

SUMMARY :
SOLAR RADIATION:

Solar radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy. About half of the radiation is in the visible short-wave part of the electromagnetic spectrum. The other half is mostly in the near-infrared part, with some in the ultraviolet part of the spectrum.

DIRECT AND DIFFUSE SOLAR RADIATION:

As sunlight passes through the atmosphere, some of it enters the surface of the Earth direct and undisturbed. Beam solar radiation throws sharp shadows and can be focused. Another component of sunlight is the diffuse solar radiation, on its way through the atmosphere it is absorbed, scattered, or reflected by dust, water vapor, clouds, pollutants, etc. It does not throw sharp shadows and cannot be focused.

The sum of the diffuse and direct beam solar radiation is called global solar radiation

ATMOSPHERIC ABSORPTION

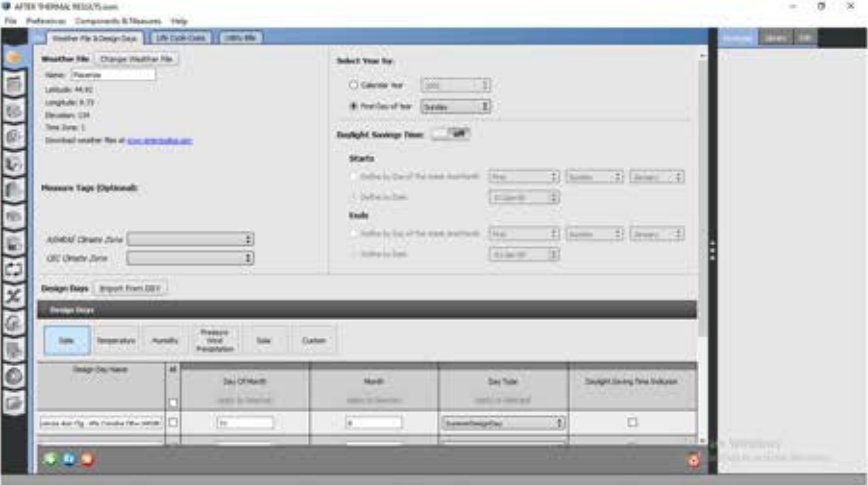
Solar radiation absorption is due to some atmospheric components which absorb the incident radiation in specific wavelength bands which modifies its energetic spectrum
When the sun is perpendicular to the plan of the horizon, it crosses the minimum thickness of the atmosphere
When the sun is at an angle it crosses a large thickness of the atmosphere.

SOLAR RADIATION AVAILABILITY:

The solar radiation, available on the Earth’s surface for conversion in other energy forms, depends on the sun position, the weather condition, the site altitude over the sea level, and the daylight hours.

STEP BY STEP PROCEDURE IN OPEN STUDIO:

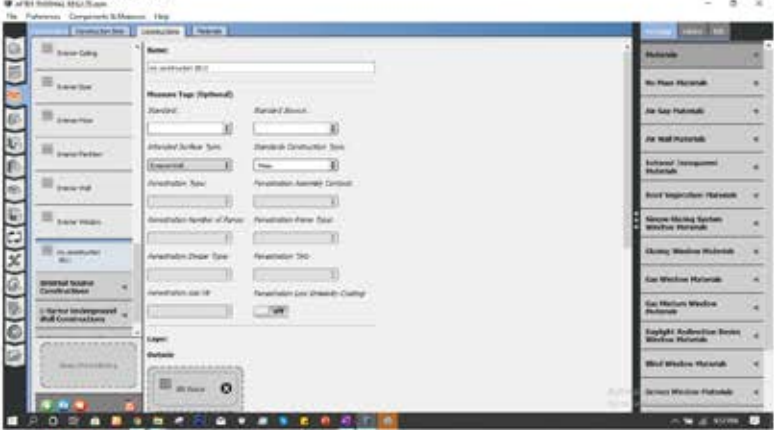
STEP 1: OPEN THE OPEN STUDIO FILE OF YOUR PREVIOUS WORK AND UPLOAD THE CLIMATE DATA



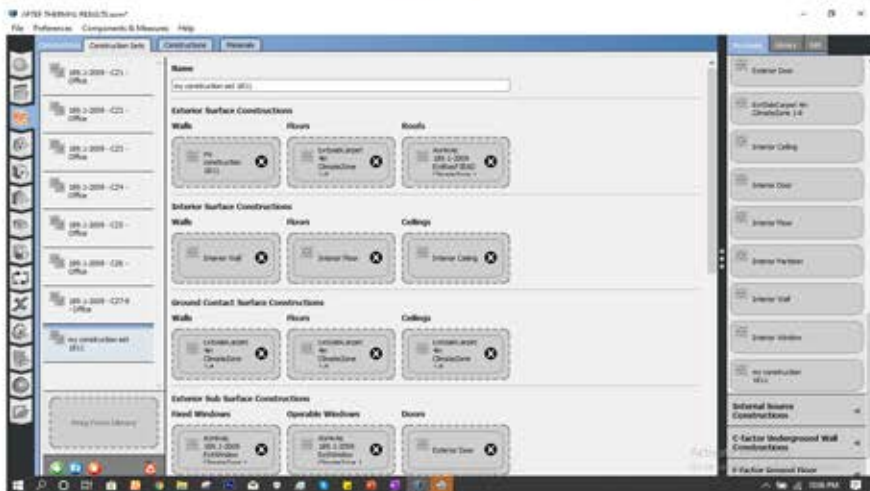
STEP 2: GO TO CONSTRUCTION COMMAND TO CUSTOMIZE THE BUILDING ATTRIBUTES. BEFORE CHANGING THE DEFAULT MATERIALS CREATE A COPY SET AND RENAME IT ACCORDING TO YOUR OWN DESIGN.



STEP 3: CHANGE THE MATERIAL OF THE WALL ACCORDING TO YOUR DESIGN BY CREATING A NEW CONSTRUCTION.



STEP 4: AFTER DUPLICATING THE DEFAULT WALL ADD THE MATERIALS OF YOUR CHOICE BEFORE THAT WE CAN CREATE A MATERIAL OF OUR CHOICE ALSO BY GOING THROUGH THE MATERIAL SECTION.



File Preferences Components & Modules Help

Responses Tools Tutorial Subsurface Material Database Settings

Address: Story: Thermal Zone: Section Type:

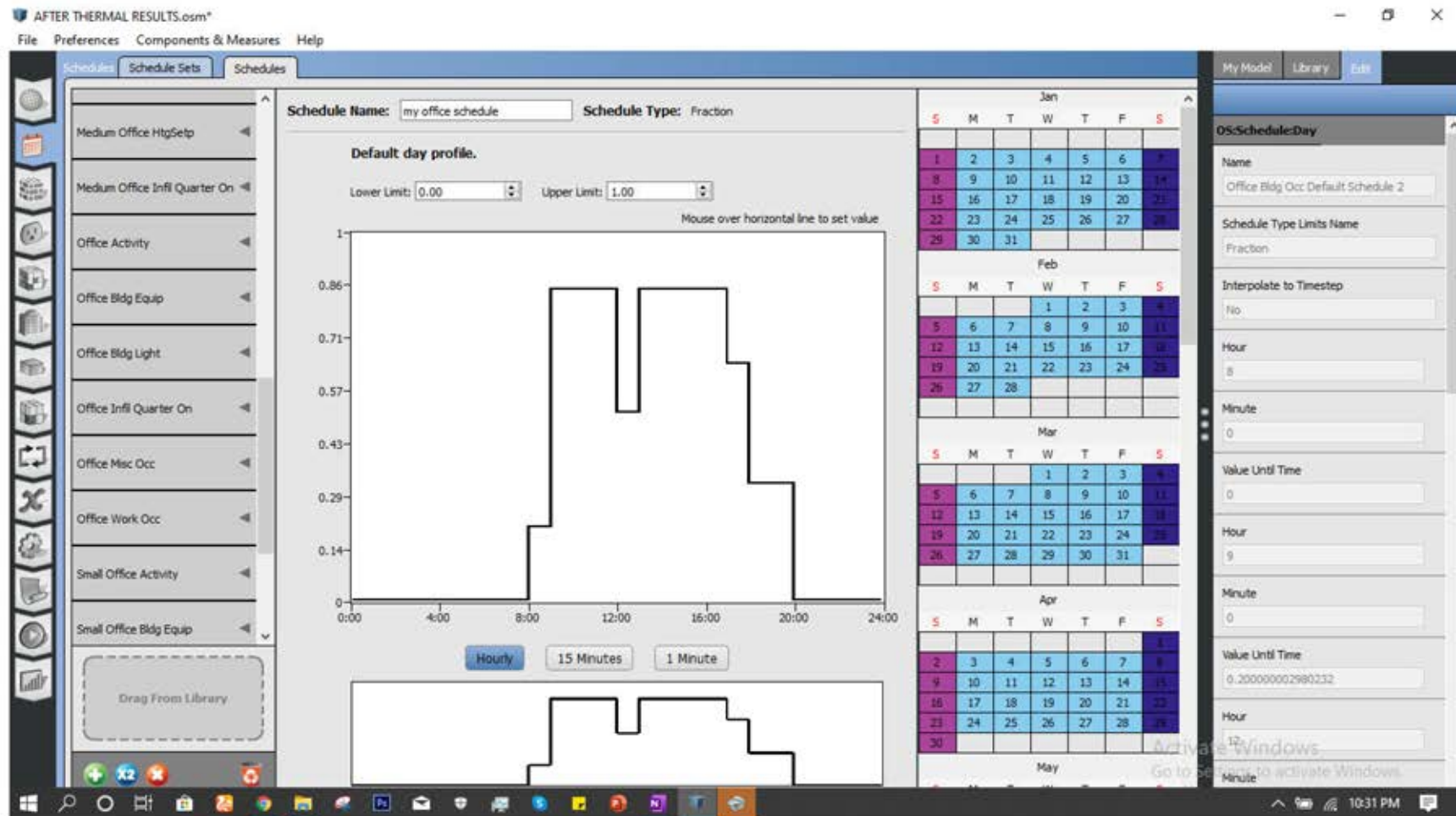
Object Name	id	Item	Thermal Zone	Space Type	Default Construction Set Apply to Selection	Default Schedule Set Apply to Selection	Part of Total Floor Area
Space 001	1	Building Story 1	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 002	2	Building Story 1	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 003	3	Building Story 1	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 004	4	Building Story 1	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 005	5	Building Story 1	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 006	6	Building Story 1	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 007	7	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 008	8	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 009	9	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 010	10	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 011	11	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 012	12	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 013	13	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 014	14	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 015	15	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 016	16	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 017	17	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 018	18	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 019	19	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 020	20	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 021	21	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 022	22	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 023	23	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 024	24	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 025	25	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 026	26	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 027	27	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 028	28	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 029	29	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 030	30	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 031	31	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 032	32	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 033	33	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 034	34	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 035	35	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 036	36	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 037	37	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 038	38	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 039	39	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 040	40	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 041	41	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 042	42	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 043	43	Building Story 2	Thermal Zone 1	HS 1.0000 - Office - Open	No construction (01)	0	1
Space 044	44	Building Story 2					

The screenshot displays the EnergyPlus software interface, specifically the 'Schedules: Equipment' tab. The left-hand pane shows a list of equipment schedules, with 'Office Schedule' selected. The right-hand pane provides a detailed configuration for the selected schedule. The configuration includes a 'Name' field, a 'Default Schedule' dropdown, and various equipment settings categorized by 'Hours of Operation', 'Number of People', 'People Activity', 'Lighting', 'Office Equipment', 'Non Office Equipment', 'Hot Water Equipment', 'Warm Equipment', 'Office Equipment', and 'Substation'. The 'Office Schedule' is configured with a default schedule of 'Office Schedule', a number of people of 1, and various equipment settings.



Pedram Nafisi Poor

Week 7



Pedram Nafisi Poor
Week 7