DOE Commercial Reference Buildings
Summary of Changes between Versions
November 2012

Applicable Model(s)	Change
Changes from version 1.2_4.0 to 1.3_5.0	
All	Transitioned from EnergyPlus 4.0 to EnergyPlus 5.0
All	For fan power calculations, fan nameplate horsepower corrected from 90% brake horsepower to 110% brake horsepower
All	Removed multipliers on roof surface infiltration because EnergyPlus now counts the roof surface in infiltration per exterior surface area calculations
All	Added parking lot exterior lighting
All	Updated headers to reflect new name for technical report reference
All models with DX cooling	Changed COP calculation to remove fan power at ARI conditions, not max. allowable fan power (see Ref. Bldgs. Technical Report for more info.)
All models with DX cooling	Changed cooling performance curves to reflect measured/mapped data
All models with chillers	Changed chiller performance curves to match ANSI/ASHRAE/IESNA 90.1-2004 performance curves for EnergyPlus developed by Dick Lord
Hospital	Changed chiller to ReformulatedEIR type, which bases performance on condenser water leaving temperature
Hospital	Added 2" TSP to fans to account for pressure drop through extra filtration equipment
Hospital	All service water heating flows identical in operating rooms
Hospital	Plug loads to 30% on heating design day (except kitchen)
Large Hotel	Plant loop now has 2 chillers instead of one, operated in parallel, "uniform" control
Large Hotel	Guest room windows are fixed, not operable
Large Hotel	Changed OA-reset limits for DOAS supply temperature from 7C and 18C to 10C and 22C
Large Hotel	Updated sizing:system and sizing:zone conditions to produce fewer warnings
Large Office	Plant loop now has 2 chillers instead of one, operated in parallel, "uniform" control
Large Office	Changed chillers to ReformulatedEIR type, which bases performance on condenser water leaving temperature
Large Office	Extended operation/gains schedules to reflect longer workdays
Large Office	Increased peak equipment power density from 0.75 W/sf to 1.0 W/sf
Large Office	Reduced ventilation effectiveness from 100% to 80%
Large Office	Changed plenum infiltration schedules to match the rest of the zones
Medium Office	Changed reheat coils from hot water to electric and removed boiler – to reflect more realistic system type given that central

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	heating is with furnace
Medium Office	Extended operation/gains schedules to reflect longer workdays
Medium Office	Increased peak equipment power density from 0.75 W/sf to 1.0 W/sf
Medium Office	Reduced ventilation effectiveness from 100% to 80%
Medium Office	Changed plenum infiltration schedules to match the rest of the zones
Midrise Apartment	Removed unnecessary AvailabilityManager:Scheduled objects
Outpatient	Added 2" TSP to fans to account for pressure drop through extra filtration equipment
Outpatient	Removed economizer from AHU-1 because it uses humidity controls (healthcare spaces)
Outpatient	Increased AHU-1 cooling design supply temperature from 7.2C to 11.1C to avoid unnecessary reheat energy
Outpatient	Allowed AHU-1 to night cycle from 9pm to 4am
Outpatient	Changed elevator idle power from 20% to 5%
Outpatient	Changed elevator pump room and electrical room from fully conditioned to unconditioned and vented
Outpatient	Changed janitor closets, bathrooms, storage areas, and undeveloped area from fully conditioned to unconditioned but mixed with adjacent zone air
Outpatient	Removed toilet exhaust fan objects and instead accounted for their energy as plug loads with 100% lost fractions (to avoid unbalanced flow warnings)
Outpatient	Cleaned up redundant objects
Secondary School	Corrected gym lighting power
Small Hotel	All PTAC units cycle compressors and fans
Small Hotel	Guest room windows are fixed, not operable
Small Hotel	Changed PTAC performance curve limits to enable SEER calculation across range of performance encountered
Small Office	Increased peak equipment power density from 0.75 W/sf to 1.0 W/sf
Warehouse	Storage area windows changed from operable to fixed
Warehouse	Re-ran slab.exe with temperatures that accounted for the large, semi-conditioned space; Entered new output surface temperatures as ground temperatures in main simulation
Changes from version 1.3_5.0 to 1.4_7.0	
All	Transitioned from EnergyPlus 5.0 to EnergyPlus 6.0 to EnergyPlus 7.0
Large Hotel	Common spaces use the operation schedules previously assigned only to the lobby, HVAC system that covers them is available 24/7
Large Hotel, Secondary School (except pre1980)	EIRFPLR chiller curve found to be erroneous, replaced with curve from Trane screw chiller

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Hospital	EIRFPLR chiller curve found to be erroneous, replaced with water-cooled centrifugal chiller curve from EP chiller dataset
Large Office	EIRFPLR chiller curve found to be erroneous, replaced with water-cooled screw chiller curve from EP chiller dataset
Changes from version 1.4_7.0 to 1.4_7.2	
All	Transitioned from EnergyPlus 7.0 to EnergyPlus 7.1 to EnergyPlus 7.2