# Welcome to the Hard Hat Training Series!

SAFE OPERATIONS

**INTRODUCTION** 

ANATOMY

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ΗΑΤ



HAZARDS

**CONCLUSION** 

CHIP SPREADER

Welcome to the Hard Hat Training Series. Today you will learn about safe operating principles of a chip spreader to help you be a safe operator. Also known as aggregate spreaders, chip spreaders are used to evenly lay down stone chips for road surfacing.

SAFETY

# History of Chip Spreading

The process of using small compacted stones to lay a road originated in Scotland in 1815 under the civil engineer John Loudon McAdam. Originally, this was done by laying sand and stones on the roadbed and spraying them with water. The water would cause the sand to bind the stones in place, creating stronger roads than had previously been possible.

### Did You Know?

The term Tarmac comes from Tar Macadam, named for the creator of this style of paving process, John McAdam.

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Coal tar eventually replaced water as the binding agent, and in the 1920s asphalt was introduced. Then, in 1935, Frederick Melrose Horowhenua Hanson of New Zealand developed the chip seal method, where asphalt was laid down onto the road and then was covered with aggregate by hand. This process was cheaper than other types of road construction, though it had its drawbacks.

Aggregate refers to the small stones used to cover the road surface. These stones vary in type based on where the road is being made. They typically range from <sup>1</sup>/<sub>4</sub> - <sup>1</sup>/<sub>2</sub> an inch in size.

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Image from Carlsbad Paving Pros



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### **Current Process**

In modern road construction, chip spreaders have improved the quality of the road by mechanically laying down even layers of aggregate. Understanding how these machines work and how to safely work around them will help keep you from serious injury on the job site. Consider the following case study.

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### **Case Study**

In 2002, a crew was chip sealing a roadway in Iowa. The chip spreader was traveling over the surface, pulling the dump truck behind them. There were three crew members, one was driving the spreader, one was in the truck, and the third crew member was working the front hopper.

Image from Etnyre





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The employee working the hopper leaned over to correct a problem and lost his balance. He fell off the front of the spreader into the path of the wheels. The chip spreader and the attached dump truck ran over the employee, killing him instantly.

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The employee had worked for the company for over two years already and was considered an experienced worker. However, he failed to maintain a safety minded approach to his work and paid the ultimate price.



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HAZARDS

CONCLUSION

Had he followed a few basic safe practices, he might still be alive today. Understanding how to safely operate and work around a chip spreader will prevent accidents such as the one from the case study from occurring at your site as well.





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As mentioned earlier, our goal today is to help you become a safe chip spreader operator. To do this, today's training will cover the basic anatomy of a chip spreader, as well as how to conduct a proper pre-shift inspection before each use.





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Next, we will go over safe machine operation and what you need to be aware of While operating a chip spreader. You will also learn about the different personal protective equipment (PPE) that you need to stay safe while working with chip spreaders.



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Lastly, we will cover common hazards to watch for when operating a chip spreader and how you should respond to them. To help illustrate the importance of these safety principles, we will also include a few case studies.



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HAZARDS

CONCLUSION





1910.132 – Occupational Safety and Health Standards- Personal Protective Equipment
1910.157 – Portable fire extinguishers
1926.52(a) – Occupational Noise
1926.601 – Motor vehicles
OSH Act of 1970, 5(a)(1): "Each employer shall furnish to each of his employees [...] a prace of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his

STANDARD

These are some of the main standards concerning today's topic. Many states or provinces have additional standards, as do some industries. We have provided these as a guide, but it's your responsibility to know all federal, local, and company rules that apply to your job site.



# Why Training?

No matter the situation, it is common to hear workers and even employers ask, "Where does it state we need to be trained?" Can't a worker also be deemed "qualified" based on experience? The answer is "no." Experience helps, yes, but regulations are very clear that employees must be trained (no matter how long they've been on the job) and that it is the employer who is responsible for overseeing that safety training, ensuring employees have the understanding, knowledge, and skills needed to operate safely.





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#### **CONCLUSION**

Initial training and refresher training, as well as any written and practical evaluations, must be documented and filed. At the very least, employers need proof of proper and consistent training (in the way of training outlines, class lists, training goals, tests, certificates, and so on.) hese documents should include the name of he person who taught the class or conducted the evaluation.



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### WORKERS MUST RECEIVE REFRESHER TRAINING WHEN...



There are changes in their assigned duties.



There are changes regarding potential exposure to hazards, for which the employee has not received training.



If any deficiency has been noted in employee's work performance that related to the safety and health of themselves or other workers.



Note: In some areas, refresher ti

it has occurred, or anythine an injured or nearly injured

required at least every three years (if not sooner).





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CONCLUSION

The extent of training will be determined by the employer. However, at the very least it should include classroom instruction followed by a written and practical examination that proves continued competency.



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SAFE OPERATIONS

HAZARDS

While quick thinking is certainly valuable in any workplace, the best way to ensure safety when operating any heavy machinery is to understand and practice basic safe operations well in advance. That way, you can avoid placing yourself and others in dangerous situations and know how to respond should a hazard arise.









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