MODELING NOTES FOR ASHRAE STANDARD 140

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INTRODUCTION
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This document shall include supplemental information about the ASHRAE
Standard 140 tests performed. One S140outNotes document shall be provided
for each set of tests (e.g., one for the building thermal and fabric load
tests of Sections 5.2.1, 5.2.2, and 5.2.3; one for the space cooling
equipment analytical verification tests of Sections 5.3.1 and 5.3.2;
etc.) The types of information listed below shall be provided in this
document, each in a separate section:

a. Software information
b. Alternative modeling methods
c. Equivalent modeling methods
d. Nonspecified inputs
e. Omitted test cases and results
f. Changes made to source code for the purpose of running the tests,
where such changes are not available in publicly released versions of the
software
g. Anomalous results.

Notes in this document shall be limited to the topics shown above. Notes
must be factual and objective and shall only refer to the software being
tested. Notes shall not refer to any other software program.

INFORMATIVE NOTE: Text at the start of each section describes the content
of the section for the reader and provides instructions for supplying the
content. Sample notes are provided in a separate document
(S140outNotes_Examples.TXT).

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A. SOFTWARE INFORMATION
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CONTENT: This section shall include reference information for the
software - the vendor, name, and version of the software, plus operating
system and computer hardware requirements.

INSTRUCTIONS: Information for items 1 through 7 below shall be provided.
Information for Item 8 shall be permitted but is not required.

1. SOFTWARE VENDOR: Thermal Energy System Specialists, LLC and Transsolar
Energietechnik GmbH
2. SOFTWARE NAME: TRNSYS
3. SOFTWARE VERSION (unique software version identifier): 18.05.0001
4. OPERATING SYSTEM REQUIREMENTS: Windows 10, Windows 11
5. APPROX HARD DISK SPACE REQUIRED FOR INSTALLATION: Maximum = 415 MB;
Minimum (to run input files) = 51 MB
6. MINIMUM RAM REQUIRED FOR SOFTWARE OPERATION: 128 MB
7. MINIMUM DISPLAY MONITOR REQUIREMENTS: VGA with 600x800 resolution and
256 colors
8. OTHER HARDWARE OR SOFTWARE-RELATED REQUIREMENTS: None

INFORMATIVE NOTE: Item 8 can be used to supply additional relevant
information.

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B. REPORT BLOCK FOR ALTERNATIVE MODELING METHODS
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CONTENT: If the software being tested provides alternative modeling
methods or algorithms for performing the tests, this section shall
describe modeling methods used for the tests.

INSTRUCTIONS: If alternative modeling methods are applicable, a separate
note for each alternative modeling method or algorithm situation shall be
provided. The standard format shown below and a separate number and title
for each note shall be applied. If alternative modeling methods are not
applicable, specify "NONE" in place of the information below.

NOTE 1 – Building Geometry

1.1 Describe the Effect Being Simulated:

1.2 Optional Settings or Modeling Capabilities:
        Manual
        Mixed
        3D Data

1.2.1 Manual:
        Physical Meaning: The manual geometry mode allows the user to
        manually enter the wall surface area. Thus, the user has to provide
        the necessary
        orientation information for the software's radiation processor.
1.2.2 Mixed:
        Physical Meaning: The mixed geometry mode allows 3D data and
        manually entered wall surface area data.
1.2.3 3D Data
        Physical Meaning: The 3D Data geometry mode requires the use of the
        plugin to create the building envelope. The advantage of using the
        3D Data Geometry mode is that it allows the use of the automatic
        radiation processing for the different surface orientations of the
        building. It also allows for the ability to use the detailed beam,
        diffuse, and longwave radiation mode. Furthermore, the detailed
        radiation modes allow other capabilities including the
        implementation of emissivity in the longwave radiation mode.

1.3 Setting or Capability Used:
        3D Data

NOTE 2 – Wall Conduction

2.1 Describe the Effect Being Simulated:
        Wall conduction

2.2 Optional Settings or Modeling Capabilities:
        "Massive layer"

"Massless layer"

2.2.1 Massive layer:
    Physical Meaning: takes into account the thermal capacity of the
    material

2.2.2 Massless layer:
    Physical Meaning: uses a resistive only conduction calculation for
    this layer.

2.3 Setting or Capability Used:
    Massless layer

NOTE 3 - Surface Convective Heat Transfer Coefficients

3.1 Describe the Effect Being Simulated:
    Convective Heat Transfer Coefficients

3.2 Optional Settings or Modeling Capabilities:
    Userdefined
    Internal Calculation

3.2.1 Userdefined
    Physical Meaning: As a default, the software package has
    userdefined constant convective heat transfer coefficients for
    interior surfaces, 11 kJ / h m² K, and for exterior surfaces, 64 kJ
    / h m² K. The software also allows the user to make this value an
    input into the Type56 Multizone building component, so a transient
    value may be used from another component or an equation with a wind
    velocity correlation. For values less than 0.001 kJ / h m² K, the
    documentation exclaims the following from the software
    documentation, "05-MultizoneBuilding.pdf": "For wall types with a
    known boundary temperature, the convective heat transfer
    coefficient can be set to a very small value (less than 0.001 kJ/h
    m² K) to force the surface temperature of the wall to be equal to
    the boundary temperature. The use of a very small value can be
    confusing but was kept for backwards compatibility reasons."

3.2.1.1 Userdefined for exterior surface
    Physical Meaning: A userdefined value was implemented for exterior.
    According to the developer of the TRNSYS Building Component, the
    radiative part of the heat transfer coefficient is 4.63 W/m² K.
    Thus, a value of 24.67 W/m² K (88.812 kJ/h m² K) was used for the
    exterior convective heat transfer coefficient as recommended in
    section 5.3.1.8 since the program does not have automatic
    calculation of exterior heat transfer coefficients.

3.2.2 Internal Calculation
    Physical Meaning: It is possible to choose internal calculation for
    any surface within a zone if desired for the interior surface. The
    user has to select whether the wall is a floor a ceiling or
    vertical to fit the appropriate heat transfer mechanism.

3.3 Setting or Capability Used:
     Internal calculation for interior surfaces
     Userdefined for exterior surfaces

NOTE 4 - Ground Coupling

4.1 Describe the Effect Being Simulated:
     Ground Coupling

4.2 Optional Settings or Modeling Capabilities:
     Userdefined Constant Temperature
     Input Temperature

4.2.1 Userdefined Constant Temperature
     The user can define a constant value for the back side temperature
     for the back side of the floor temperature (ground temperature).

4.2.2 Input Temperature
     Physical Meaning: An input temperature may also be implemented for
     the back side temperature of the floor (ground temperature). As an
     input to the TRNSYS Building component, another component's ground
     temperature output can provide the input to this ground
     temperature. There is a simple ground temperature component in the
     TRNSYS standard library, but that still will not provide enough
     accuracy with for the building to earth heat transfer. There is
     also a slab on grade component in TRNSYS that will calculate the
     ground temperature based on the work that was completed for the IEA
     Annex 34/43 as well as additional ground coupling components in the
     add-on TESS Component Libraries.

4.3 Setting or Capability Used:
     Input temperature: Since the floor is decoupled thermally from the
     ground a constant temperature equal to the given deep ground
     temperature of 10 °C is used.
     (The ambient temperature output of the weather reader was
     implemented as the input to the back side of the floor.)

NOTE 5 - Temperature Control

5.1 Describe the Effect Being Simulated:
     Temperature Control

5.2 Optional Settings or Modeling Capabilities:
     Temperature Level Control
     Energy Rate Control

5.2.1 Temperature Level Control
      Physical Meaning: In temperature level control in the TRNSYS
      Building model calculates the air temperature based on the energy
      balance of the zone (infiltration, gains, ventilation, etc.) just
      as a real, physical building would perform.

A thermostat component would "watch" the zone temperature (the zone temperature output from the TRNSYS Building Component would be the monitoring temperature input to the thermostat component), and turn on or off the zone's conditioning equipment to send conditioned air to the zone.
Just as a real conditioned zone performs, the conditioning equipment would be on when the temperature is within the deadband of the setpoint temperature of the thermostat.

5.2.2 Energy Rate Control
Physical Meaning: The TRNSYS Building model can operate in energy rate control where the building model calculates and outputs the amount of sensible energy (removed for cooling the zone and added for heating) to maintain a user-defined setpoint temperature. Since the cases in the standard require implementation of part load ratios, it was determined to operate the TRNSYS building in energy rate control.

5.3 Setting or Capability Used:
Energy Rate Control

NOTE 6 - Infiltration

6.1 Describe the Effect Being Simulated:
Infiltration

6.2 Optional Settings or Modeling Capabilities:
Infiltration as a constant
Infiltration as an input

6.2.1 Infiltration as a constant
Physical Meaning: The TRNSYS building model allows the user to define a constant infiltration rate value in airchanges per hour (ACH) in the TRNSYS building application, TRNBuild.

6.2.2 Infiltration as an input
Physical Meaning: The TRNSYS building model allows the user to define the infiltration rate in in airchanges per hour (ACH) as an input to the building. Thus, an infiltration component or filtration schedule may be implemented to supply this building input for infiltration rate. For the cases in section 5.3.3 that had an infiltration schedule, a schedule was created as an external data file, and the Type9 data reader read the infiltration schedule into the simulation, and the TRNSYS building model used this input for the infiltration rate.

6.3 Setting or Capability Used:
Infiltration as a constant in cases for section 5.3.2; infiltration as an input for the cases in section 5.3.3

NOTE 7 - Gains

7.1 Describe the Effect Being Simulated:
    Gains

7.2 Optional Settings or Modeling Capabilities:
    Gains as a constant
    Gains as an input
    Predefined Gains in TRNSYS Building Application

7.2.1 Gains as a constant
    Physical Meaning: The TRNSYS building model allows the user to
    define a constant gain value. The user has the option to specify
    the amount of radiative power, the amount of convective power, and
    an absolute humidity gain. The user also has the option to apply a
    scaling factor, so if the user specifies the convective and
    radiative powers as fractions, the user can apply the scaling
    factor appropriately.

7.2.2 Gains as an input
    Physical Meaning: The TRNSYS building model allows the user to
    define the gains as inputs as an input to the building. Not only
    does the user have the option to create inputs for radiative power,
    the amount of convective power, and an absolute humidity gain, but
    the user also has the option to have the scaling factor for the
    gains be an input. For the cases in section 5.3.3 that had a gains
    schedule, a schedule was created as an external data file, and the
    Type9 data reader read the gain schedule into the simulation, and
    the TRNSYS building model used this input for the gains.

7.2.3 Predefined Gains in TRNSYS Building Application
    Physical Meaning: The TRNSYS building application, TRNBuild, has
    predefined options for zone gains in addition to the user defined
    constant or input gains. The options are people gains with the
    activity level from the ISO 7730, computer gains with different
    computer size options, and an option for lighting gains.

7.3 Setting or Capability Used:
    Gains as a constant in cases for section 5.3.2; gains as an input
    for the cases in section 5.3.3

NOTE 13 - Simulation time step

13.1 Describe the Effect Being Simulated:
    Simulation time step

13.2 Optional Settings or Modeling Capabilities:
    userdefined constant value

13.2.1 userdefined constant value
    Physical Meaning: Simulation time step

13.3 Setting or Capability Used:
    The simulation time step is 5 minutes: Time step = 1/12

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NOTE 14 - Simulation convergence tolerances
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14.1 Describe the Effect Being Simulated:
     Convergence tolerances

14.2 Optional Settings or Modeling Capabilities:
     Absolute Tolerances
     Relative Tolerances

14.2.1 Absolute tolerances
     Physical Meaning: Specifying an absolute tolerance indicates that
     TRNSYS should not converge until all connected outputs are changing
     by a value of TolA and all integration outputs are changing by a
     value of TolD

14.2.1 Relative tolerances
     Physical Meaning: Specifying a relative tolerance indicates that
     TRNSYS should not move on to the next time step until all connected
     outputs are changing by less than (100 TolA) percent of their
     absolute value and all integrated outputs are changing by (100
     TolD) percent of their absolute value.

14.3 Setting or Capability Used:
     Relative Tolerances: 0.001 0.001


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NOTE 15 - Integration
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15.1 Describe the Effect Being Simulated:
     Integration

15.2 Optional Settings or Modeling Capabilities:
     Type24 Integrator Component
     Type46 "Printegrator" Component

15.2.1 Type24 Integrator Component
     Physical Meaning:  Since TRNSYS simulates dynamically with inputs
     and outputs (i.e. mass flow rates, energy rates, etc.), and
     integrator component is required to quantify the rate over a
     specified time value. The TRNSYS Type24 Integrator Component
     integrates any specified output over any period of simulation time
     (i.e. a timestep, 1 hour, 1 month, or 1 year). The integrated
     values such as the load are necessary for the other values the
     simulation (such as part load ratio); therefore, the Type24
     integrator component was used in the simulations.

15.2.2 Type 46 "Printegrator" Component
     Physical Meaning: The TRNSYS Type46 "Printegrator" Component not
     only integrates any components' output over a user defined
     timeperiod, but it also "prints" the integrated value to a text
     output file.
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15.3 Setting or Capability Used:
     Type 24 Integrator Component

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C. REPORT BLOCK FOR EQUIVALENT MODELING METHODS
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CONTENT: This section shall describe equivalent modeling methods used to
perform the tests. When the software does not model an effect exactly as
stated in the standard or does not permit the input values required,
equivalent modeling methods shall be permitted to perform the test.

INSTRUCTIONS: If equivalent modeling methods are applied, a separate note
for each instance of equivalent modeling shall be provided. The standard
format shown below and a separate number and title for each note shall be
applied. If equivalent modeling methods are not applicable, specify
"NONE" in place of the information below.

NOTE 1 - Preconditioning of Zone

1.1 Describe the Effect Being Simulated:
     Preconditioning of Zone

1.2 Section(s) of the Standard where Relevant Inputs are Specified:
     5.1.6

1.3 Equivalent Input(s) Used:
     Zone initial values were set to the thermostat setpoint defined in
     the standard and a percent relative humidity of 50%.

1.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
     The TRNSYS Building does not have preconditioning as defined in
     section 5.1.6 for the standard. There also does not exist an option
     to have the zone air conditions equal to the outdoor air
     conditions. However, for each zone in the TRNSYS the user can
     provide initial condition values for the zone temperature and
     percent relative humidity, so the initial zone temperature was set
     to the thermostat setpoint from the standard, and the initial zone
     percent relative humidity was left at the default of 50%.

NOTE 2 - Cooling Equipment Data File

2.1 Describe the Effect Being Simulated:
     Cooling Equipment Data File

2.2 Section(s) of the Standard where Relevant Inputs are Specified:
     5.3.1.10.3.4, 5.3.1.10.3.6

2.3 Equivalent Input(s) Used:
     The external data file used in the simulations for section 5.3.2
     was the net total plus the indoor fan power and net sensible

capacity plus the indoor fan power with the total device power
(compressor, condenser fan, and indoor fan).

2.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
    The external data file requirement for the mechanical system's air
    conditioner, Type144 Air Conditioner, is the total capacity, total
    sensible capacity, and the total power. The component does not
    require the default fan heat to be added to the total and sensible
    capacities. It does require that the actual fan heat be added to
    the total and sensible capacities. Thus, the data from Table 26a
    with the addition of the actual fan heat (230 Watts) to the net
    total and net sensible capacities was used for the simulations.
    The external data file for the Type144 Air Conditioner also
    requires the total power of the device, so the condenser fan power
    (108 Watts) and the indoor fan power (230 Watts) were added to the
    compressor power for the data file. The data was also manually
    extrapolated in a spreadsheet as that is not done automatically the
    software (only interpolation is done by the software).

NOTE 3 - Part Load Ratio

3.1 Describe the Effect Being Simulated:
    Part Load Ratio

3.2 Section(s) of the Standard where Relevant Inputs are Specified:
    5.3.1.10.4

3.3 Equivalent Input(s) Used:
    TRNSYS Equation Block to Calculate Part Load Ratio

3.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
    The TRNSYS building model and the Type144 air conditioner component
    for TRNSYS are intended to work in temperature level control
    iterating together with a thermostat. Since the intention of this
    standard is to use part load ratio to depict efficiency
    degradation, the TRNSYS building model operates in energy rate
    control to output the instantaneous sensible energy demand of the
    zone, and the Type144 air conditioner outputs the full load
    instantaneous sensible and full load instantaneous total energy.
    The quotient of the instantaneous sensible energy demand from the
    zone and the instantaneous full load sensible energy is used to
    obtain an instantaneous sensible PLR. The product of the
    instantaneous sensible PLR and the full load instantaneous total
    energy from the Type144 is the instantaneous total coil load. The
    Type24 Integrator component integrates the instantaneous total coil
    load and the instantaneous total full load. In another TRNSYS
    equation block, quotient of the integrated values is the part load
    ratio (PLR) as intended by the standard and is used in the other
    calculations for CDF and Runtime.

NOTE 4 – Compressor Power

4.1 Describe the Effect Being Simulated:
    Compressor Power

4.2 Section(s) of the Standard where Relevant Inputs are Specified:
    5.3.1.10.4

4.3 Equivalent Input(s) Used:
    TRNSYS Equation Block with Runtime and Full Load Power

4.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
    The compressor power for the simulation was obtained by the product
    of the equipment full load power (minus outdoor fan power and
    indoor fan power) from Type144 air conditioner and the equipment
    runtime. The equipment runtime is a function of the part load ratio
    (PLR) described in the previous section and the CDF described in
    section 5.3.1.10.4.1.

NOTE 5 – Indoor Fan Power

5.1 Describe the Effect Being Simulated:
    Indoor Fan Power

5.2 Section(s) of the Standard where Relevant Inputs are Specified:
    5.3.1.10.6

5.3 Equivalent Input(s) Used:
    Runtime as a control signal for variable speed fan

5.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
    The TRNSYS Type147 variable speed fan was used to cycle and deliver
    air to the zone. The fan cycled based on the runtime variable that
    was calculated in the TRNSYS equation (see previous note). The
    rated fan power was specified as a parameter for Type147 variable
    speed fan, so when the runtime variable from the TRNSYS equation
    block supplied the control signal, it cycled appropriately.
    Implementing the fan with this method also added the necessary
    sensible fan energy to the zone. The output of the fan, fan power,
    was integrated to quantify the amount of power that it consumed
    throughout the simulation.

NOTE 6 – Outdoor Fan Power

6.1 Describe the Effect Being Simulated:
    Outdoor Fan Power

6.2 Section(s) of the Standard where Relevant Inputs are Specified:
    5.3.1.10.6

6.3 Equivalent Input(s) Used:
     Product of integrated full load fan power and Runtime

6.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
     The full load outdoor fan power (108 Watts) was integrated in a
     TRNSYS Type24, and that integrated value is sent to a TRNSYS
     Equation block. In the equation the outdoor fan power is determined
     by the product of the integrated full load fan power and the
     Runtime value.

NOTE 7 – Total Power

7.1 Describe the Effect Being Simulated:
     Total Power

7.2 Section(s) of the Standard where Relevant Inputs are Specified:
     5.3.1.10.6

7.3 Equivalent Input(s) Used:
     Sum of the integrated values

7.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
     The total power of the system is determined by sum of the
     integrated values of the compressor power, indoor fan power, and
     outdoor fan power in a TRNSYS equation block.

NOTE 8 – Latent Energy Removal

8.1 Describe the Effect Being Simulated:
     Latent energy removal

8.2 Section(s) of the Standard where Relevant Inputs are Specified:
     5.3

8.3 Equivalent Input(s) Used:
     The latent energy removal included as a negative gain to the space.

8.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
     The instantaneous latent coil load was determined from the
     difference of the instantaneous total coil load(discussed in NOTE
     3) and instantaneous sensible energy demand from the zone in a
     TRNSYS equation block. The TRNSYS Building model in energy rate
     control allows the user to specify a humidity setpoint for the zone
     similar to how a temperature setpoint is used in energy rate
     control; however, it is the intention of the standard for the
     software to calculate the amount of humidity for the zone. Using
     the flexibility of the TRNSYS building model, the instantaneous
     latent coil load determined from the equation block was sent back
     to the building model as a negative latent gain input. By

implementing this method, the appropriate amount of latent energy
        is removed from the zone.

NOTE 9 – Zone Total and Zone Sensible Loads

9.1 Describe the Effect Being Simulated:
        Zone Total and Zone Sensible Loads

9.2 Section(s) of the Standard where Relevant Inputs are Specified:
        5.3

9.3 Equivalent Input(s) Used:
        The total and sensible zone loads were calculated from the
        difference of the coil loads and the indoor fan power.

9.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
        Since the instantaneous fan power was added directly to the zone,
        the total coil load and sensible coil load included this energy
        rate. After these values were integrated in a Type24 integrator
        component, a TRNSYS equation block calculated the zone total load
        from difference between the integrated total coil load and the
        integrated indoor fan power, and likewise, zone sensible load from
        difference between the integrated total coil load and the
        integrated indoor fan power.

NOTE 10 – Coefficient of Performance (COP)

10.1 Describe the Effect Being Simulated
        COP

10.2 Section(s) of the Standard where Relevant Inputs are Specified:
        5.3.1.10.4

10.3 Equivalent Input(s) Used:
        The COP was calculated from the quotient of zone total load and
        total power.

10.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
        The COP was calculated in a TRNSYS equation block by the quotient
        of the integrated zone total load (the integrated total coil load
        minus the integrated fan power) and the integrated total power.

NOTE 11 – Economizer

11.1 Describe the Effect Being Simulated:
        Economizer

11.2 Section(s) of the Standard where Relevant Inputs are Specified:
        5.3.4.2

11.3 Equivalent Input(s) Used:
     TRNSYS Equation Block

11.4 Physical, Mathematical or Logical Justification of the Equivalent
Input(s) – provide supporting calculations, if relevant:
     The cases with the economizer required the implementation of a
     TRNSYS equation block. The TRNSYS equation block has the ability to
     use any output from any component in the simulation with logical
     functions to create values of 1 or 0 ("on" or "off"). Thus, when
     comparing the outdoor temperature to the indoor temperature and
     comparing the indoor temperature to the setpoint, this was simply
     done in a TRNSYS equation block. When the signal for the economizer
     was "on", that would set the fraction of outdoor air to 100%.

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D. REPORT BLOCK FOR USE OF NON-SPECIFIED INPUTS
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CONTENT: This section shall describe nonspecified inputs used to perform
the tests. Use of nonspecified inputs shall be permitted only for the
following specified sections relating to the following topics:

* Alternative constant exterior surface coefficients in Sections
5.2.1.9.3, 5.2.3.1.4.3, 5.2.3.3.2, and 5.3.1.8
* Alternative constant interior surface coefficients in Sections
5.2.1.10.3, 5.2.3.1.4.4, 5.2.3.2.2, and 5.3.1.9
* Alternative constant interior solar distribution fractions in Sections
5.2.1.12, 5.2.2.1.2.2, 5.2.2.1.6.2, 5.2.2.1.7.2, 5.2.2.2.7.4, 5.2.3.9.3,
5.2.3.10.2, and 5.2.3.12.2
* Air density given at specific altitudes for the space-cooling and
space- heating equipment cases in Sections 5.3.1.4.3, 5.3.3.4.3, and
5.4.1.4.3.

INSTRUCTIONS: If nonspecified inputs are applied, a separate note for
each use of nonspecified inputs shall be provided. The standard format
shown below and a separate number and title for each note shall be
applied. If nonspecified inputs are not applied, specify "NONE" in place
of the information below.

NONE

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E. REPORT BLOCK FOR OMITTED TEST CASES AND RESULTS
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CONTENT: This section shall describe test cases that were omitted and/or
individual results of test cases that were omitted along with the reason
for the omission.

INSTRUCTIONS: If test cases were omitted, a separate note to describe
each type of omission shall be provided. The standard format shown below
and a separate number and title for each note shall be applied. If there
are no omitted test cases, specify "NONE" in place of the information
below.

NONE

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F. 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 shall describe 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.

INFORMATIVE NOTE: This section addresses special situations where a
change to source code is necessary to activate a feature or to permit
inputs needed for a test when these features are not available in the
publicly released version of the software.

INSTRUCTIONS: If changes to the source code for the purpose of running a
test are applied, separate notes to describe each source code
modification shall be provided. The standard format shown below and a
separate number and title for each note shall be applied. If changes to
source code are not applied, specify "NONE" in place of the information
below.

NONE

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G. REPORT BLOCK FOR ANOMALOUS RESULTS
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CONTENT: Describing anomalous results shall be permitted but is not
required. If anomalous test results are described, this section shall be
used.

INSTRUCTIONS: If anomalous test results are described, each type of
anomalous result shall be described in a separate note. The standard
format shown below and a separate number and title for each note item
shall be applied. If anomalous results are not discussed, it shall be
permitted to specify "NONE" in place of the information below.

NONE