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ApacheSim: Building Template Manager (BTM)

Building Template Manager

The Building Template Manager (BTM) and Tabular Building Template Manager (Tab BTM) are used to assign, inspect and/or modify building templates within the VE.

Building Template Manager (BTM)

The **Building Template Manager (BTM)** window can be opened by selecting **Tools > Building Template Manager** from the menu or via the toolbar button.

The system allows you to fast start projects or help prepare project bids without significant data input.
All information is editable to enable the creation and management of a library of templates.

The BTM initially displays system attributes of a thermal template applicable to spaces of type Room.
Other templates may be selected from or added to the list on the left hand side of the dialog.

The BTM provides a means of specifying frequently used object attributes for later assignment to spaces, constructions and other objects in a Virtual Environment model.
Each space created in the model is automatically assigned generic space information in IESVE.
The BTM allows for easy designation of common zone features and conditions when constructing a model.

The Building Template Manager is split up into 6 template types:

– **General Space Attributes**, contains data relating to lettable area.

– **Apache Constructions**: This is where the construction types are specified for templates.

   Note Construction Template is assigned to newly created geometry or may be assigned to a selected room but the assigned Constructions do not dynamically update if the template is edited after it has been assigned.

– **MacroFlo Opening Types:** This is where the MacroFlo opening types used for natural ventilation are assigned to templates.
  The opening types available are:

  – Rooflight
  – External Glazing
  – Internal Glazing
  – Door

– **Thermal Conditions** template data is spread across five tabs, which correspond to the tabs in the Room Data dialog for room templates with ApSys methodology: *https://help.iesve.com/ve2019/system_1.htm#*

  – System: HVAC systems data to specify system-related information including room-plenum associations.
    It can be set to either ApSys or ApHVAC methodology, with different parameters.

  – Space Conditions contains space attributes relating to heating, cooling and humidity control

  – Internal Gains: is used to specify internal gains to the space (sometimes called casual gains).
    The data displayed depends on the type of gain selected.

  – Air Exchanges: is available for all building space templates (room, void, RA plenum and SA plenum).

    It specifies room air exchanges of 3 types: infiltration, natural ventilation and auxiliary ventilation. The source of the air may be the external environment (optionally with a temperature offset), an adjacent space or a supply at a temperature specified by an absolute profile.

  – Building Regulations: Space Data that allows the template to be associated with an NCM activity template for UK Building Regulations compliance.

– **Electric Lighting:** This allows lighting data (mostly but not all artificial lighting) to be assigned to templates used by programs within the <VE> Lighting section: LightPro, FlucsPro, FlucsDL and IES-Radiance.

– **Radiance Surfaces** is where the Radiance IES surface properties are assigned to templates.
  All templates can be imported, added or removed (one must always remain).
  Click the **Save** button to save any changes before exiting the BTM, **OK** to exit once changes have been saved, or **Cancel** to exit without saving any changes.

PROJECT TEMPLATE FILE

For each modelling project, a project specific template file is created with the extension *.mtd.
This holds the template(s) used by the modelling project. The Project Template File is created automatically for each project.
More information is available at *https://help.iesve.com/ve2019/building_template_manager.htm*

# Tabular Building Template Manager (Tabular BTM)

The Tabular Building Template Manager (Tabular BTM) can be accessed either through the icon, or through the drop-down **View** menu at **Tabular BTM** or use the **Ctrl+Shift+M** keyboard shortcut.

It allows you to rapidly inspect any building templates in your models.

It provides access to a similar set of data to that available in the Building Template Manager, but provides the information in a modeless, tabular form. The window floats above the main application window, allowing you to interact with the main view window. This means that it can be viewed on a second screen whilst working with the model.

In addition to providing a fast and efficient way for you to edit template attributes in your model, it also offers:

– Customizable columns, allowing you to choose exactly which variables you want to see.

– Sorting: allowing you to sort all grid data, either as ascending or descending, by any column.

– Filtering: allowing you to only display templates which pass one or more different criteria.

– Export and Import of displayed building templates, allowing you to externally edit the values for your building templates (e.g. using Microsoft Excel) and then re-import the changes to automatically apply them to your model.
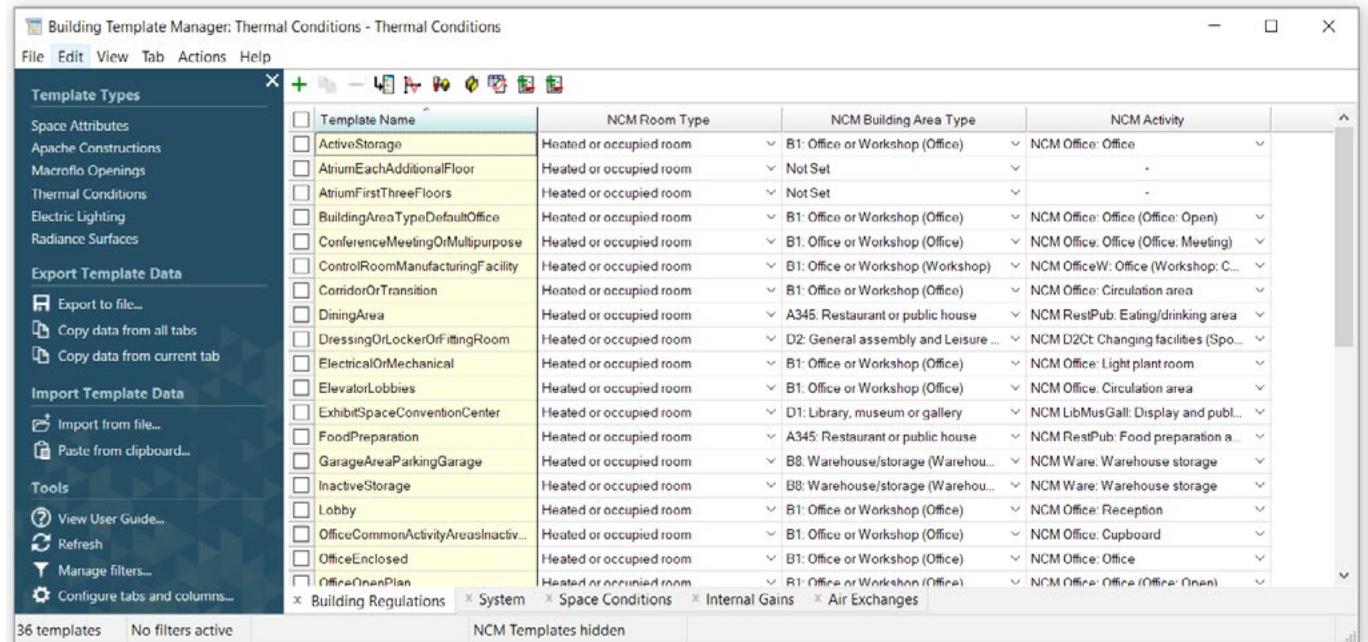
The Tabular BTM supports all six template types:

– Space Attributes

– Apache Constructions

– MacroFlo Openings

– Thermal Conditions

– Electric Lighting

– Radiance Surfaces.

Each of these template types has an associated mode in the Tabular BTM.

Click on a template on the left, or in the View drop-down menu to select it and enter that mode.

This will change the data displayed on the right, with differing tabs available to access data grids related to each mode, so that you can view and edit all templates of a particular type and perform template type specific actions.

The name of the column currently being used to sort the grid rows is highlighted in a light blue colour, with a small arrow at the top to indicate the sort direction (either ascending or descending). Clicking on a column header will sort the grid rows by that column, and clicking on an existing sort column will toggle between the two sorting directions.

The quickest way of filtering is to simply define data filters on one or more of the columns currently visible in the tab. To do this, right-click on the column you wish to filter, and select **Add Filter** on <column name> from the context menu, then define the condition by which you would like to filter the data.

When a filter has been defined on a particular column, a blue identifier bar is shown at the bottom of the column header. This allows you to quickly identify which of the current columns have filters applied. In addition, you can get a summary of the filter if you move the mouse pointer over this blue bar.

Simply right-click again to edit or remove the filter, or to enable/disable the filter.

There is a column on the left-hand side of the grid containing checkboxes – these are known as marking checkboxes and are used to allow changes to a row to be applied to all the rows that have been marked for editing (i.e. their checkbox has been ticked). Whenever you edit a cell on any row (be it marked or not), the corresponding value will be applied to all rows that have been marked. Marked rows are highlighted to provide an additional visual cue to their marked state.

Most cells in the data displays have a drop-down menu that lets you select suitable options, while for others you can type in a numerical value. Cells that are grey are non-editable.

To change this data room by room, you will need to work through the **Tabular Space Data** interface.

You can also import and export your template attributes as tab-delimited text. This enables you to view and manipulate the output using software such as Microsoft Excel.

Let us consider the thermal conditions mode as an example.

– **Building Regulations** tab shows whether or not the room types have been set for NCM compliance for the UK – this is not relevant unless you are doing NCM Compliance.
– **Systems Template** tab shows you what systems have been created in your model, and lets you assign different systems to the different types of spaces.
– **Space conditions** tab includes the heating and cooling setpoints. These have drop-down options to switch between constant (enter a numerical value), profile (select a timed profile), or two-value (quick option for set-back temperatures).
– **Internal Gains** tab and the **Air Exchanges** tab, list all assigned gains and air exchanges.
  Note that the Tabular BTM supports a maximum of 10 internal gains and 10 air exchanges per template. In the unlikely event that a template uses more gains or air exchanges than this, you must use the existing Building Template Manager functionality to view and manipulate the gains.

More information is available at *https://help.iesve.com/ve2019/tabular_btm_.htm*

# Internal Gains and Air Exchanges

When in Thermal Conditions mode the Tabular BTM provides the functionality to add, remove and modify the air exchanges and internal gains attached to templates.

This functionality can be accessed through the Edit Air Exchanges and Edit Internal Gains buttons on the toolbar.

In the BTM, they can be edited directly in these two tabs.

When you choose to add/edit an internal gain or air exchange in one of these places, you will open a new tabular interface. On the top left, you can **toggle between the two template types (1)**.

Along the bottom, you can switch between tabs for the different types of gains and air exchanges.
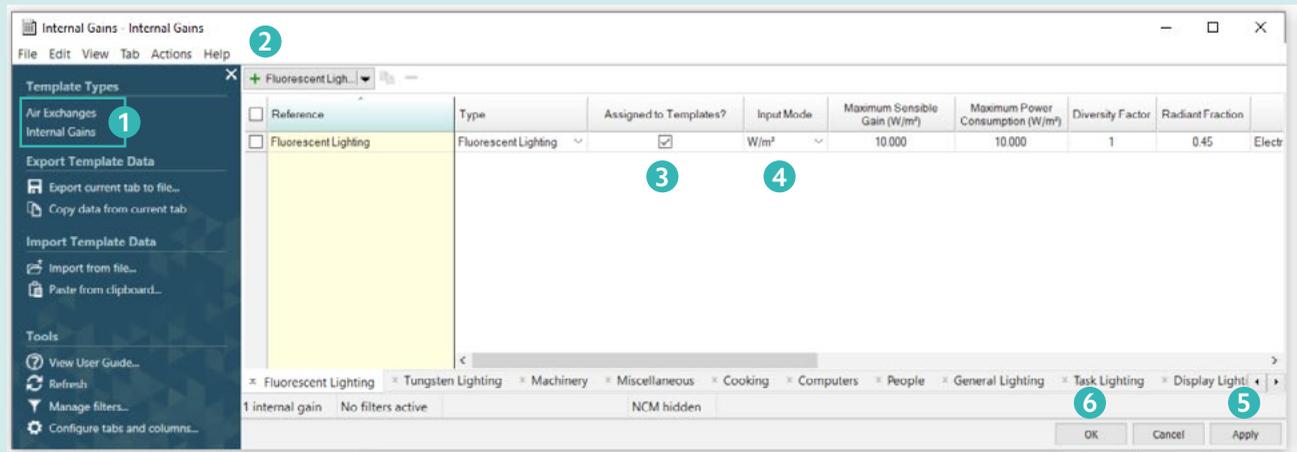
Open the relevant tab for internal gains.

When you open a tab for the first time, it will not have any gains listed.

Select a relevant gain from the drop-down menu and click on the **green + sign (2)** to add this gain to the table below.

You can now edit the various criteria for that gain – remember to scroll to view columns to the right.

– If you click on the **assign to template check-box (3)**, it will be assigned to the template you were working on when you opened this interface. If you don't tick this box, the gain will not be assigned to the template, but it will be available in the model. In the Tab BTM you can see whether or not the box is ticked on your template.

– The **Input Mode options (4)** will vary depending on the gain, but they offer a drop-down list to give you the flexibility to input gains in whatever format you prefer, eg. For lighting, you can choose W/m²; W or lux, and for people you can choose m²/ person or the actual number of people. Remember that you are applying these values to spaces within the model, so if you don't pick a /m² value, for example you choose to put in people, only apply the number of occupants for that space, not for the whole building.

– All gains are applied according to a profile: all of the profiles that you have created are available in a drop-down menu to choose from. If there is not a suitable profile for this gain, close the BTM and return to **ApPro** to create one and then return to the BTM and Internal Gains and select it.

– For internal gains linked to power consumption, eg. lighting, you can also specify the maximum power consumption, and link it to an energy meter.

Remember to click **Apply (5)** to apply your changes, and **OK (6)** to save them when you leave this window.

In the BTM the process is similar, although your options are listed in a single table, not with multiple tabs, and once you have assigned a gain to the template, this will be denoted by a red letter T in the right hand column. When you click **OK** to exit the interface, all selected gains will be listed, and if you click on them, you can see their details. You will need to click on the **Add/Edit** button again if you wish to edit them.

Once you have created a gain, even if it is not assigned to any templates, it will become available within the model to assign on a room by room basis using the **Query** button in Apache, or edit them room by room in **Tabular Space Data**.

Be aware though, that where a template is used to assign internal gains, you cannot delete them using the **Query** tool, although you can break the template link as desired to edit them within the Tabular Space Data.

Editing air exchanges works in a very similar way to editing air internal gains. To edit air exchanges for templates, mark all the templates that you would like to edit then click Edit Air Exchanges from the toolbar. You will see a dialog similar to the one below:

More information is available at *https://help.iesve.com/ve2019/internal_gains_and_air_exchanges.htm#*