



# The Evolution Of Head Protection

Stacey Simmons

# TODAY'S SPEAKER

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# INITIAL HARD HATS FROM 1919

- Over a hundred years ago, the hard hat didn't exist.
- And fifty years ago, head protection wasn't widely required for workers.
  - Since the 1930s, the hard hat has saved thousands of workers' lives. Not until the 1970s when OSHA (Occupational Safety and Health Administration) was formed did wearing a hard hat on worksites become mandatory
- But, thanks to advances in safety, the hard hat has evolved over the decades.
- The original 'Hard Boiled® hat' was manufactured out of steamed canvas, glue, a leather brim, and black paint.



# FIRST DESIGNED HARD HAT SITES AND TRANSFORMING HARD BOILED TO ALUMINUM



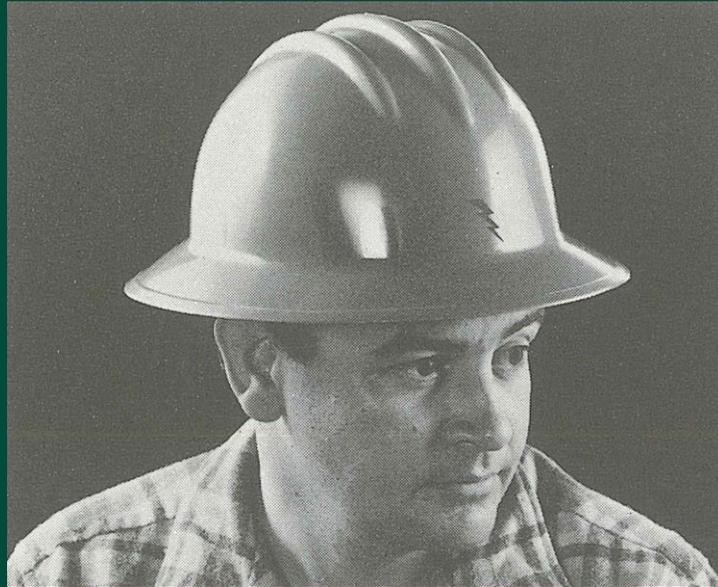
- In the 1930s when construction was underway on the Hoover Dam and the Golden Gate Bridge, two of the most iconic historical construction sites in the history of the United States where hard hats were first worn by workers to protect their heads from falling debris
- From the initial Hard-Boiled hats next in the 1919 and early thirties, the next innovation was in the late 1930s with the aluminum hat.
- While aluminum hat offered greater protection than the original canvas hats as well as light weight the biggest drawback is that aluminum is a great conductor of electricity.

# 1940'S MATERIALS: FIBERGLASS

- In the 1940's fiberglass was introduced as a new material for hard hats.
- The benefit of fiberglass was that it allowed for high-heat applications as well as not as conductive to electricity that aluminum was.
- Fiberglass is still used in a lot of helmet designs today including Fire Helmets, which need to not only meet ANSI/ISEA Z89 head protection standards but NFPA standards for high heat.



# Introduction of Thermoplastics



**1960's Thermoplastic Hat**

- In the 1950's and 1960's, thermoplastics replaced fiberglass because the newer material was less costly and better suited for the applications.
- Today, thermoplastics is the standard material for hard hat construction because it's easy to mold and shape with applied heat.



**1950's Thermoplastic Hat**

# NEW INNOVATIONS

- PPE manufacturers are becoming more innovative in their hard hat designs because workers are demanding **comfort, style and safety** in their hat models.
- Hard hats are designed to meet or exceed the requirements of **ANSI/ISEA Z89.1** standard.
- Changes in hard hat **suspensions and brow pads** are all new choices workers have when choosing the right head protection for their type of work.
- **Vented** hard hats are also newer to the market which allows increase air-flow into the hard hat



Ratchet Suspension  
developed 1982



Cooling brow pad/wicking  
material



Vented Model Hats to allow airflow

# NEW INNOVATIONS

Other enhancements to the hard hat include **customization** for branding a Company's safety message, and **colors** to easily identify key personnel on job sites.



# STAYING VISIBLE ON THE JOB SITE

- Workers' hard hats can also be used to help them stay visible while on the worksite. **Low visibility is a danger** for anyone working outside from dusk to dawn. Hard hat manufacturers offer several high-visibility options for workers to choose from.
- If your hard hat is a high-visibility color, prolonged daylight exposure can fade the cap's color and thereby compromise a worker's visibility and safety. **Ultraviolet rays degrade colorants**, so hard hats should not be stored in direct sunlight when not in use.
- Striping on a hard hat is another way to increase visibility. By using striping that is reflective and/or fluorescent in color, hard hats can provide enhanced worker visibility. To achieve improved retro reflectance, **use striping with a high CPL number**. To achieve 360-degree reflectivity, add striping all the way around the brim of your hard hat.



# NEWEST HEAD PROTECTION DESIGNS/INNOVATIONS



- Hard Hats with **see-through visor** allow wearers to see overhead hazards with 50% increase in peripheral vision versus other full brim hard hats
- **Safety Helmets** also known as “climbing style helmets” have recently come over to the industrial head protection space.
- Safety Helmets typically use **different suspension material** such as the use of foam instead of normal nylon strap suspension system, which allows the helmet to sit lower on the wearer’s head and usually comes with an integrated chin strap for workers at heights.

THANK YOU FOR JOINING US!

# QUESTIONS & ANSWERS

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