

Rayport 430 - 10 Degree Ballast Design

*Based on ASCE 7-05



Project	SUR Energy - Senior Living Center		AET Project No.	14-7182-01	Date	September 26, 2014	
Customer	McNaughton - McKay Electric Co.		Contact		Phone		
Project Address	1015 N. Congress St. Ypsilanti, MI 48197		Wind Speed (mph)	90.0	Building Height (ft)	12.0	
Site Condition	No Topographical Features		Exposure Category	B	Module Tilt Angle	10.0	
			Importance Factor per ASCE7-05 Section 6.5.5	1.00	Seismic, S_s	0.00	
Module Manufacturer	SolarWorld	Model Number	Sunmodule SW 250 mono	Output Rating (watts)	250	Module Weight (lbs)	46.74
Module Length (in)	65.94	Module Width (in)	39.41	Module Height (in)	1.22	Module Area (sf)	18.05

Ballast and Anchor Calculations per ASCE 7-05

V	K_d	I	K_z	K_{zt}	q	G	C_f	A_f	F	F_{normal}	lbs/Panel	F_{vert}	F_{horiz}	$W_{req}/Module$	Blocks/Module	Modules/Bolt	Modules/Lag
90	0.85	1.00	0.70	1.00	12.34	0.85	1.3	-	25.9	4.5	81.2	79.9	14.1	75.0	3	0	0

System BOM

	Qty	Wt. - lbs	Total lbs.
Modules	13	46.7	608
Rails	26	2.9	75
Trays	23	5.6	129
Clamps / Screws	52	0.20	10
Ballast Bricks	54	32.0	1,728
Total System Dead Load (lbs)			2,549
Area - ft²			385
Pounds per Square Foot			6.63

Loading Details

	$W_{req}/Panel$	Modules	Total Wt. (lbs)
Total ballast required per ASCE calculations	75.0	13	974
		Bricks / Tray	Load (psi)*
North Row Tray Requirement		3	7.27
Second Row Tray Requirement		2	5.76
Edge Column Tray Requirement		2	5.76
Second Column Tray Requirement		2	5.76
Remaining Middle Tray Requirement		2	5.76

* **Load** is contact load of ballasted tray to roof surface in pounds per square inch.