

System Sizing for Residential Use

Step 1 → Determine Watt-hrs/day Energy Use					Step 2 → Determine System Size					
Design Ambient Temp. °F	Refrigerator (38°F)		Freezer (10°F)		Watt-hrs/day Energy Use	Sun-Hours → 3	4	5	6	Battery Size Amp-Hrs @ 12 V
	5.8 cu.ft	8 cu.ft	5.8 cu.ft	8 cu.ft						
	STR165	STR225	STF165	STR225						
70	117	135	407	541	100	63	48	38	32	74
72	124	145	422	559	120	76	57	46	38	89
74	133	157	439	578	140	89	67	53	44	104
76	143	169	459	600	160	102	76	61	51	119
78	155	184	480	623	180	114	86	69	57	133
80	168	199	505	647	200	127	95	76	63	148
82	182	216	531	674	220	140	105	84	70	163
84	198	234	560	702	240	152	114	91	76	178
86	215	253	591	732	260	165	124	99	83	193
88	233	274	625	764	280	178	133	107	89	207
90	253	296	661	797	300	190	143	114	95	222
92	274	320	699	833	350	222	167	133	111	259
94	296	344	739	869	400	254	190	152	127	296
96	320	370	782	908	450	286	214	171	143	333
98	345	398	828	948	500	317	238	190	159	370
100	371	426	875	990	550	349	262	210	175	407
102	399	456	925	1034	600	381	286	229	190	444
104	428	487	977	1080	650	413	310	248	206	481
106	458	520	1032	1127	700	444	333	267	222	519
108	490	554	1089	1176	750	476	357	286	238	556
110	523	589	1148	1227	800	508	381	305	254	593
Battery Sized for 4 days (50% depth of discharge.) The Design Ambient Temperature is the maximum average weekly temperature that the cabinet is expected to operate in. If during a warm week the daily high is 100F and the daily low is 80F, then then design ambient is 90F. Example: STR165- 5.8 cu.ft. refrigerator at 84F = 198 Watt-hrs/day In a 5 sun-hr/day region, you need at least 76 Watts of PV (rated) and a 148 Amp-hr battery (12 V).					850	540	405	324	270	630
					900	571	429	343	286	667
					950	603	452	362	302	704
					1000	635	476	381	317	741
					1050	667	500	400	333	778
					1100	698	524	419	349	815
					1150	730	548	438	365	852
					1200	762	571	457	381	889