Weather Report

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ARCH 633
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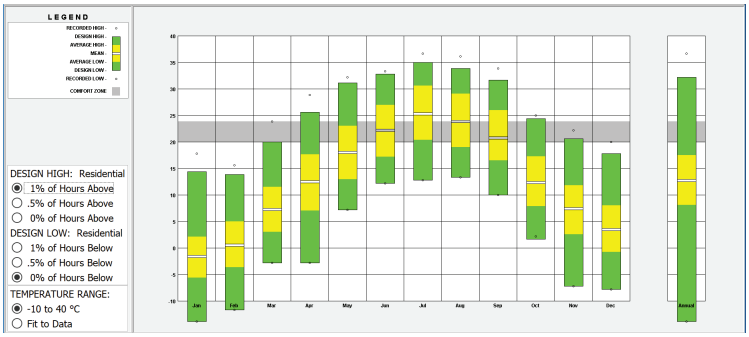
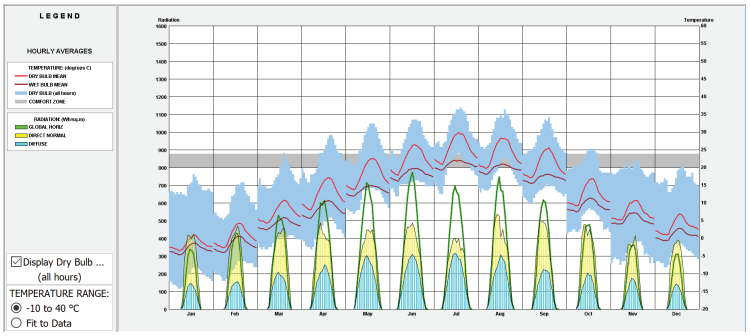
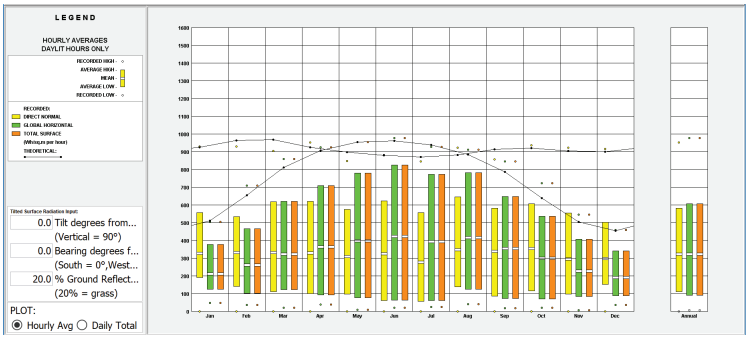
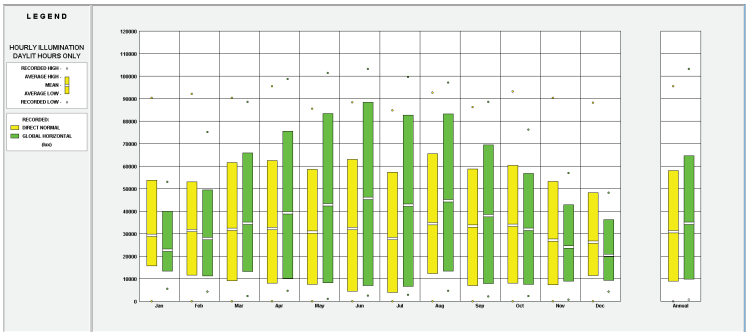
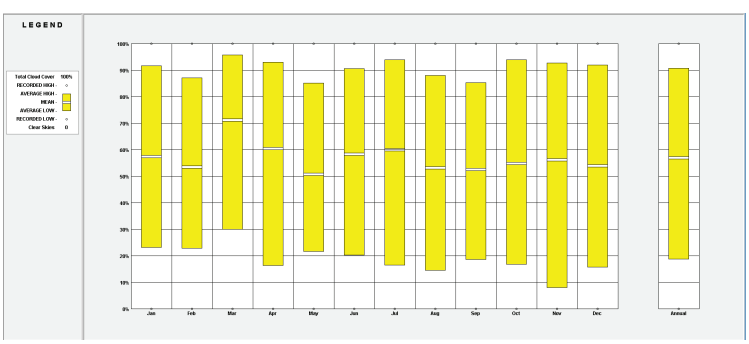
MONTHLY MEANS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Global Horiz Radiation (Avg Hourly)	212	260	323	364	398	422	394	416	354	299	227	191	Wh/sq.m
Direct Normal Radiation (Avg Hourly)	326	332	332	330	310	324	277	346	338	354	295	296	Wh/sq.m
Diffuse Radiation (Avg Hourly)	94	104	137	152	182	187	196	180	145	126	109	90	Wh/sq.m
Global Horiz Radiation (Max Hourly)	505	710	859	924	954	978	928	911	845	722	545	458	Wh/sq.m
Direct Normal Radiation (Max Hourly)	930	930	905	953	847	882	845	923	857	936	923	916	Wh/sq.m
Diffuse Radiation (Max Hourly)	274	361	404	462	454	495	477	453	481	336	286	240	Wh/sq.m
Global Horiz Radiation (Avg Daily Total)	2016	2730	3819	4779	5655	5252	5714	5626	4365	3269	2224	1766	Wh/sq.m
Direct Normal Radiation (Avg Daily Total)	3085	3491	3922	4324	4385	4791	4026	4681	4169	3847	2889	2732	Wh/sq.m
Diffuse Radiation (Avg Daily Total)	902	1082	1622	1994	2603	2775	2851	2447	1788	1382	1073	834	Wh/sq.m
Global Horiz Illumination (Avg Hourly)	2669	3899	4669	5330	2874	5654	2650	4596	3121	1956	4083	0394	lux
Direct Normal Illumination (Avg Hourly)	0342	1402	1978	2382	0664	2309	7804	4524	3358	3695	7124	5246	lux
Dry Bulb Temperature (Avg Monthly)	-1	0	7	12	18	22	25	23	20	12	7	3	degrees C
Dew Point Temperature (Avg Monthly)	-7	-6	0	3	10	15	18	17	14	5	2	-4	degrees C
Relative Humidity (Avg Monthly)	68	59	60	56	64	70	69	70	71	67	72	60	percent
Wind Direction (Monthly Mode)	310	300	300	310	70	240	240	230	0	240	280	300	degrees
Wind Speed (Avg Monthly)	5	3	4	4	3	3	3	4	3	3	4	4	m/s
Ground Temperature (Avg Monthly of 3 Depths)	4	3	4	5	11	15	19	21	20	17	13	8	degrees C

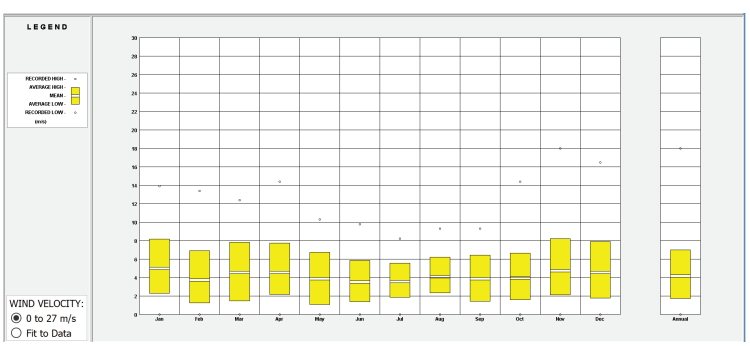


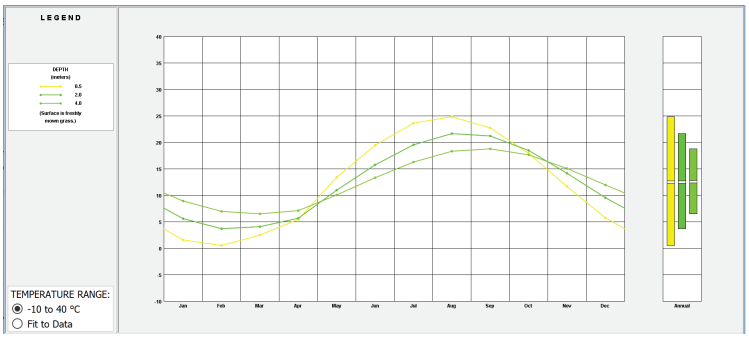


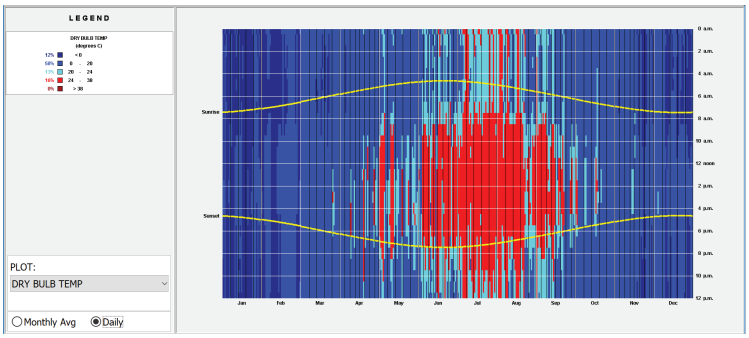


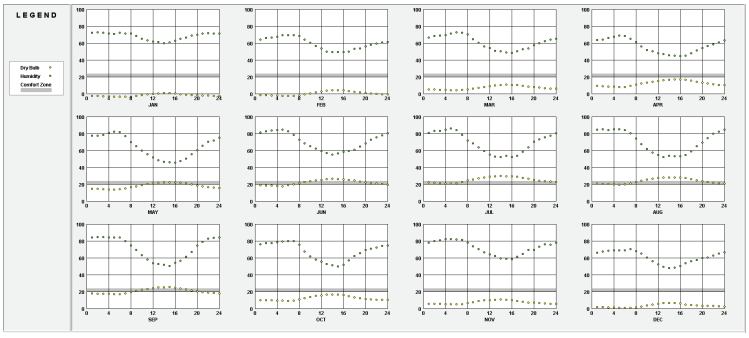


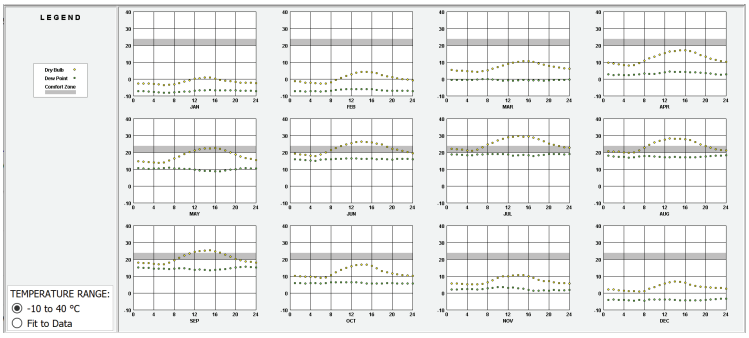


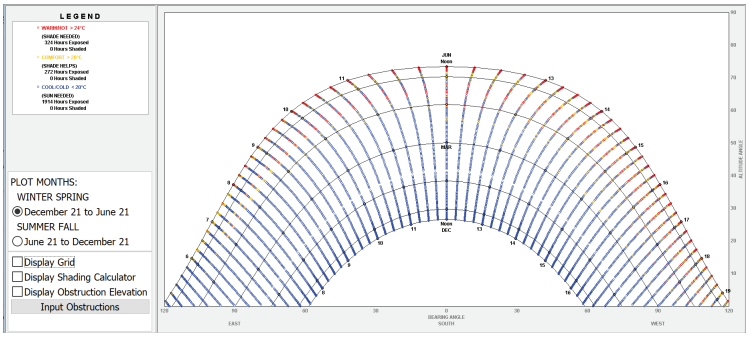


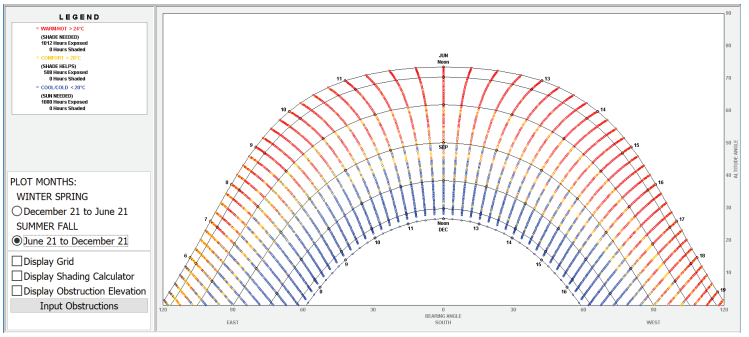


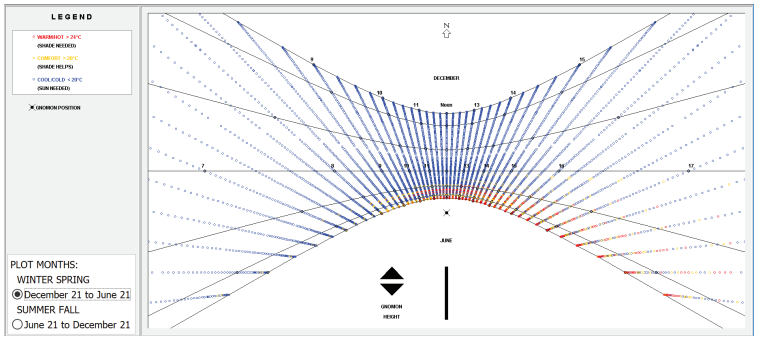


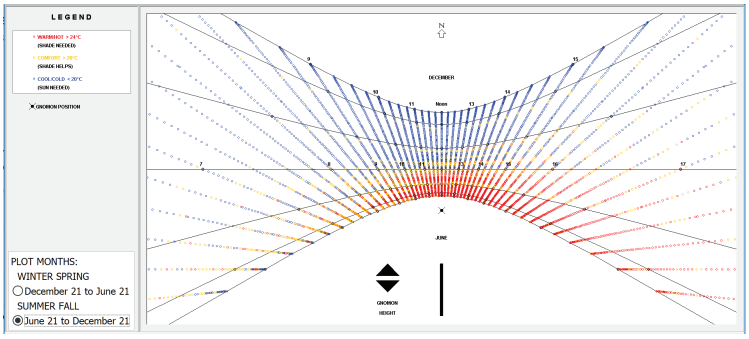












Three Passive Design Strategies

-Passive Cooling/Heating: Sun Shading device that shade the South side, needs to be adjustable due to the changing angle of the sun through out different period of time. Needs to be retractable so passive heating can happen during colder periods. Besides sun ligh, radiation is a huge corncern as well. Certain radiation are helpful and certain are hramful. Uilize the helpful radiation to heat the building and block the harmful radiation to provide cooling.

-Passive Cooling with Natural Ventilation: Wind can be very unreliable, but strong wind of around 5m/s can cool down temperature considerably. If possible do not block wind/air flow. However, should be careful not to put buildins to tight together, arranement matters, as it could create unpleasant wind if not arranged properly.

-Passive Cooling With Trees: Provides the shade needed for to reduce heat stress. Need to be careful to not block and weaken the wind.