DOCKETED

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NonRes ACM: Why System #2 for High-Rise Dwelling Baseline?

I am running into a maddening problem with CBECC-Com. I am using the current build, 3b build 717. I am modeling high-rise dwelling units which have peak cooling and heating loads in the half-ton neighborhood. This is resulting in, according to the HTM files output by CBECC-Com, a blower fan CFM of less than 300, and at the .35 watt/CFM baseline for System #2, a brake HP of less than 0.14. Standard constant speed systems start at 1.5 ton capacity and therefore have supply CFM potentially more than double the baseline, with commensurate relative overruns of the fan power. The maddening point is that when I model these spaces with a mini-split system with around 300 CFM of rated power and their quite low FLAs, two things happen. One is that CBECC forbids the actual fan brake HP from being entered as the nameplate HP, saying it needs to be at least 0.08333. And second, the calculation crashes with errors referring to iterations on the baseline's hydronic cooling system as can be seen in the uploaded log.

Which brings me to this question: Why is System #2 in its current form the baseline system for high-rise dwellings? I have coded Title 24 models for high-rise residential buildings located all over the state, and the only building on which I have seen hydronic cooling is a dormitory building using campus chilled water. Every other high-rise residential building I have modeled in this time has cooled the dwellings with DX systems, most usually split systems. I contend that either an additional baseline secondary system be defined using split DX ducted cooling and the published baseline efficiencies for these, or switch to System #1 or System #3 as the baseline for high-rise residential dwellings.

Additional submitted attachment is included below.

2015-Apr-29 13:55:24 - Project Saved
2015-Apr-29 13:55:25 - Performing Building Database check...
2015-Apr-29 13:55:25 - Building Database check completed, no problems found.
2015-Apr-29 13:55:26 - Performing Building Database check...
2015-Apr-29 13:55:26 - Building Database check completed, no problems found.
2015-Apr-29 13:55:26 - Warning: The max. primary flow of TrmlUnit '103 (C3)37-TRM' is less than 0.3 cfm/ft2. which may be insufficient to meet the zone loads. evaluating rule: Set CHECKSIM TrmlUnit:PriAirFlowMax (67:'HVACSecondary-TerminalUnit-General.rule' line 503)
2015-Apr-29 13:55:26 - Warning: The max. primary flow of TrmlUnit '203 (C3)404-TRM' is less than 0.3 cfm/ft2. which may be insufficient to meet the zone loads. evaluating rule: Set CHECKSIM TrmlUnit:PriAirFlowMax (67:'HVACSecondary-TerminalUnit-General.rule' line 503)
2015-Apr-29 13:55:26 - Warning: The max. primary flow of TrmlUnit '303 (C3)677-TRM' is less than 0.3 cfm/ft2. which may be insufficient to meet the zone loads. evaluating rule: Set CHECKSIM TrmlUnit:PriAirFlowMax (67:'HVACSecondary-TerminalUnit-General.rule' line 503)
2015-Apr-29 13:55:26 - Warning: The max. primary flow of TrmlUnit '403 (C3)944-TRM' is less than 0.3 cfm/ft2. which may be insufficient to meet the zone loads. evaluating rule: Set CHECKSIM TrmlUnit:PriAirFlowMax (67:'HVACSecondary-TerminalUnit-General.rule' line 503)
2015-Apr-29 13:55:26 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU9RLF-Heating' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)
2015-Apr-29 13:55:26 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU12RLF-Heating' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)
2015-Apr-29 13:55:26 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU9RLF-Heating 2' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)
2015-Apr-29 13:55:26 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU12RLF-Heating 2' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)
2015-Apr-29 13:55:26 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU9RLF-Heating 3' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)
2015-Apr-29 13:55:26 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU12RLF-Heating 3' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)

2015-Apr-29 13:55:26 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU9RLF-Heating 4' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)
2015-Apr-29 13:55:27 - Warning: A supplemental heating coil for heat pump coil 'AOU/ARU12RLF-Heating 4' is not defined and heat pump operation will be disabled below '17'F evaluating rule: Set CHECKSIM CoilHtg:HtPumpCprsrLockoutTemp (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 432)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU9RLF-Heating' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU12RLF-Heating' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU9RLF-Heating 2' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU12RLF-Heating 2' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU9RLF-Heating 3' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU12RLF-Heating 3' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU9RLF-Heating 4' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: CoilHeating 'AOU/ARU12RLF-Heating 4' is a HeatPump but the HeatPumpSupplementalCoilHeatingReference is not

defined. This may result in unmet load load hours if the system HeatPumpCompressorLockoutTemperature is not properly set. evaluating rule: Set CHECKSIM CoilHtg:HtPumpSuppCoilHtgRef (74:'HVACSecondary-CoilHeating-HeatPump.rule' line 471)
2015-Apr-29 13:55:27 - Warning: AirSystem '403 (C3)943' has a DX cooling coil and the rated supply flow per ton of (net) cooling capacity is 225 cfm/ton. The acceptable range for successful EnergyPlus simulations is ~300 to ~450 cfm/ton. If the compliance simulation fails, check flow/cooling capacity inputs for consistency, and then contact CBECC support for assistance. evaluating rule: Set CHECKSIM AirSys:SupFlowPerTon (93:'HVACSecondary-Summary.rule' line 635)
2015-Apr-29 13:55:27 - Warning: HVACAutoSizing is checked but this feature can only be used when AnalysisType = Research. This property will be set to unchecked (0) and compliance analysis will terminate if HVAC system capacities are not defined. evaluating rule: Set CHECKCODE Proj:HVACAutoSizing (5:'Project-HVACSizing.rule' line 149)
2015-Apr-29 13:55:28 -   PerfAnal_CECNRes - Bypassing OpenStudio (and simulation) for zp model
2015-Apr-29 13:56:23 -   during simulation file clean-up, unable to copy file: 'N:\1478\Calc\Dublin Site B 4-23-15 residential 8-units - run\zb\EnergyPlus\eplustbl.htm' -to- 'N:\1478\Calc\Dublin Site B 4-23-15 residential 8-units - run\zb\Dublin Site B 4-23-15 residential 8-units - zb.htm'
2015-Apr-29 13:56:23 -   during simulation file clean-up, file not found: N:\1478\Calc\Dublin Site B 4-23-15 residential 8-units - run\zb\EnergyPlus\eplusssz.csv
2015-Apr-29 13:58:24 -   EnergyPlus Warning(s) (99):
2015-Apr-29 13:58:24 -   1: ProcessScheduleInput: Schedule:Day:Interval="{24C2C9B8-83C8-4C57-85BC-26ECB407D453}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   2: ProcessScheduleInput: Schedule:Day:Interval="{5A51B0FD-F43E-4406-82EB-B5C9D62EB5FA}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   3: ProcessScheduleInput: Schedule:Day:Interval="{6086CED8-8AEC-460B-B02B-D7E5A5C3DF66}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   4: ProcessScheduleInput: Schedule:Day:Interval="{6C7607A2-6382-4BF0-810C-E4A5B5E17A64}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   5: ProcessScheduleInput: Schedule:Day:Interval="{C2B42A78-8136-4D59-8B0A-50BC6F5916FF}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   6: ProcessScheduleInput: Schedule:Day:Interval="{C39002C8-4881-4D38-819C-F5FC07CEC48C}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   7: ProcessScheduleInput: Schedule:Day:Interval="{CC478F88-00BC-46EA-B414-ADF9C57F6F47}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   8: ProcessScheduleInput: Schedule:Day:Interval="{D4B14881-09E3-4BDD-893E-A2D90977CCFD}", Blank Schedule Type Limits Name input -- will not be validated.
2015-Apr-29 13:58:24 -   9: ProcessScheduleInput: Schedule:Year="2-102 (A2) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will not be validated.

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2015-Apr-29 13:58:24 -       10: ProcessScheduleInput: Schedule:Year="3-
103 (C3) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will
not be validated.
2015-Apr-29 13:58:24 -       11: ProcessScheduleInput: Schedule:Year="39-
202 (A2) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will
not be validated.
2015-Apr-29 13:58:24 -       12: ProcessScheduleInput: Schedule:Year="40-
203 (C3) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will
not be validated.
2015-Apr-29 13:58:24 -       13: ProcessScheduleInput: Schedule:Year="57-
302 (A2) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will
not be validated.
2015-Apr-29 13:58:24 -       14: ProcessScheduleInput: Schedule:Year="58-
303 (C3) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will
not be validated.
2015-Apr-29 13:58:25 -       15: ProcessScheduleInput: Schedule:Year="75-
402 (A2) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will
not be validated.
2015-Apr-29 13:58:25 -       16: ProcessScheduleInput: Schedule:Year="76-
403 (C3) TARGET SHW TEMP", Blank Schedule Type Limits Name input -- will
not be validated.
2015-Apr-29 13:58:25 -       17: Weather file location will be used
rather than entered (IDF) Location object.
 ..Location object=LIVERMORE-MUNICIPAL DESIGN_CONDITIONS
 ..Weather File Location=LIVERMORE-MUNICIPAL - USA Custom-724927
WMO#=724927
 ..due to location differences, Latitude difference=[1.00E-002] degrees,
Longitude difference=[0.32] degrees.
 ..Time Zone difference=[0.0] hour(s), Elevation difference=[98.49]
percent, [60.04] meters.
2015-Apr-29 13:58:25 -       18: Entered Zone Volumes differ from
calculated zone volume(s).
 ...use Output:Diagnostics,DisplayExtraWarnings; to show more details on
individual zones.
2015-Apr-29 13:58:25 -       19: SizeWaterCoil: Coil="BASESYS2 COILCLG",
Cooling Coil has leaving humidity ratio > entering humidity ratio.
     Wair,in =  8.175278E-003
     Wair,out = 8.500000E-003
 ....coil leaving humidity ratio will be reset to:
     Wair,out = 8.175278E-003
2015-Apr-29 13:58:25 -       20: SizeWaterCoil: Coil="BASESYS2 COILCLG-
3", Cooling Coil has leaving humidity ratio > entering humidity ratio.
     Wair,in =  8.201216E-003
     Wair,out = 8.500000E-003
 ....coil leaving humidity ratio will be reset to:
     Wair,out = 8.201216E-003
2015-Apr-29 13:58:25 -       21: SizeWaterCoil: Coil="BASESYS2 COILCLG-
5", Cooling Coil has leaving humidity ratio > entering humidity ratio.
     Wair,in =  8.202945E-003
     Wair,out = 8.500000E-003
 ....coil leaving humidity ratio will be reset to:
     Wair,out = 8.202945E-003
2015-Apr-29 13:58:25 -       22: SizeWaterCoil: Coil="BASESYS2 COILCLG-
7", Cooling Coil has leaving humidity ratio > entering humidity ratio.
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     Wair,in =  8.245066E-003
     Wair,out = 8.500000E-003
 ....coil leaving humidity ratio will be reset to:
     Wair,out = 8.245066E-003
2015-Apr-29 13:58:25 -       23: Check input. Pump nominal power or motor
efficiency is set to 0, for pump={111C8EFD-BFE8-4CB9-8923-57803FF40C59}
2015-Apr-29 13:58:25 -       24: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-7"
-- Exceeded max iterations while adjusting cycling fan sensible runtime
to meet the zone load within the cooling convergence tolerance.
 Iterations=100 During Warmup, Environment=LIVERMORE-MUNICIPAL ANN CLG
0.4% CONDNS DB=>MCWB, at Simulation time=07/21 00:00 - 00:15
2015-Apr-29 13:58:25 -       25: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-8"
-- Exceeded max iterations while adjusting cycling fan sensible runtime
to meet the zone load within the cooling convergence tolerance.
 Iterations=100 During Warmup, Environment=LIVERMORE-MUNICIPAL ANN CLG
0.4% CONDNS DB=>MCWB, at Simulation time=07/21 00:00 - 00:15
2015-Apr-29 13:58:25 -       26: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-2"
-- Exceeded max iterations while adjusting cycling fan sensible runtime
to meet the zone load within the cooling convergence tolerance.
 Iterations=100 During Warmup, Environment=LIVERMORE-MUNICIPAL ANN CLG
0.4% CONDNS DB=>MCWB, at Simulation time=07/21 23:45 - 24:00
2015-Apr-29 13:58:25 -       27: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-3"
-- Exceeded max iterations while adjusting cycling fan sensible runtime
to meet the zone load within the cooling convergence tolerance.
 Iterations=100 During Warmup, Environment=LIVERMORE-MUNICIPAL ANN CLG
0.4% CONDNS DB=>MCWB, at Simulation time=07/21 23:45 - 24:00
2015-Apr-29 13:58:25 -       28: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-5"
-- Exceeded max iterations while adjusting cycling fan sensible runtime
to meet the zone load within the cooling convergence tolerance.
 Iterations=100 During Warmup, Environment=LIVERMORE-MUNICIPAL ANN CLG
0.4% CONDNS DB=>MCWB, at Simulation time=07/21 23:45 - 24:00
2015-Apr-29 13:58:25 -       29: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-6"
-- Exceeded max iterations while adjusting cycling fan sensible runtime
to meet the zone load within the cooling convergence tolerance.
 Iterations=100 During Warmup, Environment=LIVERMORE-MUNICIPAL ANN CLG
0.4% CONDNS DB=>MCWB, at Simulation time=07/21 23:45 - 24:00
2015-Apr-29 13:58:25 -       30: Output:Meter:MeterFileOnly: invalid
Name="PUMPS:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:25 -       31: Output:Meter:MeterFileOnly: invalid
Name="HEATRECOVERY:GAS" - not found.
2015-Apr-29 13:58:25 -       32: Output:Meter:MeterFileOnly: invalid
Name="COOLING:GAS" - not found.
2015-Apr-29 13:58:25 -       33: Output:Meter:MeterFileOnly: invalid
Name="REFRIGERATION:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:25 -       34: Output:Meter:MeterFileOnly: invalid
Name="REFRIGERATION:ELECTRICITY" - not found.
2015-Apr-29 13:58:25 -       35: Output:Meter:MeterFileOnly: invalid
Name="REG LTG:EXTERIORLIGHTS:ELECTRICITY" - not found.
2015-Apr-29 13:58:25 -       36: Output:Meter:MeterFileOnly: invalid
Name="PUMPS:GAS" - not found.
2015-Apr-29 13:58:25 -       37: Output:Meter:MeterFileOnly: invalid
Name="RECEPTACLE:EXTERIOREQUIPMENT:GAS" - not found.
2015-Apr-29 13:58:25 -       38: Output:Meter:MeterFileOnly: invalid
Name="HEATREJECTION:DISTRICTHEATING" - not found.
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2015-Apr-29 13:58:25 -   39: Output:Meter:MeterFileOnly: invalid Name="HEATREJECTION:GAS" - not found.
2015-Apr-29 13:58:25 -   40: Output:Meter:MeterFileOnly: invalid Name="WATERSYSTEMS:ELECTRICITY" - not found.
2015-Apr-29 13:58:25 -   41: Output:Meter:MeterFileOnly: invalid Name="EXTERIOREQUIPMENT:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:25 -   42: Output:Meter:MeterFileOnly: invalid Name="COGENERATION:GAS" - not found.
2015-Apr-29 13:58:25 -   43: Output:Meter:MeterFileOnly: invalid Name="EXTERIOREQUIPMENT:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:26 -   44: Output:Meter:MeterFileOnly: invalid Name="DISTRICTHEATING:FACILITY" - not found.
2015-Apr-29 13:58:26 -   45: Output:Meter:MeterFileOnly: invalid Name="EXTERIORLIGHTS:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:26 -   46: Output:Meter:MeterFileOnly: invalid Name="EXTERIORLIGHTS:GAS" - not found.
2015-Apr-29 13:58:26 -   47: Output:Meter:MeterFileOnly: invalid Name="FANS:GAS" - not found.
2015-Apr-29 13:58:26 -   48: Output:Meter:MeterFileOnly: invalid Name="FANS:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:26 -   49: Output:Meter:MeterFileOnly: invalid Name="COOLING:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:26 -   50: Output:Meter:MeterFileOnly: invalid Name="INTERIORLIGHTS:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:26 -   51: Output:Meter:MeterFileOnly: invalid Name="COGENERATION:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:26 -   52: Output:Meter:MeterFileOnly: invalid Name="RECEPTACLE:EXTERIOREQUIPMENT:ELECTRICITY" - not found.
2015-Apr-29 13:58:26 -   53: Output:Meter:MeterFileOnly: invalid Name="EXTERIORLIGHTS:ELECTRICITY" - not found.
2015-Apr-29 13:58:26 -   54: Output:Meter:MeterFileOnly: invalid Name="HEATRECOVERY:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:26 -   55: Output:Meter:MeterFileOnly: invalid Name="EXTERIOREQUIPMENT:GAS" - not found.
2015-Apr-29 13:58:26 -   56: Output:Meter:MeterFileOnly: invalid Name="REFRIG:EXTERIOREQUIPMENT:ELECTRICITY" - not found.
2015-Apr-29 13:58:26 -   57: Output:Meter:MeterFileOnly: invalid Name="WATERSYSTEMS:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:26 -   58: Output:Meter:MeterFileOnly: invalid Name="PUMPS:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:26 -   59: Output:Meter:MeterFileOnly: invalid Name="DISTRICTCOOLING:FACILITY" - not found.
2015-Apr-29 13:58:26 -   60: Output:Meter:MeterFileOnly: invalid Name="INTERNAL TRANSPORT:INTERIOREQUIPMENT:ELECTRICITY" - not found.
2015-Apr-29 13:58:26 -   61: Output:Meter:MeterFileOnly: invalid Name="COGENERATION:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:26 -   62: Output:Meter:MeterFileOnly: invalid Name="REFRIG:INTERIOREQUIPMENT:ELECTRICITY" - not found.
2015-Apr-29 13:58:26 -   63: Output:Meter:MeterFileOnly: invalid Name="INTERIORLIGHTS:GAS" - not found.
2015-Apr-29 13:58:26 -   64: Output:Meter:MeterFileOnly: invalid Name="COOLING:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:26 -   65: Output:Meter:MeterFileOnly: invalid Name="COGENERATION:ELECTRICITY" - not found.

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2015-Apr-29 13:58:26 -       66: Output:Meter:MeterFileOnly: invalid
Name="REFRIGERATION:GAS" - not found.
2015-Apr-29 13:58:26 -       67: Output:Meter:MeterFileOnly: invalid
Name="PROCESS:EXTERIOREQUIPMENT:ELECTRICITY" - not found.
2015-Apr-29 13:58:26 -       68: Output:Meter:MeterFileOnly: invalid
Name="EXTERIOREQUIPMENT:ELECTRICITY" - not found.
2015-Apr-29 13:58:27 -       69: Output:Meter:MeterFileOnly: invalid
Name="NONREG LTG:EXTERIORLIGHTS:ELECTRICITY" - not found.
2015-Apr-29 13:58:27 -       70: Output:Meter:MeterFileOnly: invalid
Name="HUMIDIFIER:ELECTRICITY" - not found.
2015-Apr-29 13:58:27 -       71: Output:Meter:MeterFileOnly: invalid
Name="INTERIORLIGHTS:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:27 -       72: Output:Meter:MeterFileOnly: invalid
Name="WATERSYSTEMS:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:27 -       73: Output:Meter:MeterFileOnly: invalid
Name="INTERIOREQUIPMENT:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:27 -       74: Output:Meter:MeterFileOnly: invalid
Name="EXTERIORLIGHTS:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:27 -       75: Output:Meter:MeterFileOnly: invalid
Name="PROCESS:EXTERIOREQUIPMENT:GAS" - not found.
2015-Apr-29 13:58:27 -       76: Output:Meter:MeterFileOnly: invalid
Name="HEATING:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:27 -       77: Output:Meter:MeterFileOnly: invalid
Name="HEATING:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:27 -       78: Output:Meter:MeterFileOnly: invalid
Name="HUMIDIFIER:GAS" - not found.
2015-Apr-29 13:58:27 -       79: Output:Meter:MeterFileOnly: invalid
Name="HUMIDIFIER:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:27 -       80: Output:Meter:MeterFileOnly: invalid
Name="HEATREJECTION:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:27 -       81: Output:Meter:MeterFileOnly: invalid
Name="PROCESS:INTERIOREQUIPMENT:GAS" - not found.
2015-Apr-29 13:58:27 -       82: Output:Meter:MeterFileOnly: invalid
Name="HUMIDIFIER:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:27 -       83: Output:Meter:MeterFileOnly: invalid
Name="FANS:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:27 -       84: Output:Meter:MeterFileOnly: invalid
Name="PROCESS:INTERIOREQUIPMENT:ELECTRICITY" - not found.
2015-Apr-29 13:58:27 -       85: Output:Meter:MeterFileOnly: invalid
Name="REFRIGERATION:DISTRICTCOOLING" - not found.
2015-Apr-29 13:58:27 -       86: Output:Meter:MeterFileOnly: invalid
Name="NONREG LTG:INTERIORLIGHTS:ELECTRICITY" - not found.
2015-Apr-29 13:58:27 -       87: Output:Meter:MeterFileOnly: invalid
Name="HEATRECOVERY:ELECTRICITY" - not found.
2015-Apr-29 13:58:27 -       88: Output:Meter:MeterFileOnly: invalid
Name="INTERIOREQUIPMENT:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:27 -       89: Output:Meter:MeterFileOnly: invalid
Name="HEATRECOVERY:DISTRICTHEATING" - not found.
2015-Apr-29 13:58:27 -       90: CoolingTower:VariableSpeed "BASE TOWER"
- Tower range temperature is outside model boundaries at -0.16.
  ...Valid range = 1.11 to 11.11. Occurrence info =
LIVERMORE_724927_CZ2010, 02/02 13:00 - 13:15
  ...Tower range temperature passed to the model = -0.15659
```

```
  ...Range temperatures outside model boundaries may not adversely affect
tower performance.
  ...This is not an unexpected occurrence when simulating actual
conditions.
2015-Apr-29 13:58:27 -       91: CoolingTower:VariableSpeed "BASE TOWER"
- Tower approach temperature is outside model boundaries at 13.08.
  ...Valid range = 1.11 to 11.11. Occurrence info =
LIVERMORE_724927_CZ2010, 02/02 13:00 - 13:15
  ...Tower approach temperature passed to the model = 13.08490
  ...Approach temperatures outside model boundaries may not adversely
affect tower performance.
  ...This is not an unexpected occurrence when simulating actual
conditions.
2015-Apr-29 13:58:27 -       92: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-7"
-- Exceeded max iterations error (sensible runtime) continues...
   This error occurred 1 total times;
   during Warmup 1 times;
   during Sizing 0 times.
2015-Apr-29 13:58:27 -       93: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-8"
-- Exceeded max iterations error (sensible runtime) continues...
   This error occurred 1 total times;
   during Warmup 1 times;
   during Sizing 0 times.
2015-Apr-29 13:58:27 -       94: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-2"
-- Exceeded max iterations error (sensible runtime) continues...
   This error occurred 1 total times;
   during Warmup 1 times;
   during Sizing 0 times.
2015-Apr-29 13:58:27 -       95: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-3"
-- Exceeded max iterations error (sensible runtime) continues...
   This error occurred 1 total times;
   during Warmup 1 times;
   during Sizing 0 times.
2015-Apr-29 13:58:28 -       96: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-5"
-- Exceeded max iterations error (sensible runtime) continues...
   This error occurred 1 total times;
   during Warmup 1 times;
   during Sizing 0 times.
2015-Apr-29 13:58:28 -       97: ZoneHVAC:FourPipeFanCoil="BASEZNSYS2-6"
-- Exceeded max iterations error (sensible runtime) continues...
   This error occurred 1 total times;
   during Warmup 1 times;
   during Sizing 0 times.
2015-Apr-29 13:58:28 -       98: CoolingTower:VariableSpeed "BASE TOWER"
- Tower range temperature is out of range error continues...
   This error occurred 7765 total times;
   during Warmup 0 times;
   during Sizing 0 times.
   Max=12.335488  Min=-9.405541
2015-Apr-29 13:58:28 -       99: CoolingTower:VariableSpeed "BASE TOWER"
- Tower approach temperature is out of range error continues...
   This error occurred 519 total times;
   during Warmup 0 times;
   during Sizing 0 times.
```

```
   Max=14.928075  Min=-4.776243
2015-Apr-29 13:58:28 - Error(s) encountered simulating Proposed model
(sim returned 161: Fatal error(s) ocurred in EnergyPlus simulation of
Dublin Site B 4-23-15 residential 8-units - ap.xml)
2015-Apr-29 13:58:28 - Analysis aborted  Processing time:  Overall 3:03 /
SDD2IDF x2 avg 0:37 / SizSim x1 0:29 / AnnSim x2 avg 0:33 / ReportGen x0
0:00 / Other 0:06
2015-Apr-29 13:58:53 - ------------------------------------------------
--------------------------
2015-Apr-29 13:58:53 - Opening Project 'Dublin Site B 4-23-15 residential
8-units.cibd'...
2015-Apr-29 13:58:53 - Error:  Multiple referenced objects found with the
same name:  | 2-102 (A2)| 3-103 (C3)| 39-202 (A2)| 40-203 (C3)| 57-302
(A2)| 58-303 (C3)| 75-402 (A2)| 76-403 (C3)
2015-Apr-29 13:58:53 -    Model load successful into CBECC-Com 2013-3b
(717)
2015-Apr-29 13:58:54 - Performing Building Database check...
2015-Apr-29 13:58:54 - Building Database check completed, no problems
found.
2015-Apr-29 13:58:54 - Project Saved
```