Submitted by: Nancy Morsy Ismail Aly Saleh

Task 1 Solar Radiation

Solar radiation is electromagnetic energy emitted by the sun from a nuclear fusion. Spectrum of solar radiation is close to that of a black body with a temperature of about 5800 K. The solar radiation that enter the Earth is attenuated both in spectral distribution and in total irradiance due to dispersion and absorption phenomena.

Diffuse and direct beam solar radiation

There are direct beam solar radiation and diffuse solar radiation.

- -> Direct beam solar radiation enters the surface of the Earth direct and undisturbed. It throws sharp shadows and can be focused.
- -> Diffuse solar radiation, is absorbed, scattered, or reflected by dust, water vapor, clouds, pollutants, etc. It doesn't not throw sharp shadows and cannot be focused. The sum of the diffuse and direct beam solar radiation is called global solar radiation.

Absorption of solar radiation

Solar radiation absorption is due to some atmospheric components, especially ozone, water and carbon dioxide.

- -> Stratospheric ozone absorbs all the ultraviolet component of the solar radiation for wavelength less than 0.29 μm ,
- -> Water vapor has important absorption bands in the infrared field, centered at 1.0, 1.4, and 1.8 $\mu m.$
- -> Water and carobon dioxide absorb a lot that over 2.5 μm of the atmosphere becomes practically opaque to solar radiation.

Air Mass

The sun to the zenith crosses the minimum thickness of the atmosphere while the sun with an elevated zenith angle crosses a large thickness of the atmosphere.

Solar radiation density

The maximum yearly average solar radiation density is the solar constant, which is the beam normal spectral irradiance, its value is 1367 W/m2

Solar energy: availability

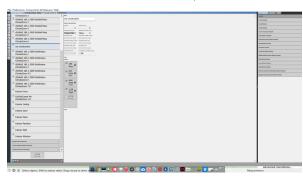
The solar radiation, available on the Earth's surface for conversion in other energy forms, depends on the:

- -> Sun position.
- -> Weather condition.
- -> Site altitude over the sea level.
- -> Daylight hours.

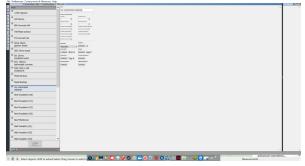
Task 2

I had a problem with the open studio application that it minimizes all the buttons and features so the texts appear cut and the numbers are hidden or incomplete so they don't look in the screenshot like what I inserted.

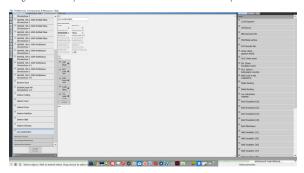
Use the "construction" tab to customize the construction layer of the wall and rename it.



Use the "material" tab to customize the material layer of the wall with the required type of material and insulation.



Drag the material layer customized to the customized construction layer



Insert the wall in the building data.



Go to "space" tab and add the customized construction layer to the whole building.

State State	44	_						3676
300.000	Ĩ	Story of to Select	Thermal Zone (A) to Select	Space Type of to Select	Default Construction Set	Oxfault Schedule Set (N to Select	Part of Total Floor Area	Mark Colons Salar Colons
ace titi		DESIREMAN SANS	294900	2043-2004	SACCIONNE		R	2007000
ace 132		Season Net	Thereon and	3813000	To control			name
ace 132		SUMMOTOR!	3999639	2007.2000	200200000			type belowe
are 104		Studden Mini	Thermal Col	3813386	The complex			Temp No.
ect 135		Service Cont.	COMMUNICATE CO.	3943 3994	Section C			203***
ace 201	-11-	Statement New York	Thermal Col	381,399	'my combout			Substant .
ior 202	-14	SERVICES.	COMMUNICATE CO.	3943-3004	SECONDIC SECONDIC		8	200200
ra 203	- 11	Telefon Viri	Thomas on	2617.2000	The constant			Spense.
ace 204	-10	SERROCCES	District Std.	2003/2000	The control			miles have
or 205	- 11	(Supposition)	Thereof Inc	2003.20097	Tex country.			balance
nor 300	-10	SCHWALLER	DEMONSTRATE OF THE PARTY OF THE	2003.2000	The control		8	20,00
tot 302	-11	Season Sec	Timeres and	2003.20092	Tex country.			STATE OF THE PARTY.
nir 303	- 17	DESERVATION	Transport	2002.2000	Sections		B	NAME AND ADDRESS.
or 304		TREASURE SHIP	TENEROUS PAGE	70857-20897	2002000000			teactons
nir 305		PERMISSION .	Transporter	2005.0000	Sections		E	Contract Name
								DODATION OF THE PROPERTY OF TH

Go to the "schedule" tab.

