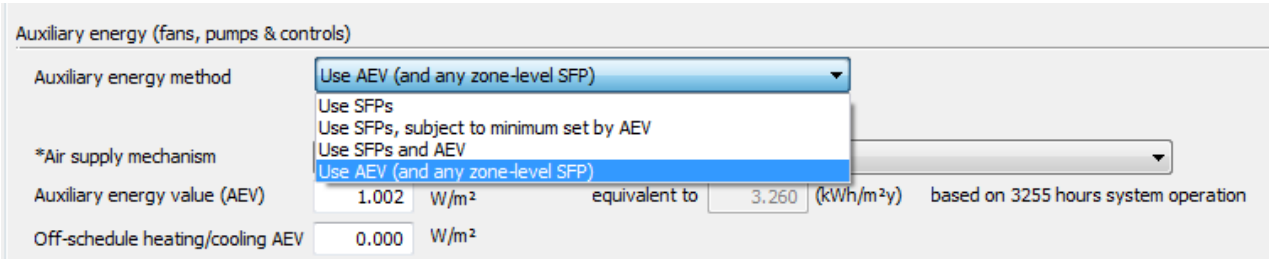
INTEGRATED ENVIRONMENTAL SOLUTIONS

Thermal: Apache Systems
Version: 5.9 – 6.1

FAQ: Can you explain the various options available for Auxiliary Energy Method?



From version 5.9 of the Virtual Environment the way Auxiliary Energy is applied has been amended to meet the requirements set out in the NCM Modelling Guide. In earlier versions of the software there was an Auxiliary Energy Value (AEV) used to represent the consumption of fans, pumps and controls whenever there was a load on the system.

From version 5.9 there are now four options to control the way Auxiliary Energy is applied within the model. These Include:-

Use AEV (and any zone level SFP)
Use SFP's
Use SFP and AEV
Use SFP's, subject to a minimum set by AEV

Although the "(and any zone level SFP)" is only added to the first option listed it is worth noting that and additional Fan Energy set up here will be added to the total Energy consumption regardless of the option you select.

The Use AEV's is very similar to the previous method with only a couple of changes. As before this AEV represents the total consumption of fans pumps and controls. It is applied as a W/m2 value which will be multiplied by the floor area of the zones the system is assigned too. An addition is that the user now applies a profile on the room conditions tab of the Building Template manager to detail when this value should be applied. In addition to this the user can also specify an Off Schedule AEV to represent reduced plant consumption outside of hours.

On top of this AEV the user can also apply a room level SFP using the Room Query function. The user can then specify whether there is mechanical supply and mechanical exhaust in the room (Note that mechanical supply will only be an option in the Mechanical ventilation system). When mechanical supply is ticked the user can enter a SFP associated with the supply. This SFP is multiplied by the Ventilation rate set up on the templates and follows the ventilation profile assigned to the room. The Mechanical extract option is similar however you can specify an extract rate that is different to the Vent Rate set out on the template. This zone level SFP is only used to calculate the Energy associated with fan power and does not apply an air exchange within the room.

The next AEV method is "Use SFPs". When you select this option rather than entering a AEV value in W/m2, you can enter an overall SFP. The energy consumption applied will be the sum of the ventilation rates within the zones the system is assigned too multiplied by this SFP. Any room level SFP will be added to this so be careful not to account for the fan power twice. An out of Hours AEV can also be applied using this method.

The next AEV method is "Use SFPs and AEV's". This is a combination of the two previous methods which allows the SFP to represent the Fan Energy and the AEV to account for other pumps and controls.

The final AEV method is "Use SFP's, subject to a minimum set by AEV". In this option the Auxiliary energy associated with both the AEV and SFP method will be established and whichever of the two is the greater will be applied in the analysis. This is the method that the NCM modelling guide stipulates should be used for Notional Air Conditioned Systems.