## 5.4 INDUSTRIAL TRUCKS

Trucks are capable of maximum requirements of a construction site. The three main classifications for road truck by weight are light trucks, medium trucks, and heavy trucks.

These trucks and John Deere excavators are known for their powerful performance. The bold movements with heavy loads and moving the heavy items from one to another place have become faster and easier just because of these trucks. Given below are few of the most used truck types in construction.

**Concrete mixer truck:**

Concrete transport trucks (in-transit mixers) are made to mix concrete and transport it to the construction site. They can be charged with dry materials and water, with the mixing occurring during transport. They can also be loaded from a "central mix" plant; with this process the material has already been mixed prior to loading.

The concrete mixing transport truck maintains the material's liquid state through agitation, or turning of the drum, until delivery. The interior of the drum on a concrete mixing truck is fitted with a spiral blade. In one rotational direction, the concrete is pushed deeper into the drum. This is the direction the drum is rotated while the concrete is being transported to the building site. This is known as "charging" the mixer.

When the drum rotates in the other direction, the Archimedes' screw-type arrangement "discharges", or forces the concrete out of the drum. From there it may go onto chutes to guide the viscous concrete directly to the job site. If the truck cannot get close enough to the site to use the chutes, the concrete may be discharged into a concrete pump, connected to a flexible hose, or onto a conveyor belt which can be extended some distance (typically ten or more metres). A pump provides the means to move the material to precise locations, multi-floor

buildings, and other distance-prohibitive locations. Buckets suspended from cranes are also used to place the concrete. The drum is traditionally made of steel but on some newer trucks, fibreglass has been used as a weight reduction measure.

Concrete mixers generally do not travel far from their plant, as the concrete begins to set as soon as it is in the truck. Many contractors require that the concrete be in place within 90 minutes after loading. If the truck breaks down or for some other reason the concrete hardens in the truck, workers may need to enter the barrel with jackhammers.

**Truck cranes:**

Cranes are used to transport loads over variable (horizontal and vertical) paths within a restricted area and when there is insufficient (or intermittent) flow volume such that the use of a conveyor cannot be justified.

Cranes provide more flexibility in movement than conveyors because the loads handled can be more varied with respect to their shape and weight. Cranes provide less flexibility in movement than industrial trucks because they only can operate within a restricted area, though some can operate on a portable base.

Most cranes utilize trolley-and- tracks for horizontal movement and hoists for vertical movement, although manipulators can be used if precise positioning of the load is required. The most common cranes include the jib, bridge, gantry, and stacker cranes.

**Industrial trucks:**

Industrial trucks are trucks that are not licensed to travel on public roads (*commercial trucks* are licensed to travel on public roads. Industrial trucks are used to move materials over variable paths and when there is insufficient (or intermittent) flow volume such that the use of a conveyor cannot be justified.

They provide more flexibility in movement than conveyors and cranes because there are no restrictions on the area covered, and they provide vertical movement if the truck has lifting capabilities. Different types of industrial trucks can be characterized by whether or not they have forks for *handling pallets*, provide *powered* or require manual lifting and travel capabilities, allow the operator to *ride* on the truck or require that the operator walk with the truck during travel, provide load stacking capability, and whether or not they can operate in narrow aisles.

**Dump truck:**

A dump truck, known also as a dumper truck or tipper truck, is used for taking dumps (such as sand, gravel, or demolition waste) for construction as well as coal. A typical dump truck is equipped with an open-box bed, which is hinged at the rear and equipped with hydraulic rams to lift the front, allowing the material in the bed to be deposited ("dumped") on the ground behind the truck at the site of delivery.

Dump trucks come in an assortment of types and configurations, with each designed for use across a variety of different applications, so picking the right one for your project or operation is important.

Popular applications include using articulated dump trucks for civil and mining operations, rigid rear dump trucks for use in tandem with hydraulic excavators in mining, site dumpers and front tippers for use in compact or low capacity operations, track mounted dump truck for operations that require work on sandy, bog, dirt, snow, or muddy terrain, hi rail dump truck for use in railway projects, and underground dump truck for use in both hard-rock and soft-rock underground mining and tunnel construction projects.

**Roll-off trucks:**

A Roll-off has a hoist and subframe, but no body, it carries removable containers.

The container is loaded on the ground, then pulled onto the back of the truck with a winch and cable. The truck goes to the dump site, after it has been dumped the empty container is taken and placed to be loaded or stored.

The hoist is raised and the container slides down the subframe so the rear is on the ground. The container has rollers on the rear and can be moved forward or back until the front of it is lowered onto the ground. The containers are usually open-topped boxes used for rubble and building debris, but rubbish compactor containers are also carried. A newer hook-lift system does the same job, but lifts, lowers, and dumps the container with a boom arrangement instead of a cable and hoist.

**Water truck:**

The control of dust on any construction or industrial site is a concern, and needs to be monitored in order to promote the health and well-being of staff as well as the general public, and to protect the environment.

But dust is seen as an inevitable interruption. With a water truck at your work site, you can minimise the impact of dust by preventing it, and also clearing it, because airborne dust particles can be effectively handled with water solutions.

A Water Truck is a truck designed to collect and then spray water. Water trucks are used in road and other civil construction to suppress dust and/or ensure that the rock or soil being worked by other machinery is at the required moisture content. They are also used for dust suppression on permanently unsealed roads. Builders will need access to high pressure hoses and the best quality water pumps to deliver targeted, efficient water power.

However, these hoses should only be handled by trained professionals, or you run the risk of inflicting unnecessary water damage. Using trained staff also

means that water can be delivered to the site required, with minimum wastage. This has the added benefit of reducing water overflow, to avoid surrounding sites from becoming swamped or dredged in mud.

**Manipulator truck:**

Hydraulic manipulators on mobile machines are predominantly used for excavation and lifting applications at construction sites and for heavy-duty material handling in the forest industry due to their superior power-density and rugged nature. There are many applications for industrial manipulators.

In the adhesives industry, manipulators are used to dump heavy bags into mixers and blenders. In the pharmaceuticals industry, manipulators are used to palletize bags of packaged products for shipment. Manipulators are also used in the chemical industry for dumping bags and palletizing drums.

Printing plants use industrial manipulators to lift signature bundles and feed them into binding machines. Tyre manufacturers use similar systems to lift heavy bales of rubber and synthetic materials onto conveyors that pass through shredding machines.