

Description of cumulative DOE-2.3 version 50h bug fixes (since initial public release of version 49c):

1. There are no current bug fix items since version 49c is the initial public release of DOE-2.3.
2. In version 049e: 1) The zone keywords MAX-HEAT-RATE and MAX-COOL-RATE were correctly implemented into the design airflow calculations, but were not fully integrated with zonal reheat coil sizing (similar for IU zonal recool coil). A reheat coil could be either undersized or oversized; if undersized then the zone may be underheated, particularly during startup hours.
3. In version 050d: 1) Continued development of dual-mode VRF system 2) Addition of dedicated outdoor air system (DOAS). Ported energy-recovery ventilator from 2.2 3) Changed default of MIN-FLOW-RATIO for UHT, UVT, FC, HP systems from variable flow to constant flow. 4) Added sizing specification method for heating coils 5) Added fan-assisted natural ventilation 6) Added schedule capability for design-day weekends vs. weekdays 7) Allow user to specify wall inside convective film resistance (default is for cooling) 8) Allow humidification/dehumidification control based on max/min dewpoint 9) The snap type schedule failed to snap to the default value when the schedule was undefined 10) A check was added to ensure that the weather-file drybulb temperature was never less than the dewpoint. 11) The PredictX parabolic solution now uses double precision 12) Several bug fixes implemented to avoid run-time errors. 13) The SUM system is now enabled. 14) Convergence failure notifications have been revised to show the total number of failures only rather than each incidence. 15) Expressions for HEAT-REJECTION:AUX-ELEC keywords have been fixed.
4. In version 050e: 1) Several bug fixes to the new heat recovery VRF system have been implemented
5. In version 050f: 1) CHILLER:CHW-MAX-FLOW changed to reference the rated flow, rather than the design flow. Same for BOILER:HW-MAX-FLOW. 2) In the BEPS and BEPU reports, the "PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED" was always zero. 3) For daylighting calculations default ceiling/wall/floor reflectances of 0.7, 0.5 and 0.2 are assumed if no surfaces of a given category are defined. 4) Coil bypass factor normalized by COIL-BF-FT, COIL-BF-FFLOW, COIL-BF-FPLR to allow specification of coil bypass factor at off-rated conditions. 5) For DX cooling, dry coil performance not calculated correctly. 6) If DX coil resized to accommodate large airflow, normalized capacity was not recalculated. 7) A DOAS system serving multiple systems could experience an unrealistic air temperature rise due to fan heat. 8) A user-sized pump could add excessive heat to its circulation loop during sizing. 9) Ground-source water loop heat pump modified to continue with a warning (rather than an error) if max/min alarm limits exceeded. 10) The heat-pump DW-HEATER did not size correctly when a portion of the load had to be provided using supplemental electric heat (HP-MAX-T less than the required supply temperature).
6. In version 050g: 1) When CIRCULATION-LOOP:SIZING-OPTION = PRIMARY, the loop (of any TYPE) would fail to size if no HEAT-REJECTION equipment was specified. 2) Heat exchanger design failure messages enhanced for better understanding. 3) When input macros are used, the ##include did not work for the second and following invocations. 4) The pumping head of a secondary circulation loop without a pump was not

passed on to the primary loop. 5) A dual-duct air terminal could generate a divide-by-zero when having a constant-volume outlet controller and on the verge of exceeding the thermostat throttling range.

7. In version 50h: 1) Version 49m incorrectly cause the utility-rate/block-charge/ratchet schedules to be pushed back by 7 days; causing some energy to be charged in a different time-of-use period. 2) The iteration between loop thermal losses and loop coil flows could fail. 3) If not all equipment serving a loop was sized successfully, and CIRCULATION-LOOP:SIZING-OPTION = NON-COINCIDENT, then the hourly loop loads in the annual simulation would not be calculated correctly. 4) When SYSTEM:SIZING-METHOD = FLOW/CAPACITY, the economizer is now locked out during the sizing simulations; otherwise if outside air at peak load is cool (unusual but possible in cool climates), the economizer can cause the equipment airflow to be undersized. 5) During sizing runs, system heating/cooling coils could fail to pass the correct temperature. 6) In PVVT system with AIR/TEMP-CTRL = TWO-SPEED or STAGED-VOLUME, the economizer never operated independently of the cooling compressor(s). 7) In PVVT system with AIR/TEMP-CTRL = TWO-SPEED or STAGED-VOLUME and INDOOR-FAN-MODE = INTERMITTENT, night cycle control was modified to cycle the fan on a subhourly basis instead of running for a full hour. 8) In PVVT system with AIR/TEMP-CTRL = TWO-SPEED, the integration of economizer operation with fan and compressor control was modified. When the economizer is inactive, the fan speed stages with the cooling stages (as before). When the economizer is active without the compressor, the fan runs at low speed. When the first stage of compressor cooling activates in addition to the economizer, the fan goes to high to reduce the possibility of coil freeze-up. It continues to run on high during the second stage of cooling. 9) PredictX solution errors were reduced to warnings to allow simulation to continue (trial only; may cause undiscovered problems). 10) LV-B report expanded to include total building lighting and equipment W/sf (new feature, not a bug). 11) Hourly specific heat for infiltration loads revised to be consistent with specific heat for HVAC zone extraction calculations. 11) Small minor changes made to cooling coils and heat pump defrost for boundary conditions.