

APPLICABILITY

This regulation is applicable to all building types. Refer to Table 101.07(1) in Section One - Administration for detailed applicability levels.

IMPLEMENTATION

Energy recovery systems must be provided for all new buildings that require treated outdoor air of over 1,000 l/s.

For Silver B and Silver Sa'fa energy recovery systems must be provided for at least 50% of the total exhaust air and must have at least 70% sensible load recovery efficiency. 70% sensible load recovery effectiveness means that the change in the enthalpy of the outdoor air supply is equal to 70% of the difference between the outdoor air and return air at design conditions.

For Golden Sa'fa energy recovery systems must be provided for at least 60% of the total exhaust air and must have at least 75% sensible load recovery efficiency. For Platinum Sa'fa energy recovery systems must be provided for at least 70% of the total exhaust air and must have at least 80% sensible load recovery efficiency.

The following systems are exempt from complying with this regulation:

- Laboratory fume hood systems
- Systems serving spaces that are not cooled
- Systems exhausting toxic, flammable, paint, or corrosive fumes or dust
- Commercial kitchen hoods used for collecting and removing grease vapours and smoke

There are several commonly used energy recovery systems available. They include rotary air to air enthalpy wheel or heat recovery wheel, cross plate heat exchanger, heat pipe and run around coil recovery system. Systems can be used separately or combinedly to achieve the required efficiency. Alternative technologies for exhaust energy recovery that comply with this regulation can also be pursued by the project team.

Enthalpy wheels or rotary energy wheels or heat recovery wheels consist of revolving cylinder with an air permeable medium between outside air and exhaust airstreams. As the wheel rotates, energy from the exhaust air is transferred to the incoming air, cooling it up. Effectiveness of the enthalpy wheel defines the performance of energy exchangers. Rotary exchangers have a counter flow configuration and normally use small-diameter flow passages. They are quite compact and can achieve high transfer effectiveness. Typical schematic of an enthalpy wheel is given below in fig.502.10(1).

ENTHALPY WHEEL DIAGRAM

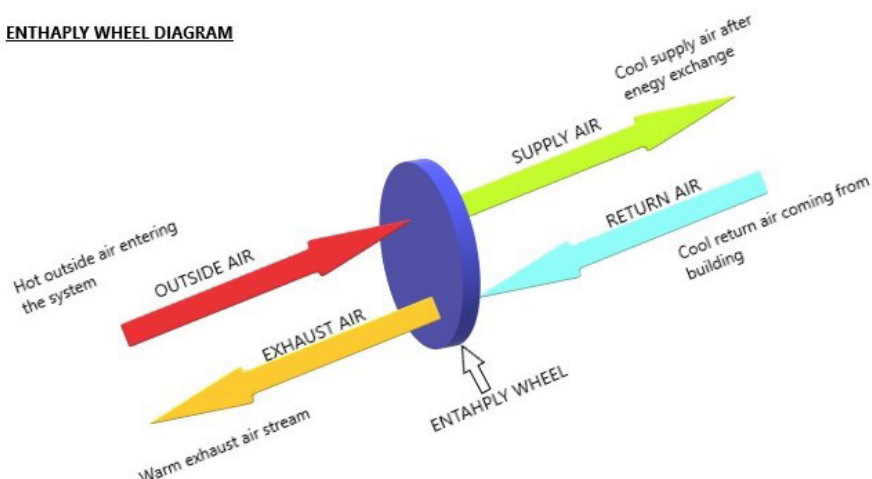


Fig. 502.10(1): Rotary Air to Air Enthalpy Wheel Diagram