



IESVE

Trial Support  
Material

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ApacheSim: Building  
Energy Simulation

# ApacheSim: Building Energy Simulation

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Apache is the simulation engine of the VE, used to perform advanced dynamic thermal simulation at time-steps from every minute to half hourly, with reporting intervals of every 6 minutes to hourly. Simulations may be run across a whole year, or over selected dates, for better computation of building components at building and space level.

It is the central simulation processor, which enables you to assess every aspect of thermal performance, from the impact of thermal mass, to temperature distribution, as well as sharing results and input across a wide variety of other VE applications.

It includes a large library of constructions and materials, which can all be edited. You can also add all internal gains and renewable energy sources, and easily schedule systems, equipment and other loads.

**The preparation of thermal input data consists of four main tasks:**

1. Specification of building location and weather data through APLocate
2. Specification of building operational and use profiles using APPro
3. Specification of building construction data (properties of the building fabric) using APcdb
4. Specification of space data (conditions in each space) using AP Sys

Once this data has been assigned, it is easy to review and edit the assignments by using the Building Template Manager (BTM).

Data already assigned to spaces may be viewed and exported to Excel using Tabular Space Data.

The Input Data Visualisation tool enables a quick, graphic review of data assignments.

Once constructions have been assigned to the geometry, a full dynamic simulation can be run, with links to other applications, for simple analysis of solar shading or natural ventilation, or more complex lighting and HVAC simulations if desired.

Alternately, heating and cooling load calculations can also be run to either ASHRAE or CIBSE methodologies.

The results can then be viewed in VistaPro for analysis or comparison, and copied to custom user reports.

There is also a selection of automated reports that can be generated within IESVE.

For more information, go to [https://help.iesve.com/ve2019/apache\\_application\\_interface.htm](https://help.iesve.com/ve2019/apache_application_interface.htm)