Rayport 430 - 10 Degree Ballast Design

Based on ASCE 7-05

Project	**SUR Energy- Corner Health Center ARRAY 2**	*AET Project No.*	**14-7262-01**	*Date*	**September 26, 2014**
Customer	**McNaughton - McKay Electric Co.**	*Contact*	**Mark Ferda**	*Phone*	**(734) 645-6005**
Project Address	**47 North Huron St Ypsilanti, MI**	*Wind Speed (mph)*	**90.0**	*Building Height (ft)*	**30.0**
		Exposure Category	**B**	*Module Tilt Angle*	**10.0**
Site Condition	**No Topographical Features**	*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	5	46.7	234
Rails	10	2.9	29
Trays	11	5.6	62
Clamps / Screws	20	0.20	4
Ballast Bricks	25	**32.0**	800
Total System Dead Load (lbs)			**1,128**
Area - ft ^{2}			**145**
Pounds per Square Foot			**7.81**

Loading Details

	W_{req}/Panel	Modules	Total Wt. (lbs)
Total ballast required per ASCE calculations	75.0	5	375
		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.*