

AIR MOVEMENT

THE COOLING EFFECT OF AIR MOVEMENT FOR PEOPLE WEARING LIGHT CLOTHING, ENGAGED IN MEDIUM ACTIVITY

$$T = 6V - V^2$$

T = EFFECTIVE TEMPERATURE DEPRESSION ($^{\circ}\text{C}$)

V = AIR SPEED (m/s)

AIR SPEED SHOULD BE $\longrightarrow 1.5 \text{ m/s}$

EFFECTIVE TEMPERATURE DEPRESSION 5 AND 6.75 $^{\circ}\text{C}$

EVAPORATIVE COOLING

DIRECT EVAPORATION REDUCES THE DRY BULB TEMPERATURE BY CONVERTING SENSIBLE HEAT TO LATENT HEAT.

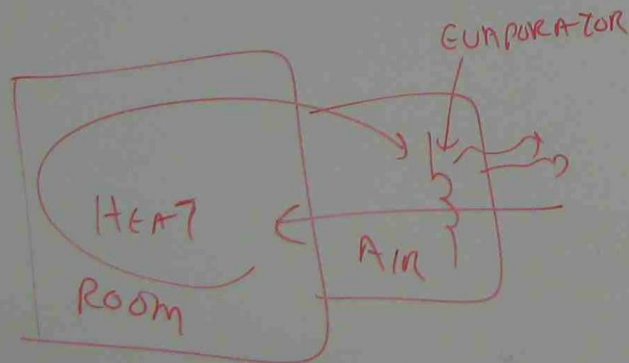
HOWEVER, THIS IS ACCOMPANIED BY AN INCREASE IN HUMIDITY.

EVAPORATIVE COOLING IS MOST EFFECTIVE FOR DRY - HOT REGION.

IT IS LEAST EFFECTIVE IN HIGH TEMPERATURE WITH HIGH HUMIDITY.

TO IMPROVE COOLING → PROVIDE AIR MOVEMENT

→ USE IN DIRECT COOLING SYSTEM TO AVOID INCREASEMENT OF HUMIDITY.



INDIRECT COOLING

DESIGNING THE BUILDING FOR AUSTRALIAN CLIMATE

(GENERAL DESIGN)

- INSULATE CEILING / WALLS IF U VALUE IS TOO HIGH
- WEATHER SEAL EXTERNAL DOOR & WINDOWS
- MINIMIZE WEST AND TO A LESSER EXTENT EAST FACING GLAZING
- PROVIDE APPROPRIATE SHADING FOR ALL NORTH, EAST AND WEST FACING GLAZING
- REFLECTIVE & TINTED GLAZING FOR EAST AND WEST
- PROVIDE APPROPRIATE WINDOW AND DOOR OPENINGS FOR CROSS VENTILATION FOR SUMMER
- PROVIDE SHELTER FROM HOT SUMMER WIND.