

2.5 AIR CONDITIONING SYSTEMS FOR DIFFERENT TYPES OF BUILDINGS

Air conditioning (often referred to as AC, or A/C) is the process of removing heat from the interior of an occupied space, to improve the comfort of occupants. Air conditioning can be used in both domestic and commercial environments

Different Types of Air Conditioner Systems

1. Central Air Conditioning

- It makes use of a large compressor. Two separate packaged units are also used.
- The condensing unit is placed outside the establishment and contains the condensing fan, compressor and condenser coil.
- The internal evaporative unit consisting of the evaporator coil and expansion valve is placed in the plenum of the furnace. This unifies the ductwork of air conditioning and heating systems.
- It is used for large buildings, hotels, movie theatres, factories.

2. Ductless or Mini-Split Air Conditioner

- It is called split system made of two units. One indoor unit, one outdoor unit.
- The indoor unit consists of evaporator and cooling fan.
- Outdoor unit consists of compressor, expansion valve and condenser.
- Split air conditioning systems provide the added convenience of not having to make a specialized slot in the room wall.
- It is used in motels, hotels, apartments.

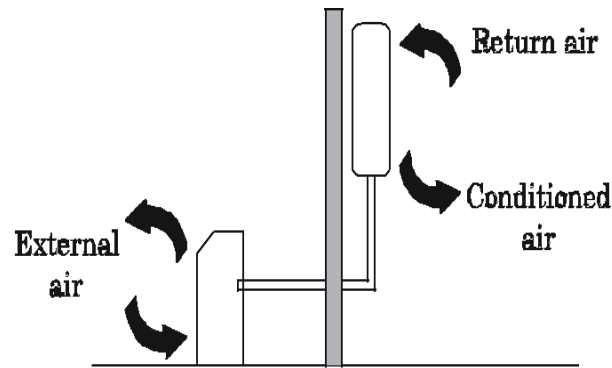


Fig 1.13.1- Mini-Split Air Conditioner

3. Window Air Conditioner or unitary

- It is used for single rooms.
- The single box contains condenser, evaporator, compressor, cooling coil and expansion valve.
- It is fitted in a window sill or slot in the rooms wall
- It blows out cooled air on one end and ejects heat on the other.

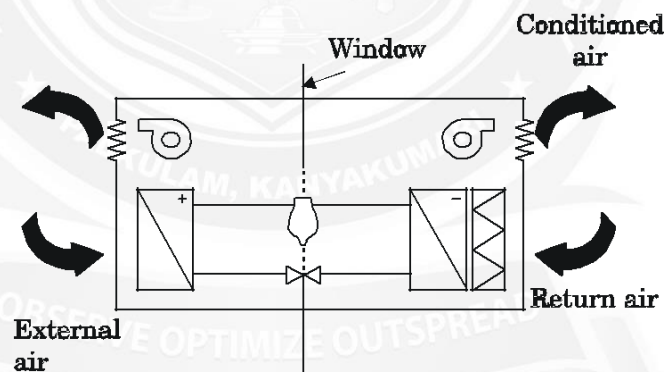


Fig 1.13.2- Window Air Conditioner

4. Portable Air Conditioner

- Variation of the unitary air conditioning system.
- It is a mobile air conditioning system placed on the floor inside a room.
- It discharges exhaust heat through the exterior wall by means of a exhaust hose.

- It can cool even the most stubborn hot rooms.
- It is noisier than other systems.

5. Hybrid Air Conditioners

- Like hybrid cars, hybrid heat pump systems alternate between burning fossil fuels and using electricity to run.
- It chooses between the two energy sources in order to save money and energy.
- In summer, the heat pump works as it normally does, pulling heat from our home and distributing it outdoors.
- In winter, hybrid heat pump system works in reverse, pulling heat from the outside environment and distributing it into our home.

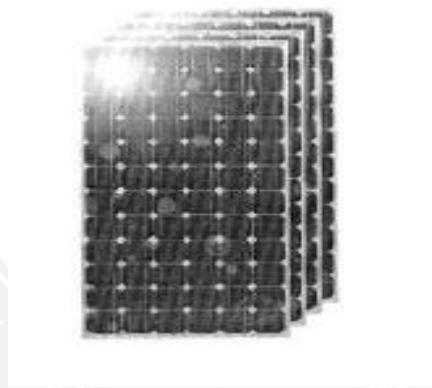


Fig 1.13.3- Hybrid Air Conditioners

OBSERVE OPTIMIZE OUTSPREAD