

DUMP TRUCK SAFETY... HOW THEY WORK AND THEIR HAZARDS

COURSE OUTLINE

- **It's important to fully understand the machines that you're working with before you operate them.**
 - The more you know about how they function, the better you can identify the hazards that you can encounter when using them.
- **Dump trucks are named appropriately.**
 - They are used to transport materials and “dump” them at their destination.
- **They can carry a number of materials, including...**
 - Loose soil.
 - Gravel.
 - Macadam.
 - ... and mulch.
- **Some construction sites also use them for hauling away waste.**
- **Dump trucks reduce the need for manual labor to move these materials.**
 - So they make many tasks much more efficient.
- **There are four main components of a dump truck...**
 - Cab.
 - Dump body.
 - Hydraulic cylinders.
 - Tires.
- **The cab is where you'll find...**
 - The driver's seat.
 - Gauges and controls.
 - Rollover Protective System (ROPS).
 - Falling Object Protective System (FOPS).
- **ROPS and FOPS are reinforcements that are built into the cab.**

- They provide you with protection from falling objects or the impact of a rollover accident.
 - Most are made from steel or aluminum.
- **The dump body is the container at the back of the truck that holds the material that is being transported.**
 - Because it is normally connected to one or more hydraulic cylinders, it can tilt to “dump” the materials it is carrying.
- **Typically, the tires on a dump truck are heavy-duty and able to travel on different types of surfaces.**
 - When they are maintained well, they give the truck traction and stability.
- **Other times, the tires are made for a specific type of terrain.**
 - “Lug tread” tires work best on dirt roads.
 - “Block tread” tires are designed for paved roads that are wet.
 - So you need to make sure your dump truck’s tires are the right type for the work you’ll be doing.
- **You can also add “attachments” to dump trucks to make them more versatile and better fit the needs of your project, such as...**
 - Tarp systems.
 - Tailgate extensions.
 - Sideboards.
 - Bed liners.
 - A snowplow.
 - A “salt spreader”.
- **Each construction project is unique, so no one type of dump truck is best for all of them.**
 - As a result, different types of dump trucks have been developed for different situations.
 - While they all perform similar functions, they each have special features that make them most effective for particular types of projects.
- **Types of dump trucks can include...**
 - Standard dump trucks.
 - “Articulated” dump trucks.
 - “Side-dump” trucks.
 - “Bottom-dump” trucks.
- **The “standard” dump truck is the one you see most often.**

- It uses a hydraulic system to dump materials and is usually found on road building, residential construction, and agricultural projects.
- **Like a “standard” dump truck, an “articulated” dump truck has both a cab and a dump body, and dumps at the back.**
 - But where a “standard” truck has a single frame, an “articulated” truck connects the cab and chassis with a “pivot joint”.
 - This allows the cab and the body to move separately, which can make it easier to maneuver the truck in narrow or tight areas.
- **A “side” dump truck tilts its dump body to the right or left of the truck, rather than behind it.**
 - This can be better for the truck’s overall stability because of its lower center of gravity and the fact that materials are less likely to get “stuck” during the “dumping” process.
 - It also provides the driver with better visibility, since the dump body rotating to the side doesn’t obstruct their view as much as a “standard” dump body does.
- **A “bottom” dump truck also dumps its materials differently from “standard” dump trucks.**
 - Instead of releasing them from the end of the truck, it “dumps” from the bottom, through its “floor”.
 - This lets the truck dump materials in a long line instead of one large pile. It also gives you more control over the flow of material.
- **These are just some of the types of dump trucks that exist.**
 - There are others that are designed for specific environments, such as mining.
 - So before you operate a dump truck, you need to identify what type of truck it is and how it works.
- **Some of the most common dump truck accidents on construction sites are “tip overs”.**
 - When a dump truck overturns, it doesn’t just put the driver in danger, but any workers who are in the vicinity as well.
 - Not only do they have to worry about being hit by the falling truck, they have to avoid its load, too.
- **“Tip over” accidents, also called “rollovers”, happen when a dump truck becomes unstable.**

- This can be affected by slopes, uneven ground conditions, and the truck's speed and load capacity.

- **“Ground conditions” can include debris, potholes, and soft soil.**
 - They can throw a dump truck off balance as it moves through them.
 - So you should always survey the area you’ll be working in before you start to drive.
- **Never rush.**
 - Moving too fast or suddenly can also cause your truck to become unstable, especially when it’s loaded.
- **Operating a dump truck on a slope is especially difficult and puts its stability at risk.**
 - If you need to use one on a slope, leave at least one truck’s length between you and the edge.
- **If your truck does start to tip, do not try to jump from the cab.**
 - More people are killed trying to escape tipping accidents than from the accidents themselves.
 - Instead, make sure your seatbelt is still securely fastened, and stay where you are until help arrives.
- **Understanding a dump truck’s capacity is also very important to keeping it stable.**
- **Dump trucks are rated for three types of capacity, including their...**
 - “Gross Vehicle Weight Rating” (GVWR).
 - “Struck capacity”.
 - “Heaped capacity”.
- **The “Gross Vehicle Weight Rating” (GVWR) is the total maximum operating weight of the dump truck.**
 - It includes the weight of the vehicle itself, its passengers, and its cargo.
 - This number should be in your operator’s manual.
 - Remember, you need to be mindful of your truck’s “empty weight” as well, so you know how much material you can take when you’re loading it.
- **On the other hand, “struck capacity” and “heaped capacity” are volumes that only refer to a dump truck’s load.**
 - The “struck capacity” is the material you can fit in the dump body if the load is completely level.

- **The “heaped capacity” is how much the dump body can hold when the material is piled on top in a “heap”.**
 - This capacity is usually about a third more than the “struck capacity”.
- **You can use “struck capacity” or “heaped capacity” to measure any type of material.**
 - However, “heaped capacity” is typically used for large amounts of light substances, while “struck capacity” is used for denser material.
- **You need to keep these capacities in mind when you are loading a dump truck, not just its weight.**
 - Remember, regardless of the amount of material you’re loading, it should always be distributed evenly in the truck’s bed.
- **There’s no question that using dump trucks can make construction projects more efficient.**
 - But if workers don’t know about the hazards that are associated with
 - operating or working around them, they can make a project more dangerous, too.
- **The National Institute for Occupational Safety and Health found that over the course of a decade, more than 800 construction workers died from dump truck-related injuries.**
- **But by being aware of the hazards that can be encountered when you operate or work around a dump truck, you can...**
 - Avoid accidents and injuries.
 - Save lives.
- **Some of the most common hazards associated with operating a dump truck include...**
 - “Struck-by” accidents.
 - “Crushing”.
 - “Collisions” with other vehicles.
 - “Electrocution”.
- **“Struck-by” accidents occur when a truck’s dump bed or its load hits you or a coworker.**
 - This can lead to serious injuries, and in some cases even be fatal.

- **When you are operating a dump truck, you always need to be aware of your surroundings.**
 - If you spot someone in your path, stop immediately.
 - Don't start moving again until they are completely out of your way.
- **Before you dump your load...**
 - Check your mirrors.
 - Use the "GOAL" (Get Out And Look) method to make sure that no one is behind you.
- **If you are working anywhere near a dump truck, you should...**
 - Wear a high visibility vest.
 - Know where the truck is at all times.
- **The most common "struck-by" injury is when a worker is hit by a load as it's being dumped.**
 - So never stand directly behind a dump truck and stay out of its way until it is completely unloaded.
- **Following these rules can also help you avoid "crushing" accidents.**
 - These occur when you or a coworker are "run over" or "pinned against" something by a dump truck.
 - These can be even more catastrophic than a "struck-by" accident.
- **"Crushing" typically happens when a truck is moving in reverse.**
 - So if you're going to be backing up, always look around you and sound your horn before starting off.
 - You want to make sure your truck's "back-up alarm" is working as well.
- **When a driver isn't paying attention or doesn't have a clear view of their path, it can lead to collisions with other vehicles or structures.**
 - People can usually see a dump truck.
 - But because of their weight they can't always stop quickly in an emergency, especially when they're loaded.
- **So when you're traveling around other equipment, remember that loaded vehicles generally have the right of way.**
 - And always move slowly and carefully through a jobsite.

- **Because dump trucks can be very tall, they can sometimes collide with power lines.**
 - Especially when the dump body is raised.
- **You should always determine where any lines are ahead of time and stay as far away from them as possible.**
 - If the truck you're driving does come in contact with power lines, stay inside.
 - As long as you remain in the cab, the wires can't touch you, so the current will flow through the truck itself.
- **Getting out of the cab could cause the current to change course and flow through you instead.**
 - So stay put, stay calm, and call for help.
 - The only time you should try and get out of the cab is if the dump truck catches fire.
- **If you see a dump truck come in contact with power lines while you're on the ground, do not approach it.**
 - This will only put you at risk, too.
 - Instead, talk to the driver by phone or radio if you can and tell them to stay where they are.
 - Then, call for help.

***** SUMMARY *****

- **Dump trucks are powerful vehicles that are used to haul materials like gravel, mulch and demolition waste on construction sites.**
- **There are many types of dump trucks, including standard, articulated, “side dump” and “bottom dump” trucks.**
- **“Tip over”, “struck-by”, and “crushing” accidents, “collisions” with other vehicles, and “electrocution” are all common dump truck hazards.**
- **Know your truck's capacity, keep it stable, and remain alert at all times while you're operating it.**
- **Now that you know how dump trucks work and the hazards associated with using them, you can keep yourself and your coworkers safe... every time you get behind the wheel.**