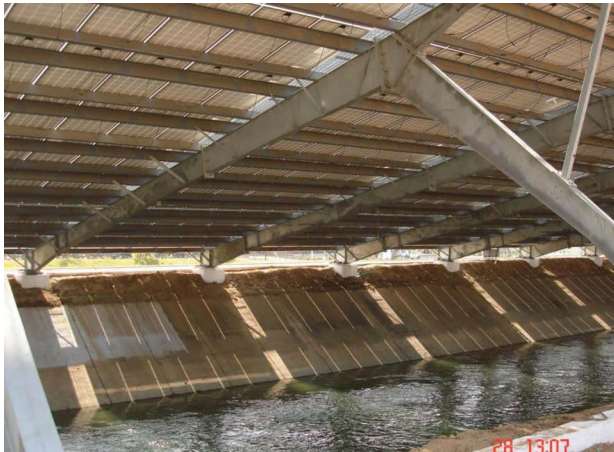


10 MW Capacity Canal Roof Top Solar PV at Vadodara Main Canal

Rafter is in 6 dispatch able pieces to enable ease in Installation, Thus, the total RAFTER weight indicated as 1.5 ton. It is said to be Galvanised and

The C/C of Concrete column along canal length are spaced at 6.5 Mtr.



Each block of 0.5 MW has 24 RCC columns (said to be 20 ft deep, huge cost and time). Obviously the Installations costs are high with life risk (one death already occurred and flown in water below) during Erection and future Panel replacement through roller Cradle with safety belts which are used during weekly water cleaning of PV Panels.

Manufactured by the two companies in Vadodara.

The panels are from TRINA Solar, China, for 300 / 310 wp (7.5 MW), remaining 2.5 MW is from Green Brilliance of 290 wp.

Column C/C of concrete foundation across canal = 21.5 mtr

There are 6 panels x 12 rows, thus, 72 panels per 6.5 m span. Each panel weighs 25 kg.

The Canal cover space below the PV / 518kw = (23 spacings x 6.5) x 21.5 = 3214.5 sq.m : gap of 10m x 21.5m = 210.5 sq.m, thus, for a 1 MW solar PV =

$3214.5 \times 2 + 210.5 = 6739 \text{ sq.m} = 6739 \times 3.3 \times 3.3 = 73388 \text{ sq.ft} / 44000 = 1.7 \text{ Acre} / \text{MW}$. However the land required for the side roads and the Substation shall be extra as applicable. Thus, instead of a ground mounted system which consumes PV array space (including shading etc) of around 4.5 to 5 Acres/MW, but, the Canal Roof top PV system requires only ~ 2 Acres / MW.

There are Two purlins per panels, thus, 24 purlins. The panels are directly bolted to Purlin. Hence, per span of 6.5 mtr, the purlin weight ~ 1.5 ton (assuming the purlin weight of 55 kg/mtr)

Thus for a 24 Rafter (each 1.5 ton) + 23 spacings @ 6.5 mtr with 24 Purlins (1.5 ton/spacing) + Sag rods, cross angles, clampings, bracings + Gratings of ~500 mm width and over 23m long etc = $24 \times 1.5 + 23 \times 1.5 + 1.0 \times 23 = 36 + 34.5 + 23 = 93.5 \text{ ton}$ for 518 kw. However, I am given to understand that the total weight per MW = 160 ton/ MW, thus, for 10 MW = 1600 ton Steel. However, the steel used for barricades etc are not included in this tonnage. ■





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