
(i) Packaged Terminal Air Conditioner (PTAC), constant volume (CV) fan, DX coil cooling, hot-water fossil fuel boiler.	The <i>DeST 2.0</i> models this system.
(ii) Packaged Terminal Heat Pump (PTHP), CV fan, DX coil cooling, electric heat pump heating.	The <i>DeST 2.0</i> models this system.
(iii) Packaged Rooftop Air Conditioner (PSZ-AC), CV fan, DX coil cooling, fossil fuel furnace heating.	The <i>DeST 2.0</i> models this system.
(iv) Packaged Rooftop Heat Pump (PSZ-HP), CV fan, DX coil cooling, electric heat pump heating.	The <i>DeST 2.0</i> 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 <i>DeST 2.0</i> 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 <i>DeST 2.0</i> models this system.
(vii) Packaged Rooftop VAV with reheat, VAV fans, chilled water cooling, hot-water	The <i>DeST 2.0</i> models this system.

fossil fuel boiler.	
(viii) VAV with PFP boxes with reheat, VAV fans, chilled water cooling, electric resistance heating.	The <i>DeST 2.0</i> 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 <i>DeST 2.0</i> complies.
(ii) Design load calculations to determine required HVAC equipment capacities and air and water flow rates.	The <i>DeST 2.0</i> complies.
(e) <sup>(2)</sup> The software can explicitly model:	
(i) Natural ventilation.	The <i>DeST 2.0</i> models natural ventilation.
(ii) Mixed mode (natural and mechanical) ventilation.	The <i>DeST 2.0</i> models mixed mode ventilation.
(iii) Earth tempering of outdoor air.	DeST 2.0 cannot model earth tempering of outdoor air and shall not be used for projects with this requirement.
(iv) Displacement ventilation.	DeST 2.0 cannot model displacement ventilation and shall not be used for projects with this requirement.
(v) Evaporative cooling.	DeST 2.0 cannot model evaporative cooling and shall not be used for projects with this requirement.
(vi) Water use by occupants for cooking, cleaning or other domestic uses.	DeST 2.0 cannot model water use by occupants and shall not be used for projects with this requirement
(vii) Water use by heating, cooling, or other equipment, or for on-site landscaping.	DeST 2.0 cannot model water use by heating, cooling, and other equipment as well as for on-site landscaping and shall not be used for projects with this requirement.
(viii) Automatic interior or exterior lighting controls (such as occupancy, photocells, or time-clocks).	DeST 2.0 models automatic interior and exterior lighting controls.
(ix) Daylighting (sidelighting, skylights, or tubular daylight devices).	DeST 2.0 models sidelighting, skylights, and tubular daylighting devices.
(x) Improved fan system efficiency through static pressure reset.	DeST 2.0 models improved fan system efficiency through static pressure reset.
(xi) Radiant heating or cooling (low or high temperature).	DeST 2.0 cannot model low and high temperature radiant heating and cooling and shall not be used for projects with this requirement.

(xii) Multiple or variable-speed control for fans, cooling equipment, or cooling towers.	DeST 2.0 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).	DeST 2.0 cannot model on-site energy systems including combined heat and power, photovoltaic systems, and solar water and air systems and shall not be used for projects with this requirement.

Date Posted: November 6, 2019

- 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 EnergySoftware* 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>

Da Yan



Software Development Manager