

## ~~working of flat~~

### Solar Flat collector →

When solar radiation from the sun comes in the form of light to the earth visible sunlight is absorbed on the ground and transformed into heat energy.

### Performance Analysis of Flat Plate Collector :-

#### FIN Efficiency factor ( $F_e$ ) :-

It is defined as the ratio of actual rate of heat transferred to the heat that would be transferred, if entire pipes are at loss temperature.

$$F_e = \frac{Q_{act}}{A_c [(G_0 - I_a) - U_L (T_p - T_a)]}$$

#### Collector Efficiency factor ( $F_c$ ) :-

It is defined as the ratio of useful heat removed by flowing fluid in the tubes to the rate of heat transferred to the fluid,

$$F_c = \frac{Q_c}{A_c [\alpha_0 I_0 - U_L (T_s - T_a)]}$$

Collector Heat Removed factor ( $F_H$ ) :-

$$F_H = \frac{Q_c}{A_c [\alpha_0 I_0 - U_L (T_{s1} - T_a)]}$$

Collector Efficiency :-

$$\eta_c = \frac{Q_c}{A_c I_0}$$

$$\eta_c = F_H A_c [\alpha_0 I_0 - U_L (T_{s1} - T_a)] / A_c I_0$$

$$\eta = \frac{T_{s1} - T_a}{I_0}$$

$$\eta_c = m \eta c$$