TYPE 574: ASHRAE OCCUPANCY LOADS

General Description

The ASHRAE Handbook of Fundamentals lists typical latent and sensible loads for occupancy based on the activity level of the occupants. This component takes, as parameters, the number of different people types and their associated activity level, and as inputs the number of people at each of these activity levels. The outputs from this component are the latent and sensible loads for the building (totals and per activity).

Detailed Description

Type574 is essentially a lookup table. The user specifies, as parameters the indicator for any number of distinct activity levels. For each activity level indicator parameter specified, the user must also specify a corresponding input telling how many people are performing that activity at the current time step. The model reports the total sensible and latent heat gains for each activity level and for all activity levels combined.

If the user has a deck whose version number is indicated to be 15, then eleven activity levels are possible and Table 1 indicates the corresponding heat gains. Table 1 is taken from [1] and [2]

Table 1: Rates of Heat Gain from Occupants of Conditioned Spaces (Libraries 1.x and TRNSYS 15.x)

Indicator	Application	Sensible Heat	Latent Heat
		[W]	[W]
1	Seated, at rest	60	40
2	Seated, very light writing	65	55
3	Seated, eating	75	95
4	Seated, light work, typing	75	75
5	Standing, light work, or walking slowly	90	95
6	Light bench work	100	130
7	Walking, light machine work	100	205
8	Bowling	100	180
9	Moderate dancing	120	255
10	Heavy work, lifting	165	300
11	Heavy work, athletics	185	340

If the user has a deck whose version number is indicated to be 16, then fourteen activity levels are possible and ***Table 2*** indicates the corresponding heat gains. ***Table 2*** is taken from [3].

Table 2: Rates of Heat Gain from Occupants of Conditioned Spaces (Libraries 2.x and TRNSYS 16.x)

Indicator	Application	Sensible Heat	Latent Heat
		[W]	[W]
1	Seated at theater	65	30
2	Seated at theater, night	70	35
3	Seated, very light work	70	45
4	Moderately active office work	75	55

5	Standing, light work, or walking slowly	75	55
6	Walking, standing	75	70
7	Sedentary work	80	80
8	Light bench work	80	140
9	Moderate dancing	90	160
10	Walking at 4.8 km/h, light machine work	110	185
11	Bowling	170	255
12	Heavy work	170	255
13	Heavy machine work, lifting	185	285
14	Heavy work, athletics	210	315

References

[1] ASRAE Handbook, 1985 Fundamentals, ASHRAE, Atlanta, GA

[2] Knebel, D.E. et al, Simplified Energy Analysis Using the Modified Bin Method, 1983, ASHRAE, Atlanta, GA.

[3] ASRAE Handbook, 2001 Fundamentals, ASHRAE, Atlanta, GA