



# MECHANICAL WORKS



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Mechanical works in the field of construction refer to any process involving the installation of complex or semi-complex equipment in any establishment that requires the presence of a specialized expert for its execution and often requires specific tools to handle small and precise components.

And at Elite we have a skilled team of engineers overseeing the execution of these works.

# Mechanical works usually involve the following stages:

## DESIGN

A pre-construction process where all mechanical requirements of the building are identified. Mechanical components are designed in advance and then installed once on-site.

Mechanical construction requirements are defined, and their design basis is established based on owner requirements, regulations, and standards.

## EXECUTION AND INSTALLATION

This is the stage where the actual construction takes place based on the design. The design is studied, and the work is implemented on-site.

## OPERATION AND MAINTENANCE

it occurs after the completion of the execution stage. The team is required to monitor the building's performance and regular preventive maintenance must be carried out according to requirements.



# OUR SCOPE COVERS HVAC



HVAC stands for Heating, Ventilation, and Air Conditioning. It is a term used to describe the technology and systems involved in providing indoor climate control within buildings. HVAC systems are designed to ensure comfort, maintain air quality, and regulate temperature and humidity levels in residential, commercial, and industrial spaces. The components of HVAC work together to create a controlled and comfortable environment by addressing heating, ventilation, and air conditioning needs. Here at Elite, we offer the following regarding HVAC.

# 1-AIR CONDITIONERS

Air conditioners maintain the room's temperature by either cooling or heating the air, determined by their settings. Additionally, they are engineered to dehumidify the space. When set to cooling, it operates on a fundamental refrigeration principle: a condenser, positioned on the hot side of the air conditioner, extracts heat. This heat is then transferred to the air or to a fluid like water or glycol, removing it from the air that will eventually circulate.



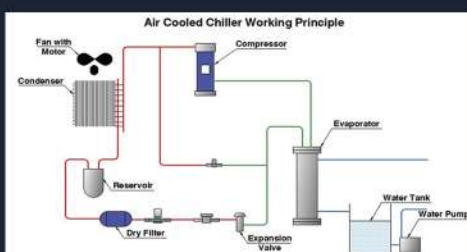
We specialize in the following:

## CHILLERS

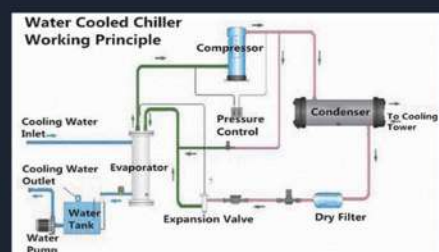
Chillers operate by extracting heat from a liquid using either a vapor-compression or absorption refrigeration cycle. The cooled liquid is then circulated through pipes within a building, passing through coils in air handlers or fan-coil units, contributing to air dehumidification. Chillers are typically categorized as air-cooled or water-cooled. Air-cooled chillers, situated externally, have condenser coils cooled by fan-propelled air.

On the other hand, water-cooled chillers are usually placed internally, with water recycled to a heat sink or an external cooling method. This external method may involve a cooling tower or, in some instances, a water-fed cooling system, known for its efficiency in heat rejection. Chillers are powered by various means, including reciprocating, centrifugal, screw-driven, and absorption types. The first three are driven by electrical motors, steam, or gas turbines, while absorption chillers rely on a heat source such as steam or hot water. Typically, the management of heating and air is overseen by a chiller.

## AIR-COOLED CHILLER

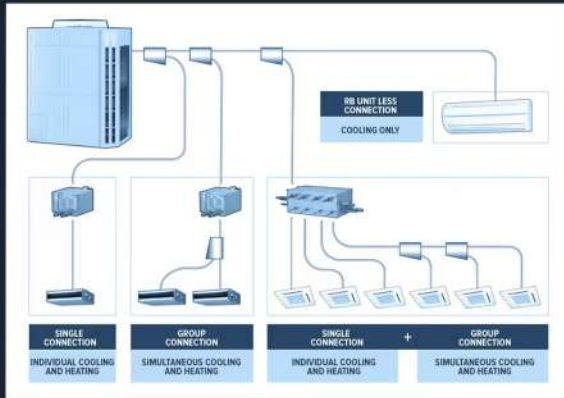


## WATER-COOLED CHILLER



## VRF (VARIABLE REFRIGERANT FLOW)

VRF air conditioning is a type of HVAC (Heating, Ventilation, and Air Conditioning) system that provides individual control of the air conditioning in different zones or rooms within a building. VRF systems use refrigerant as the cooling and heating medium and are known for their energy efficiency, flexibility, and precise temperature control.



## PACKAGED AIR CONDITIONERS

They are either Packaged Air Conditioner (PAC) that combines all components (compressor, condenser, evaporator, and expansion valve) into a single unit. Typically used for smaller commercial spaces and residential applications, or Packaged Terminal Air Conditioner (PTAC) commonly used in hotels, motels, and apartments, PTAC units are installed through the wall and include both heating and cooling functions.



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# 2-VENTILATION

Ventilation refers to the process of providing a continuous exchange of air within a building or a confined space to ensure the removal of pollutants, odors, moisture, and stale air while introducing fresh outdoor air. Ventilation is a critical aspect of building design and construction, influencing both indoor air quality and the overall comfort and well-being of occupants. At Elite we provide the following regarding ventilation:

## EXHAUST FANS

Exhaust fans play a crucial role in the construction field, particularly in enclosed spaces such as construction sites, workshops, and confined work areas. Their importance lies in maintaining a safe and healthy environment for workers by addressing various challenges associated with construction activities.

## PRESSURIZATION FANS

They are devices used to control and manage air pressure within enclosed spaces, such as buildings, construction sites, or confined work areas. These fans play a crucial role in maintaining a safe and comfortable environment for workers while also contributing to the overall efficiency of construction projects.

## SMOKE MANAGEMENT FANS

Often associated with smoke control systems, play a crucial role in the construction field, especially in buildings where fire safety is a top priority. These fans are designed to aid in the control and evacuation of smoke in the event of a fire. They are an integral part of smoke control systems installed in buildings.

## AIR COMPRESSORS

They are vital tools in the construction industry, serving various purposes related to powering pneumatic tools and equipment. These compressors generate compressed air, which is then used to operate tools, inflate tires, and perform other tasks essential to construction projects. One of their important roles is to power pneumatic tools commonly used in construction, such as nail guns, impact wrenches, pneumatic drills, and air hammers. These tools rely on compressed air to perform tasks efficiently.



# PLUMBING AND SANITATION

This includes tanks and fixtures that control the building's water filtration and sanitation like:

## WATER UPPER TANKS:

Elevated water storage tanks are positioned at a higher elevation to ensure a consistent and gravity-driven water supply to buildings or facilities. These tanks play a crucial role in providing a reliable and pressurized water source for various purposes.



## CISTERNS (WATER GROUND STORAGE TANKS):

Cisterns are containers or reservoirs designed to store and hold liquids, with a particular emphasis on storing water. They have been used for centuries as a means of collecting and storing rainwater or other water sources for various purposes. Cisterns can vary in size, shape, and construction materials, and they serve different functions based on their design and usage context.





# FIRE FIGHTING SYSTEMS

Firefighting systems refer to a combination of equipment, devices, and systems designed to detect, control, and extinguish fires in various environments, including buildings, industrial facilities, and outdoor spaces. These systems play a crucial role in protecting lives, property, and the environment. They could include:

## SPRINKLER SYSTEMS



## FIRE HYDRANT



## FIRE ALARM SYSTEM



## FIRE HOSE REEL SYSTEM



# ELEVATORS AND ESCALATORS

At Elite we understand the pivotal role elevators and escalators play in enhancing the overall functionality and accessibility of modern buildings. Our comprehensive construction services include the expert installation, maintenance, and customization of elevators and escalators tailored to the unique needs of each project. Some types include:

- Traction elevators.
- Machine Room-less Elevators.
- Electric AC lift.
- Passenger elevators.
- Elevators for hospitals.
- Heavy-duty freight elevators

