FAQs

1. How does usage of fan help in cooling effect?

- The movement of air over the surface of your skin removes heat from a region physiologists call the boundary layer — a warm layer of air that surrounds us at all times.
- By stripping heat from the boundary layer, a ceiling fan makes us feel as if the air in the room is about 4 degrees Fahrenheit cooler.
- Ceiling fans are especially effective cooling fans early or late in the cooling season, when all you need is a slight temperature decrease.

2. Explain the usage of roof space

- Well-ventilated roof spaces (and other non-habitable spaces) play a critical role in passive cooling by providing a buffer zone between internal and external spaces in the most difficult area to shade, the roof.
- Well-ventilated roof spaces form a buffer between internal and external areas.
- Ventilators can reduce the temperature differential across ceiling insulation, increasing its effectiveness by as much as 100%. The use of foil insulation and light coloured roofing limits radiant heat flow into the roof space.
- Use careful detailing to prevent condensation from saturating the ceiling and insulation. Dew-points form where humid air comes into contact with a cooler surface, e.g. the underside of roof sarking or reflective foil insulation cooled by radiation to a clear night sky

3. What is venturi effect?

- The reduction in fluid pressure that results when a fluid flows through a constricted section of pipe. The fluid velocity must increase to allow the same volume of air to

pass through the constricted opening. The Bernoulli Principle explains the inverse relationship between speed and pressure, meaning that this creates a drop in pressure due to the increase in speed.

4. What is Stack effect?

- The molecules of warm air are moving at a faster rate, are more agitated and therefore create more space between these molecules. This means that hot air is less dense than cold air, making this lighter air want to rise relative to cooler air.
- This generates a vertical pressure difference dependent upon the average temperature difference between the column of warm air and the external temperature and the height of the column of warm air. This causes warm air to tend to flow out of opening at the top of the building and draw in air near the ground.

5. How does courtyard help in achieving passive cooling?

- Due to incident solar radiation in a courtyard, the air gets warmer and rises.
- Cool air from the ground level flows through the louvered openings of rooms surrounding a courtyard, thus producing air flow.
- At night, the warm roof surfaces get cooled by convection and radiation.