SECTION 5-3B

STANDARD 140 OUTPUT FORM - MODELING NOTES

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A. SOFTWARE INFORMATION

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CONTENT: This section contains reference information for the software - the vendor, name and version of the software plus operating system and computer hardware requirements.

INSTRUCTIONS: Supply information for items 1 through 7 below. Item 8 is optional and can be used to supply additional, relevant information.

1. SOFTWARE VENDOR: Environmental Design Solutions Ltd

2. SOFTWARE NAME: Tas

3. SOFTWARE VERSION (unique software version identifier): 9.5.1

4. OPERATING SYSTEM REQUIREMENTS: Windows 7 or higher.

5. APPROX HARD DISK SPACE REQUIRED FOR INSTALLATION: 1.63GB.

6. MINIMUM RAM REQUIRED FOR SOFTWARE OPERATION: 2GB RAM.

7. MINIMUM DISPLAY MONITOR REQUIREMENTS: Screen resolution 1024 x 768.

8. OTHER HARDWARE OR SOFTWARE-RELATED REQUIREMENTS:

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B. REPORT BLOCK FOR ALTERNATIVE MODELING METHODS

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CONTENT: This section describes modelling methods used for tests if the software provides alternative modelling methods or algorithms that could be used to perform the test.

INSTRUCTIONS: If applicable, provide a separate note below for each alternative modelling method or algorithm situation. Use the standard format shown below and supply a separate number and title for each note. If not applicable, specify "NONE" in place of the information below.

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NOTE 1 - Internal Heat Transfer

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* 1. Describe the Effect Being Simulated: The internal heat transfer in the zone.
	2. Optional Settings or Modelling Capabilities: User defined, Alamdari & Hammond, CEN defaults.

1.2.1 User defined: Internal convection coefficients are set to fixed values entered by the user.

1.2.2 Alamdari & Hammond: Internal convection coefficients are set to fixed values specified by Alamdari & Hammond.

1.2.3 CEN defaults: Internal convection coefficients are set to fixed values specified by CEN.

* 1. Setting or Capability Used: User defined. Internal convection coefficients are fixed at values given in CIBSE Guide A.

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NOTE 2 - Preconditioning Days (Tas Building Designer).

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* 1. Describe the Effect Being Simulated: The number of simulated days prior to the start of the simulation period.
	2. Optional Settings or Modelling Capabilities: User defined number of preconditioning days = 0 to 365.
	3. Setting or Capability Used: 46 days. Provided the number of preconditioning days is sufficiently large in relation to the building time constant this negates erroneous thermal conditions during early periods of simulation.

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NOTE 3 - Preconditioning Days (Tas Systems).

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* 1. Describe the Effect Being Simulated: The number of simulated days prior to the start of the simulation period.
	2. Optional Settings or Modelling Capabilities: User defined number of preconditioning days = 0 to 365.
	3. Setting or Capability Used: 30 days. Provided the number of preconditioning days is sufficiently large in relation to the building time constant this negates erroneous thermal conditions during early periods of simulation.

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NOTE 4 - Simulation Period.

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* 1. Describe the Effect Being Simulated: The period of days for which the dynamic simulation is undertaken and results output.
	2. Optional Settings or Modelling Capabilities: User defined simulation period. Start Day = 0 to 365 and End Day = ‘Start Day’ to 365. (Default: Start Day 0, End Day 365)
	3. Setting or Capability Used: Start Day = 0 End Day = 365.

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NOTE 5 - Plant Performance.

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* 1. Describe the Effect Being Simulated: For case 500’s the way in which the system is set up using the available plant components in Tas Systems.
	2. Optional Settings or Modelling Capabilities: Tas Systems – Systems Schematic Options = DX coil zone component or Separate DX coil and indoor fan components.

4.2.1 DX coil zone component: DX coil zone component is applied to the Systems zone and includes the fan.

4.2.2 Separate DX coil and indoor fan components: The DX coil and indoor supply fan components are added separately to the Systems schematic.

* 1. Setting or Capability Used: DX Coil Zone Component. The DX Coil has the indoor supply fan power included within the zone component parameters instead of using a separate indoor fan component. The systems schematic can be simplified as these cases have no outside air.

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NOTE 6 - DX Coil Bypass factor.

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* 1. Describe the Effect Being Simulated: The bypass factor used with the DX coil.
	2. Optional Settings or Modelling Capabilities: Enter bypass factor value in DX zone component properties or enter bypass factor performance map coefficients.

6.2.1 Bypass Factor Value: User entered fixed Bypass Factor

6.2.2 Bypass Factor Performance Map Coefficients: Full performance map included dependant on certain variables such as outdoor dry bulb temperature.

* 1. Setting or Capability Used: Bypass factor performance map coefficients. The DX Coil has the bypass factor performance map coefficients included to enable a variable bypass factor to be used dependant on outdoor dry bulb and entering wet bulb temperatures.

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NOTE 7 - DX Coil Cooling Duty.

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* 1. Describe the Effect Being Simulated: The cooling duty used with the DX coil.
	2. Optional Settings or Modelling Capabilities: User entered value for cooling duty, sized cooling duty, or user entered value and use performance map coefficients.

7.2.1 User entered value for cooling duty: Fixed value for cooling duty.

7.2.2 Sized cooling: Sized value for cooling duty.

7.2.3 Performance map coefficients: Full performance map included dependant on certain variables such as outdoor dry bulb temperature.

* 1. Setting or Capability Used: DX Cooling Duty with user entered value and uses performance map coefficients. The DX Coil has the cooling duty performance map coefficients included to enable a variable cooling duty to be used dependant on outdoor dry bulb, entering dry bulb, and entering wet bulb temperatures.

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C. REPORT BLOCK FOR EQUIVALENT MODELING METHODS

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CONTENT: This section describes equivalent modelling methods used to perform the tests. When the software cannot model an effect exactly as stated in the Standard or does not permit the input values required, equivalent modelling can be used to perform the test.

INSTRUCTIONS: If applicable, provide a separate note below for each instance of equivalent modelling. Use the standard format shown below and supply a separate number and title for each note. If not applicable, specify "NONE" in place of the information below.

NONE

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D. REPORT BLOCK FOR OMITTED TEST CASES AND RESULTS

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CONTENT: This section describes test cases that were omitted and/or individual results of test cases that were omitted along with the reason for the omission.

INSTRUCTIONS: If applicable, provide a separate note below to describe each type of omission. Use the standard format shown below and supply a separate number and title for each note. If there are no omissions, specify "NONE" in place of the information below.

NONE

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E. REPORT BLOCK FOR CHANGES TO SOURCE CODE FOR THE PURPOSE OF RUNNING THE

TESTS, WHERE SUCH CHANGES ARE NOT AVAILABLE IN PUBLICLY RELEASED VERSIONS OF THE SOFTWARE.

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CONTENT: This section describes changes to software source code made to allow the software to run a test, where such changes are not available in a publicly released version of the software. In special situations a change to source code is necessary to activate a feature or permit inputs needed for a test, but these features are not available in the publicly released version of the software.

INSTRUCTIONS: If applicable, provide separate notes below to describe each source code modification. Use the standard format shown below and supply a separate number and title for each note. If not applicable, specify "NONE" in place of the information below.

NONE

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F. REPORT BLOCK FOR ANOMALOUS RESULTS

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CONTENT: This section provides an opportunity to describe anomalous test results. Describing anomalous results is optional.

INSTRUCTIONS: If applicable, describe each type of anomalous result in a separate note. Use the standard format shown below and supply a separate number and title for each note item. If not applicable, specify "NONE" in place of the information below.

NONE