

HARD HATS

100 YEARS OF EVOLUTION

1919-2019

Head Protection is Top Priority

There is no shortage of ways to get injured on a construction site, which is why we have so many PPE options. Hard hats are the first line of defense against falling objects, tools and debris, fixed objects such as pipes, and electrical hazards. And there is nothing more important than protecting your head. Hard hats are ubiquitous on jobsites, and everyone working on a construction site, or even visiting, should have the right protection on their heads.

Hard Hat History

Hard hats have been around for over 100 years. Shipbuilders used to cover their hats with tar to harden them and create a layer of protection. These early hard hats protected dock workers from tools and objects falling from ships. Other types of safety style hats were originally made of leather or steel, and in 1919, protective hats were being made of steamed canvas, glue and black paint.

As construction projects grew larger in scope and scale in the 1930s and 1940s—think Hoover Dam, Golden Gate Bridge, New York City high rises—companies began requiring employees to wear hard hats and they became the construction mainstay we know today.

Over the years hard hats have been made of aluminum, fiberglass and plastic; today, most hard hats are composed of polyethylene and include ventilation. There are optional accessories for today's modern hard hats like face shields, ear muffs, visors and perspiration liners, and you can attach lights, music players or two-way radios to many of them. Hard hats have come a long way since the days of pouring a heavy layer of tar over a standard hat. And, they continue to evolve with the development of additional accessories and a shift toward an increased use of safety helmets.

HARD HAT HISTORY



1889 LEATHER MINER'S HAT

E.D. Bullard Company, a U.S. mining equipment company, sells protective hats made of leather



1919 HARD BOILED HAT

Bullard is commissioned by the US Navy to create a shipyard helmet which resembles a WWI "Brodie" (or Doughboy) helmet.



1928 INNER SUSPENSION INVENTED

E.W. Bullard invents an internal suspension device for the Hard-Boiled Hat and applies for a second patent.



1930 SUSPENSION PATENTED

Patent for inner suspension is awarded in 1930. Hard Hats continue to evolve.



1930s HARD HATS ARE MANDATORY

Six Companies, Inc., that built the Hoover Dam and other prominent buildings, including railroads, mandates the use of hard hats which bolsters their use and development.



1938 ALUMINUM HARD HATS

Due to its lighter weight and durability, Aluminum becomes the standard material used in hard hat production.



1940s FIBERGLASS HARD HATS

Fiberglass hard hats are introduced as the best choice for heat-resistance.



1950s PLASTIC HARD HATS

Injection-molded thermoplastic hard hats are produced as a more affordable option than metal or fiberglass.



1962 MSA RELEASES V-GARD DESIGN

The MSA V-Gard helmet is released becoming the standard hard hat shape - still in use today.

Ratings

Like all Personal Protective Equipment (PPE), OSHA regulations require the use of American National Standards Institute (ANSI) compliant head protection (ANSI Z89.1-2014). And OSHA rule (29 C.F.R. 1926.100) states that employers must provide head protection equipment that meets or exceeds the industry consensus standard ANSI Z89.1.

Hard hat classification is referred to by *Type* and *Class*.

There are two types of hard hats:

ANSI Type I:

Protects against blows to the top of the head and meets vertical impact and penetration requirements. These are used mainly in the United States.

ANSI Type II:

Protects against blows to the top and side of the head and meet both vertical and lateral impact and penetration requirements. These are more commonly used in Canada.

The three classes of head protection include:

Class E (electrical) provides protection to withstand 20,000 volts

Class G (general) provides protection to withstand 2,200 volts

Class C (conductive) does not provide protection from electricity

Therefore, a *Type I, Class C* hard hat would be the standard worn by a construction worker not exposed to electrical hazards. An electrician would more than likely wear a *Type 1, Class E* hard hat.

Styles

Hard hats come in a many styles. The two most popular are the Cap style which has a front brim with a rolled edge (allowing water to drain off the bill); and the Full Brim style which is a wider brimmed hat.

Manufacturers recommend against drilling holes or even painting hard hats, as these can degrade the plastic and render the hat less effective. It is ok to slap stickers on them and stickers can sometimes be a form of self-expression on the job site. In a sea of matching Hi-Viz vests and coveralls, sometimes a stand-out hard hat is the best way to differentiate workers.

Accessories

While a stock hard hat may not come with many accessories, there are many add-ons that make typical hard hats more comfortable and effective.

Shields and Visors – Of course shields are necessary for welding and blasting, but they can also affix to a hard hat for protection from chemical spills, potential splashes, or debris. Visors offer protection from UV rays, bright lights, and objects.

Ear Protection – Construction is a loud business. Many hard hats can accommodate the use of ear muffs, which help deaden sound and protect hearing.

Chinstraps – A hard hat doesn't do any good if it falls off during impact or movement. Therefore, chinstraps keep hard hats on heads when workers lean over, reach back, fall, or are struck by an object.

Lights and Lamps – When extra light is needed to do the job, keeping hands free is critical. Headlamps or lights can be mounted to some hard hats.

Liners – It can heat up under a hard hat, so detachable perspiration liners can be inserted that absorb sweat. They can be washed or replaced easily.

Suspension

One thing the old timers didn't have in their hard hats was a suspension system. These days hard hats contain suspension under the plastic that absorbs the force of impact and further protects the worker underneath. The suspension straps sit between the inside of the helmet and the top of the head. They come with either



4, 6 or 8-point suspensions. The number of points represent the connections between the suspension and the shell; the greater number of points maximizes stability and comfort.

Suspensions are adjustable and come in the following three forms:

Ratchet – adjusts by turning a knob in the rear of the suspension

Pin Lock – adjusts by taking off hat and inserting a pin in a corresponding hole

1-Touch – adjusts by squeezing and separating suspension to best fit



The helmets are derived from the ones used in outdoor sports like bike racing, climbing, and skiing; they are also often worn by rescue workers. Safety helmets are being used more and more in construction as they tend to protect workers from side impacts extremely well and they don't fall off easily during impact or a fall. Additionally, many safety helmets are Hi-Viz and can last up to 10 years.

When is it Time to Get a New Hard Hat?

While there are no hard and fast guidelines on when to replace a hard hat, standard hard hats can last up to five years. Accessories like liners, sweatbands and straps should be replaced once a year. Workers who wear hard hats daily should inspect them on a regular basis. Encourage the crew to conduct frequent checks on their own hard hats; checking the straps and suspension for any wear and tear. Suspension systems can and should be replaced when the straps are frayed or damaged.

Hard hats should be inspected prior to every use. Any visible damage (such as dents, cracks, gouges or penetration of the shell) or a failed inspection, warrants the purchase of a new hard hat.

Hard Hat or Safety Helmet?

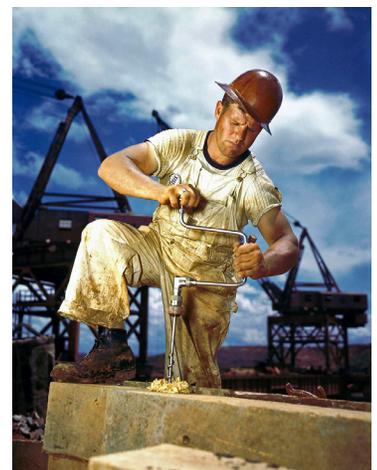
A relatively new development in the staid hard hat game is that some construction companies are starting to use safety helmets instead of traditional hard hats. Safety helmets differ from hard hats in that they attach more closely to the head. They have standard features like inside padding, and adjustable chin straps – designed to provide a snug fit and ensure the helmet stays on during a fall or impact.

It may take some construction workers time to make the switch from the traditional hard hat to the streamlined, tighter fit of the safety helmet. However, when looking at the evolution of the hard hat from its beginning as a hardened tar hat to today, anything is possible.

For more info on hard hat evolution: [Hard hat history and evolution](#)

Had to include this pic. It's just cool.

Construction worker at [Douglas Dam](#), Tennessee (TVA), 1942



To see the online article in our Resource Center: <https://news.whitecap.com/hard-hat-evolution>