VIEW FACTOR CALCULATION USING THE PROGRAM TRISCO

1. Introduction

View factors are used in the simulation of advanced infrared radiation heat transfer. In the Physibel 2D & 3D software the view factors are automatically calculated and implemented in the radiation equations (RADCON feature). The explicit knowledge of the view factors is usually of little importance, but sometimes view factors values are needed for use in other applications. An example is given how view factor values can be derived from the program TRISCO.

2. Example view factor simulation

TRISCO data viewfactors_1.trc

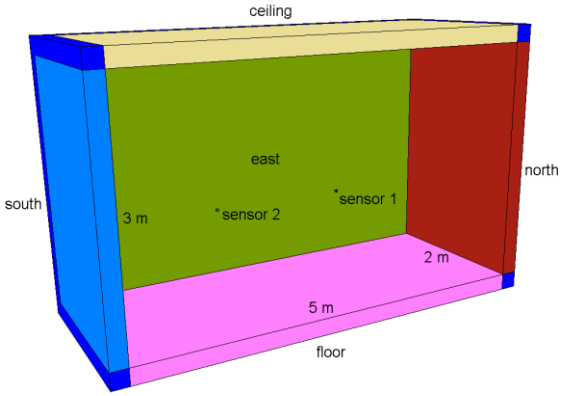

Figure 1. Room geometry.

Figure 1 shows half a room. The aim is to know the view factors between 2 points (a central one and a second one at a distance of 1 m of the south wall) and the room walls. The room is modelled in the program TRISCO. Particularities of the data are the following:

- each wall is specified as a different material
- the indoors environment is set as a BC_FREE boundary condition
- 2 small blocks (different material) (2 x 2 x 2 cm^3) are used as sensors.

After the simulation, the view factors between all surfaces are available in the text output.

Figure 2 shows the (point) view factors from both sensors to the surrounding walls. The view factors are stored in the text file with extension .vwf and can be used for further simulations (e.g. with a finer simulation mesh).

from	to			from	to	
sensor 1	south	0,0970		sensor 2	south	0,2685
sensor 1	west	0,1500		sensor 2	west	0,1274
sensor 1	north	0,0970		sensor 2	north	0,0434
sensor 1	east	0,1500		sensor 2	east	0,1274
sensor 1	floor	0,2530		sensor 2	floor	0,2166
sensor 1	ceiling	0,2530		sensor 2	ceiling	0,2166
		1,0000				0,9999

Figure 2. View factors from the sensors 1 and 2 to the surrounding walls.