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**New OSHA Approved Safety Cap**  
for Metal Hazards other than  
rebar on Construction Sites

# Summary or Abstract

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**When a construction company requires its employees to work at any height right above any exposed metal brackets, rebar, or flat nail stakes, an employer must deploy preventive and protective measures against impalement hazards.**

However, as per OSHA, fall prevention and protection become necessary even when metal stakes and column post brackets are below grade, for example, excavations, footings, or pathways.

If there is a chance that an employee may fall into a trench or trip over a protruding metal, presenting an impalement hazard, the construction company must cover it up via a safety cap for metal hazard.

Impalement exposure and other associated hazards depend on several conditions and situations such as proximity between the worker and the metal hazard, height of the metal stakes and column post brackets, etc.

For example, working around a metal bracket or flat nail stake of 3 to 6 feet height will least likely pose an impalement hazard. However, they may still cause cuts, abrasions, or other injuries.

**The OSHA standard 29 CFR 1926.701(b)** states that all protruding reinforcing metal, steel, brackets, and flat nail stakes into and onto which a worker can fall, must be guarded or covered to eliminate the impalement hazard.

The emphasis here is on the elimination of hazards associated with the protruding metal. Employers must always consider and prevent their employees, especially when their workers have to work right above metal stakes, column post brackets, and other sharp metallic protrusions.

Rebar caps or safety caps for metal hazards are a common preventive solution used on construction sites. However, they have to be compliant and approved by the Occupational Safety and Health Administration (OSHA).

Most importantly, there are no commercially viable products available for metal column brackets and probably a couple of substandard plastic solutions available for the metal stakes.

Construction companies must ensure that all personnel, labor organizations, and contractors understand 29 CFR 1926.701(b) and fulfill the requirement to use OSHA compliant Safety Caps.

**OSHA Standard 1926.701(b) states:**

**“Reinforcing steel. All protruding reinforcing steel, onto and into which employees could fall, shall be guarded to eliminate the hazard of impalement.”**



# Introduction to Current Safety Caps for Metal Hazards Available in the Market



As if falling is not a hazard in itself, tripping or falling onto a protruding metal bracket or stake can turn into a battle of survival and, at worst, fatal. Rebar or safety caps can help protect falling construction workers from a life-threatening impaling incident due to protruding metal stakes and column post brackets on the concrete surface.

## How to Cover Metal Stakes and Column Post Brackets?



Rebar caps come in all shapes and sizes to cover the rebar; however, there is no commercially available cap or cover in the market to cover the protruding column post brackets or metal stakes.

That said - construction companies can use these safety caps to comply with ANSI, OSHA, and other local regulatory codes such as CAL OSHA Section 1712.

Most safety caps use plastic material and fit on top of rebar and/or brackets to blunt the edge. This somewhat reduces the risks of construction workers falling and experiencing a severe life-threatening injury or the possibility of impaling themselves on the exposed metal protrusion.



# Metal Brackets, Stakes, and Associated Safety and Hazards

# 61

Protruding reinforcement bars are a common occurrence and part of any civil concrete working site. This subsequently makes rebar safety an extremely crucial issue. In addition to the more common instances of rebar are **metal hazards “other than rebar”** like column base post brackets and metal forming stakes.

## 2 Common Accidents

There are two types of common accidents or injuries associated with metal stakes and column post brackets: **abrasions and impalements.**

There are several other associated hazards when working in close proximity to metal stakes, brackets, and rebar. These are injuring oneself by brushing up against an exposed metal hazard and causing cuts, abrasions or lacerations.

Even if a worker just stumbles over unguarded protruding metal stakes and column post brackets just below their knee level, they could impale themselves, **resulting in severe internal injury or even death.**

OSHA 2012 stats showed that 61 percent of deaths on construction sites were due to impalement accidents. However, after all the safety and precautionary measures, several impalement associated incidents still see the day of the light now and then around the country and globe.

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# How to Avoid Hazards caused by Metal Stakes and Column Post Brackets



## Here are some ways for construction employers to prevent metal hazards such as:

- Strictly limit any access of unauthorized personnel to a work area with exposed metal frame, metal stakes, column post brackets, rebar cages, and protruding metallic bars - even if they use safety caps to cover the brackets and flat nail stakes.
- Employers must provide appropriate fall protection/prevention when employees perform any task at any height above the exposed metallic stakes and column post brackets. OSHA approved safety caps are the best and first line of defense against such accidents.
- Guarding all protruding endings of metal with rebar or safety caps is a must.
- It is advisable to bend rebars so expose ends are not in an upright position. But this can still create hazards to employees. It is not advisable to bend column base post brackets as this could compromise the integrity of the metal.





# What is a Safety Cap for Metal Hazards?

**A** safety cap is a protective cover used over the exposed ends of a metallic bar or bracket protruding from a concrete surface. They prevent injuries caused by sharp edges and ends of metallic rebar. However, not all safety caps and guards offer the same level of protection.

There have been incidents where the force of a fall caused metal rebar to push through the plastic safety cap and still impaled the worker. There have been reports where workers were impaled by a safety cap and rebar together.

Thus, OSHA only recommends rebar or safety caps specifically designed to prevent and provide protection against impalement. Safety caps with steel reinforcement are the best solution to protect workers on construction sites against such occurrences.

# Current Designs or Solutions

There are various designs currently in circulation, but they have their shortcomings. Here is a brief discussion on what safety caps are in circulation and their associated drawbacks.

## Mushroom Style Safety Caps

The mushroom style safety cap is commonly circulating in the market. However, these caps are not sufficient to prevent or eliminate impalement hazards. Why? They do not have any reinforcement plates.

Moreover, recent tests indicate that standard mushroom styled plastic safety caps "ARE NOT" adequate to protect workers from impalement, even if someone falls from a three foot height.

Manufacturers of mushroom-shaped safety caps agree that these covers are only designed to protect from scratches, and they were never intended to prevent impalement.

...standard mushroom styled plastic safety caps "ARE NOT" adequate to protect workers from impalement

## Wooden Troughs/ Caps

These are 2" x 4" wooden caps and/or troughs and are an effective solution to cover exposed metal brackets and bars. However, **they are not an official solution**; engineers design these troughs on the site as per the requirement of a construction site.

## Carnie Safety Caps

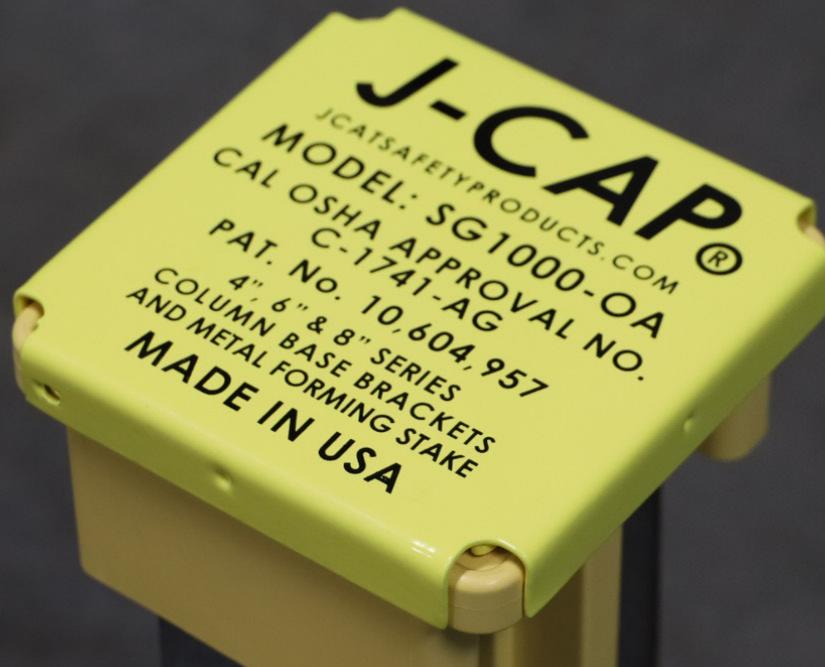
Another popular solution in the market to cover exposed or protruding metal bars and brackets - Carnie caps do reduce injuries and impalement incidents.

**However, they are not foolproof** because the arrangement is such where two caps are placed eight feet apart with a wooden plank fixed between the caps.

The wooden plank covers the tips of all the protruding metallic tips between the two caps. Hence, it is not the caps, but the strength of the plank, whether it can break the fall of the worker to prevent impalement.

## Bending the Stakes

Many construction sites practice bending the exposed rebars to avoid abrasion injuries and impalement accidents. The idea behind bending is to ensure that no sharp or flat exposed end of a metallic bar remains in an upright position.



## Are all Safety Caps for Metal Hazards OSHA Approved?

Construction employers must rectify the danger associated with protruding metal brackets and rebar. To do so, they need to comply with the standards of the United States' Occupational Safety and Health Administration (OSHA) and use rebar covers, also known as safety caps or rebar caps.

It is important to note that using a rebar cover or safety cap is not enough. Construction sites must take every other precautionary measure to prevent slip, trip, and fall hazards. Incidents have been reported, where the sheer force of the fall pushed the rebar cap clearly through the metallic bar impaling the falling personnel nonetheless.

To avoid such horrific and life-threatening incidents at a worksite, construction companies must use safety caps with a design tested and approved by OSHA.

Once again, it is imperative and critical to note that there is only one commercially viable solutions available in the market for safety against hazards related to metal stakes and column post brackets. the J-CAP® Safety Cover by J-CAT Safety Products, Inc.

**Construction companies must use safety caps with a design approved by OSHA.**

# What is the OSHA Standard for Safety Caps for Metal Hazards?

**A** memo by Occupational Standard and Health Administration in 1997 addressed the issues about the use of plastic rebar and safety caps. The memo focused on the pre-requisites mentioned in 29 CFR 1926.7019(b).

The provision instructs construction sites that they must cover all protruding metallic brackets and rebars. This is compulsory to guard their employees if they fall into or onto the sharp or blunt exposed metal stakes and brackets.

Moreover, this does not apply to only metallic rods or brackets coming off the concrete ground. Even if these protrusions are coming out sideways from the walls or edges of a building, they need to be covered to avoid any abrasion incidents.

When it comes to evaluating a construction site for safety, the critical element is the identification and recognition of any impalement hazards and the chances of exposure to the workers on site.

It is also imperative to remember that conditions and activities during construction can change rapidly and constantly. Thus, construction employers and

contractors must remain on top of things and adopt a protective measure to avoid any element of hazards associated with exposed or protruding metallic bars, brackets, and stakes.

There is another section 1926.25 in OSHA's regulatory guidelines and general duty clause. It requires construction employers and contractors to protect their employees from hazards associated with other sharp protruding objects other than metal.

The section 1926.25(a) – (housekeeping) emphasizes on impalement hazards from protruding nails to debris and scrap lumber. The employers must keep their construction sites compliant to eradicate these

hazards as much as possible.

Other impalement hazards that are not addressed by the above-mentioned section, the General Duty Clause – Section 5(a) (1) of the Occupational Safety and Health Act (OSHA) requires all construction



employers and contractors to protect their worksite.

This means all construction sites must be free from all recognized health and safety hazards that may or most likely cause a serious physical injury or death.





# How to Assess the Effectiveness of an Impalement Protection Device

There are defined parameters that can help construction employers to gauge the usefulness of an impalement device such as safety caps. While OSHA does not endorse any specific product, each product must pass OSHA's rigorous testing requirements to finally be approved.

It is also a matter of common sense and expertise, where an employer must assess the working conditions on a construction site. The construction sites must refrain from using substandard or inappropriate safety products that could easily create hazardous conditions for the workers on the construction site.

That said – where appropriate, OSHA tries to offer on-going guidance to construction contractors and employers. It helps them assess whether a certain safety product such as safety caps is appropriate for the use and offer protection to the workers as required by OSHA standards.

In a memorandum back in January 1997, OSHA stated that they would consider a protective device (such as safety caps or covers) for rebars to be appropriate if they can withstand at least 250 lbs. dropped from a 10 foot height.

OSHA considers this as a standard performance criterion for every protection device for protruding metallic brackets, rebar and stakes.

As a responsible employer, every construction company or contractor must gauge the safety caps they are currently using.

Certain substandard safety caps are circulating in the market; they are just the replica of the original counterparts. Once again, safety cap for metal brackets and rebars need to be OSHA approved and fulfill certain requirements to be deemed safe and appropriate for use on construction sites.



Watch the video at:  
<https://qr.go.page.link/vjPKW>



# OSHA Fines Contractors and Employers for Impalement Hazards

**Did you know that OSHA fines all contractors and employers who fail to comply with the health and safety regulations to protect their employees against metal hazards caused by metal stakes and column post brackets?**

Yes – OSHA holds all construction site contractors, owners, and employers accountable to ensure and eliminate any and all metallic abrasion and impalement hazards due to metal stakes and column post brackets.

Here is a full breakdown of the penalty OSHA imposes on non-compliant construction site owners and contractors.

- A single willful citation against a contractor failing to provide protection from falls will cost a contractor **\$56,000**.
- Employers can expect to see more **six-figure penalties** in 2020 as a result of OSHA's new enforcement weighting system that emphasizes inspections for four construction industry hazards. The updated weighting system now prioritizes inspections for fall hazards, caught-in or between hazards, electrical hazards, and struck-by hazards.
- Construction related penalties have seen an increase in egregious willful, repeat, and serious workplace safety violations with citations for fall hazards resulting in some of OSHA's largest penalties. These are preventable injuries and penalties with proper **fall protection systems** in place. As six-figure penalties continue from OSHA, protect your workers and financial position by ensuring you have implemented compliant and reliable **fall protection solutions**.



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**A single willful citation against a contractor failing to provide protection from falls will cost a contractor **\$56,000.****

# Need for a Viable and Effective Solution against Metal Stakes and Column Post Brackets



Have you heard the old saying, ‘Better a thousand times careful than once dead?’

Government safety authorities and the construction workplace safety sector have been on the lookout for a viable and effective solution that can offer protection against impalement hazards caused by metal stakes and column post brackets.

They have been looking for a product that can prevent impalement incidents if a 250 lb. person falls from a height of 10 feet. This search has been going for almost 15 years. J-CAT Safety Products, Inc. started in early 2019 to research, engineer and obtain OSHA approval and patents in order to provide correct and necessary safety caps.

J-CAT even managed to secure a design patent on what is now **OSHA's only approved solution** for protection against above grade impalement hazards from metal forming concrete stakes and column post brackets.

“Better a thousand times careful than once dead?”



# Why J-CAT's Safety Cap for Metal Hazards

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J-CAT realized there was no protection available against protruding metal stakes, column post brackets, and steel-related hazards on construction sites.

The only solutions currently available in the market are for rebar.

## Why?

Well, manufacturers continue to ignore finding protective solutions against abrasions and impalements caused by metal stakes and column post brackets.

At the moment, there are two regulatory levels or standards for protective products against impalement and abrasion injuries, i.e., Cal-OSHA and OSHA Federally. Cal-OSHA holds the highest standards when it comes to the requirement for safety against impalement incidents.

These requirements apply to all manufactured protective covers claiming to prevent incidents at or above grade level.

## 1. Above Grade Level Protection Covers

All protective cover solutions must be able to withstand the impact of 250 lbs. of weight falling from a height of 10 feet without penetrations. Failure to stop the penetration deems the product as a failure.

## 2. At Grade Level Protective Covers

Construction sites must use protective covers that meet the requirement of subsection (d) (4) (D) where the maximum height of the working platform exceeds 7 ½ feet. If the protection cover does not comply with the subsections mentioned, contractors must abstain from using them.



**“All protective cover solutions must be able to withstand the impact of 250 lbs. of weight falling from a height of 10 feet without penetrations.”**

# The Current Scenario

To date, the only OSHA approved devices, covers, or solutions that comply with the above-mentioned standards for above-grade and at grade level is the J-CAP® Safety Cover.

The most prevalent non-qualified solution available in the construction industry against the problem are makeshift custom-built contraptions made from either wood or other materials. All of these solutions are non-compliant with OSHA's and Cal-OSHA's above grade requirements.

As of January 2019, OSHA indicated that it would start imposing the required safety standards against metal hazards on construction sites. Failure to comply will cost contractors and construction site owners' hefty penalties and citations.



## The idea behind J-CAT's Safety Products

J-CAT started with solutions for homeowners for the protection of their family members and for the construction industry concerned with the health and safety of their workers. J-CAT's solutions provide protection against injuries related to abrasions, lacerations, and impalement by metal hazards at unfinished construction sites. The **SG-1000BG** (Brush guard) provides a lower cost solution for at-grade hazards for homeowners and residential contractors.

In order to address the hazards in the commercial construction sector, J-CAT realized that there were no protective solutions available against metal hazards other than rebar. Hence, came the development of the **SG-1000OA** (OSHA Approved) safety cover. This cover uses the plastic housing patented design of the brush guard, with an additional level of protection using 12 gauge steel with a 4" x 4" AR400 steel plate that is the same steel used to stop bullets. This metal will not allow anything to penetrate it.



# The SWOT Analysis of the Products

A SWOT analysis, also known as SWOT matrix, is a technique for strategic planning used by organizations to identify the strength, weaknesses, opportunities, and threats related to their products, projects, and competition.

## Here is a SWOT analysis of J-CAT's products:

### Strengths

The timing of these new products entering the market could not be better, as it gives all three products a competitive advantage. Currently, there are no OSHA approved products to prevent impalement hazards against metal stakes and column post brackets, except for J-CAT's solution.

SG-1000OA meets OSHA's standards and has withstood their rigorous testing against metal hazards such as abrasion and impalement. The products are effective against all above grade level falling incidents on column-base post brackets.

### Opportunity

The approval and certification by OSHA propelled J-CAT to the forefront of the manufacturers. The company is offering a long-needed solution of OSHA approved safety caps for metal hazards on construction sites.

It is not a home-built solution but a commercially viable solution against hazards associated with abrasions and impalement due to metal stakes, column post brackets, and other protruding steel objects on constructive job sites.

There is a huge demand for a safety cap that will provide protection against impalement from falls above grade level height.

### Weakness

Although new to the niche, J-CAT is on its way to establishing itself as a reputable provider of safety products in the construction industry. Being new, the company needs to educate construction safety managers and contractors of the new products available to help minimize risks to their employees on construction job sites.

### Threats

The competition is fierce in the current market when it comes to supplying construction supplies for protection. Most competitors are already industry giants with decades of history and established supply chains and capital behind them. Why they never bothered to engineer and provide a proper safety product for the industry is unknown.

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# Overview of J-CAT's Patented OSHA Approved Safety Caps

J-CAT introduces two safety caps to cover metal stakes and column post brackets for both at-grade level and above-grade level protection. Here is a quick breakdown of each of the three products.

## J-CAP® SG1000-OA

This is a multipurpose OSHA approved safety cap that provides above grade level protection for workers at construction job sites. This is a universal post-column safety cap/cover with a design that protects construction workers as per OSHA's protection requirement.

The device is compliant with OSHA standards to protect construction workers against abrasions, and impalements caused by above grade level falls, i.e., falling from up to 10 feet.

Moreover, the cap offers protection against scrapes, cuts, and lacerations from most post-column brackets as well as metal concrete forming stakes.

### Some of the features include:

- It is the only safety cap compliant to Cal-OSHA and OSHA's highest impalement protection standards.
- Offers multipurpose uses
- Robust, durable and reusable so long as there is no damage to the cap.
- Easy visibility due to bright color
- Covers posts brackets with measurements of 4" x 4", 4" x 6", 6" x 6", 6" x 8", and 8" x 8".
- Covers metal nail concrete forming stakes
- Protects workers from impaling themselves from up to 10 feet with a weight of up to 250 lbs.



## J-CAP® SG1000-BG

SG1000-BG is a multipurpose brush guard safety cap for protection against at grade level metal hazards associated with post-column brackets as well as metal concrete forming stakes.

This device is a universal post-column safety cover with a design that protects workers against scrapes, cuts, and impalements. The SG1000-BG covers the most widely used post-column brackets and metal concrete forming stakes.

It effectively limits any harm caused by trips and falls at up to 7 ½ feet or at grade level. The product is commonly viable for residential construction contractors and residential consumer market, looking for a cost-effective protection safety cap for metal hazards.

### SG1000-BG's features include:

- Suitable for residential use to prevent injuries caused due to brushing up against protruding metal
- It comes with UV protection quality, which guarantees a longer lifespan in the outdoors
- Has a lightweight, compact, and robust design that offers great durability
- Easily visible due to bright-colored material
- The cap can cover a wide range of post brackets such as 4x4, 4x6, 6x6, 6x8, 8x8
- It covers flat metal nails and stakes protruding from the concrete
- Effectively protects against lacerations while rectifying the risk of impalement against a fall from up to 5 feet.



# Why J-CAT over other Competitors?

Although there are two other competitors in the market offering safety caps for construction job sites, they fall short in several arenas that J-CAT excels in.

Here is a quick review of why J-CAT safety caps are one of a kind niche products offering protection against impalement hazards posed by post-column brackets and metal concrete forming stakes.

Safety Cap Types	J-CAT Safety Products	Dayton Superior	Deslauriers
Rebar OSHA at grade level		✓	✓
Rebar OSHA Above grade level		✓	✓
Metal Forming Stake at-grade	✓		✓
Metal Forming Stake above grade OSHA Approved	✓		
Post Column Base at grade	✓		
Post Column Base above grade OSHA Approved	✓		



# Cost of Deploying J-CAT Safety Caps vs. Paying Penalties Assessed by OSHA



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The construction managers and contractors may ask why they should go through the hassle of adding costs of deployment for J-CAT safety caps to their construction sites. Especially when they already have safety caps and covers in their inventory.

## The answers to this are simple.

1. OSHA will enforce usage of safety caps that are OSHA approved and existing safety caps in the market do not fulfill that pre-requisite. J-CAT is the only manufacturer in the market, offering OSHA approved solutions.
2. There are no viable or OSHA approved solutions available for protection against fall over post-column brackets and metal concrete forming stakes other than J-CAT's safety caps.

The last and the most important reason construction site owners, managers, and contractors must opt for deploying J-CAT solutions is the cost.

1. This is going to be a onetime investment as the caps are reusable
2. Most importantly, failing to comply with deploying OSHA approved safety caps will result in penalties and fines of up to \$78,500 or more (proposed by OSHA)





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## Conclusion

For all the construction site owners, managers, and contractors, the time has come to deploy OSHA and Cal-OSHA approved safety cap solutions to your job sites. This is where J-CAT safety products come in as the only OSHA approved safety caps for metal hazards caused by post-column brackets and metal concrete forming stakes.

Be a responsible contractor and secure the wellbeing of your construction workers. It is highly recommended to stay compliant with the rules and regulations of the Occupational Safety and Health Administration (OSHA).



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