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Health and Safety in the Construction Industry

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Abstract: ***The aim of this research is to give a general overview of the current status of health and safety in the construction industry. Health is the process of protecting the minds and bodies of people against illness as a result of the mishandling of materials, procedures and processes involved in the workplace. Safety involves the process of protecting people against physical injury. Health and safety are normally used together to show worry for the mental and physical health of the individuals at work The health and safety is an issue to all organizations across all Industries. Health and safety is specifically significant and crucial for the construction industry. It is the most dangerous industries in the nation. Research on this thesis is based on a general overview of health and safety in the construction industry, highlighting on a strategic approach to dealing with three major issues with regards to health and safety in the construction industry.***

Keywords: Health and safety, organization, construction, industry, management, accidents, projects.

I. INTRODUCTION

Health and safety is very important to all areas in the building and construction industry. It has always been onsidered very important as it is considered to be a greatly exposed sector when it comes to occupational accidents. Indeed, improvements have been made in health and safety performance in some aspects of the construction industry, very little attention has been given to how the process of procurement impacts within the industry, with underlying themes of financial and legal liabilities and accountability for accidents. This has been seen in most countries – the reality is that the construction industry continually has injury and fatality statistics that make it one of the most dangerous industries in which to work predominantly, and how these statistics bear up within the organisational culture. Cutting corners, to deliver a project on time and to forego any relevant health and safety legislation, indeed to win a contract illegally, In view of this and as a result of the increasing number of accidents, the development and publication of standards and good engineering practices based on experience and codes started. safety problems appear to be everywhere. Consequently health and safety can be improved by addressing construction problems in many different ways as it reflects the common threat that binds the global research efforts in construction safety. Fig.1 shows safety in all construction industry.

II. SCOPE OF THE STUDY

A. To improve general health and safety standards construction industry.
B. To improve better relationships between client, contractor and stakeholder.
C. To understand and increase better knowledge of strategic decision making in construction projects.
D. To understand and increase better knowledge of financial and legal implications with construction accidents.
E. To understand and increase better knowledge of cost effectiveness.

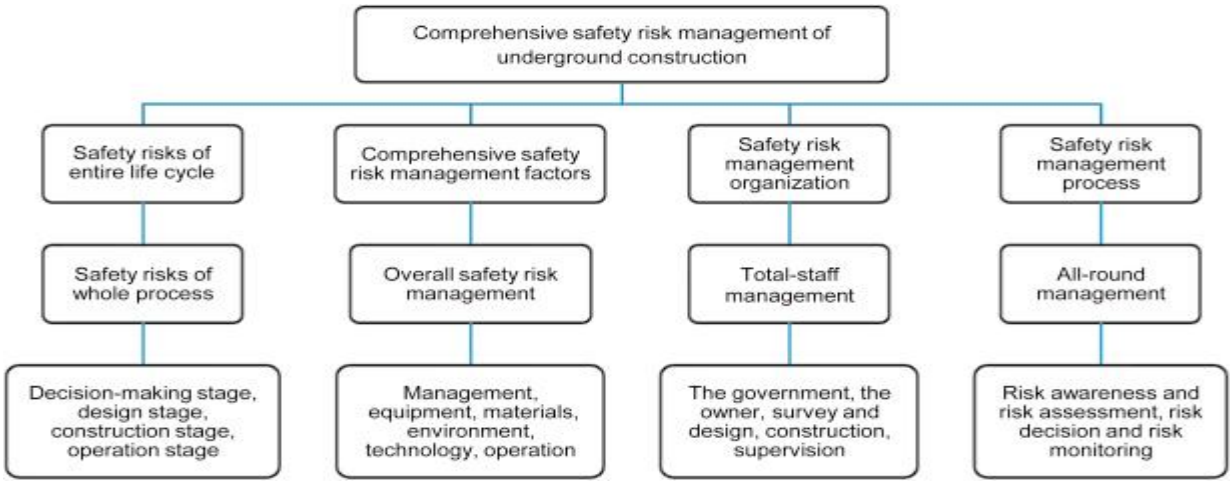


Fig. 1 Safety in all management

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III. SAFETY TECHNIQUES TO PREVENT ACCIDENTS.

The hazards covered in this section are the following:

1) Fall Hazards, including fall prevention, ladders, and scaffolding.
2) Falling/Flying Objects
3) Electrical Hazards
4) Machine and Power Tool Hazards
5) Sun and High Temperatures
6) Traffic Hazards

A. *Fall Hazards*

Falls are the leading cause of deaths in the construction industry. Falls from as little as 4 to 6 feet can cause serious accidents and sometimes death. Three ways to protect yourself against falls are:

1) Personal fall arrest system,
2) Guardrails,
3) Safety Net

The personal fall arrest system includes a harness, anchorage, and line.
A scaffold is an elevated, temporary work platform. Employees working on scaffolds are exposed to these hazards:
Falls from elevation – caused by slipping, unsafe access, and the lack of fall protection • Struck by falling tools / debris •

B. *Electrical Hazards*

Electric shocks can cause muscular spasms that can cause someone to fall resulting in fractures and other injuries. Electricity that travels through your body can cause imbalances or shaking of the heart (fibrillation) that can lead to a respiratory failure or a heart attack. In addition to physical harm, electricity can cause other dangers. High electrical arcs caused by short-circuits can destroy equipment and expel metal fragments. Low energy electrical arcs can cause fires and explosions in atmospheres that contain gas, vapors or flammable powders. Electrical arcs can also generate intense ultraviolet radiation which can cause eye injuries.
How can you protect yourself?

1) Always assume that all aerial cables are energized (live) at fatal voltages.
2) Never think that you can safely touch a wire, even if it's not being used or if it seems isolated.
3) Never touch an electrical energy line that has fallen. Call an electrical service company to report fallen electrical energy lines.
4) Stay at least 10 feet (3 meters) away from aerial cable during maintenance or other activities. If you are working high up on scaffolding or on a ladder or you are managing large objects, before starting your work you should check for the presence of aerial cables.
5) Do not use an extension cord which has had the third (ground) plug cut off.

C. *Machine and Power Tool Hazards*

Workers using hand and power tools may be exposed to these hazards: objects that fall, fly, are abrasive, or splash harmful dusts, fumes, mists, vapors, and gases frayed or damaged electrical cords, hazardous connections and improper grounding
Basic Machine Safety

1) Maintain regularly
2) Use right tool for the job Inspect before use Operate according to manufacturers' instructions
3) Use the right personal protective equipment (PPE)
4) Use guards

D. *Sun and High Temperatures*

Protection against the Sun: The sun contains ultraviolet radiation (UV) that can cause premature aging of the skin, cataracts and skin cancer. The amount of harm that can be caused by UV exposure depends on the intensity of the sun's rays, the duration of exposure and if the skin is protected. There is no such thing as safe UV rays or safe sun tans, so you should know how to protect yourself against the dangers caused by the sun.

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1) *Cover Yourself:* Use tightly woven clothing to block sun rays. Try this trick: Place your hand between the layer of clothing and the light. If you can see you hand through the clothing, your clothing offers very little protection from the sun's rays.
2) *Use Sun Block:* The Sun Protection Factor (SPF) of at least 15 SPF blocks up to 93% of UV rays. You need to block both UVA and UVB rays to protect yourself from skin cancer. Make sure you follow the application directions on the bottle.
3) *Use a Hat:* A hat with a wide brim (this does not mean a baseball cap) is the best because it protects you neck, ears, eyes, forehead, nose and scalp.
4) *Use Sunglasses that absorb UV Rays:* Sunglasses don't have to be expensive but do have to block 99 to 100% of UVA and UVB radiation. Make sure the sunglasses you purchase protect you from both UVA and UVB radiation.
5) *Limit your Exposure Time:* UV rays are at their most intense between 10 a.m. and 4 p.m. If you are not sure about the intensity of the sun, do the shadow test: If your shadow is shorter than you, the sun's rays are too strong.
6) *High Temperatures:* The combination of heat and humidity can cause serious harm to your health during the summer months. If you work outdoors you increase the possibility of suffering from heat exposure. The following are ways you can protect yourself from the heat:
7) Frequently drink small amounts of water.
8) Use light colored, loose clothing that breathes easily - cotton is a good example.
9) Take many, short breaks in a fresh, shaded area.
10) Eat small meals before working. Avoid caffeine and alcohol or large quantities of sugar.

E. Vehicle Hazards

Workers are more likely to be injured or killed in work incidents that include vehicles than in many other work-related incidents. The following are examples of the most documented injuries or deaths caused by automobiles in the workplace. Accident Reports: A worker dies at an intersection - A worker was working near a busy intersection when he was hit by a car. The driver of the car said he did not see the worker. The work site was not well lit or not properly signaled, and the worker was not using proper safety equipment or bright clothing. The worker died on the scene. A worker is run over by a truck - A worker was standing in a busy loading area with many trucks. A driver did not see him and backed up and ran the worker over. The worker was killed. A worker dies falling out of a truck - Two workers were on their way home in the back of a coworker's pick-up truck. One of the workers that was riding in the back fell and hit his head on the floor. The worker was killed. A worker dies while working on a median - A worker was hit and killed by a car while he worked on a median. Police found safety vests, traffic signals and safety cones in the truck that the worker did not use.

How to protect from vehicle hazards-

1) Use traffic signs that are visible, command attention, clearly explain the work being done, command respect from drivers and provides enough time for drivers to react.
2) When driving cars/trucks in loading areas, make sure there aren't any workers nearby or behind the vehicle and make sure to warn others that you are moving.
3) You should never transport workers in a pick-up truck's cargo area.
4) Avoid deaths by fall! When working in medians, make sure to protect yourself and your fellow workers.
5) Use bright clothing, safety vests, warning signs and safety cones.
6) All equipment, vehicles and materials should be well stored, far from traffic to avoid collision.
7) Remove all warning signs once you've finished the job for the day or when you've completed the project.
8) Even though every work assignment is different, the goal for all should be to carry out your work in the safest manner with the most minimal interruption for traffic.

IV. CONCLUSIONS

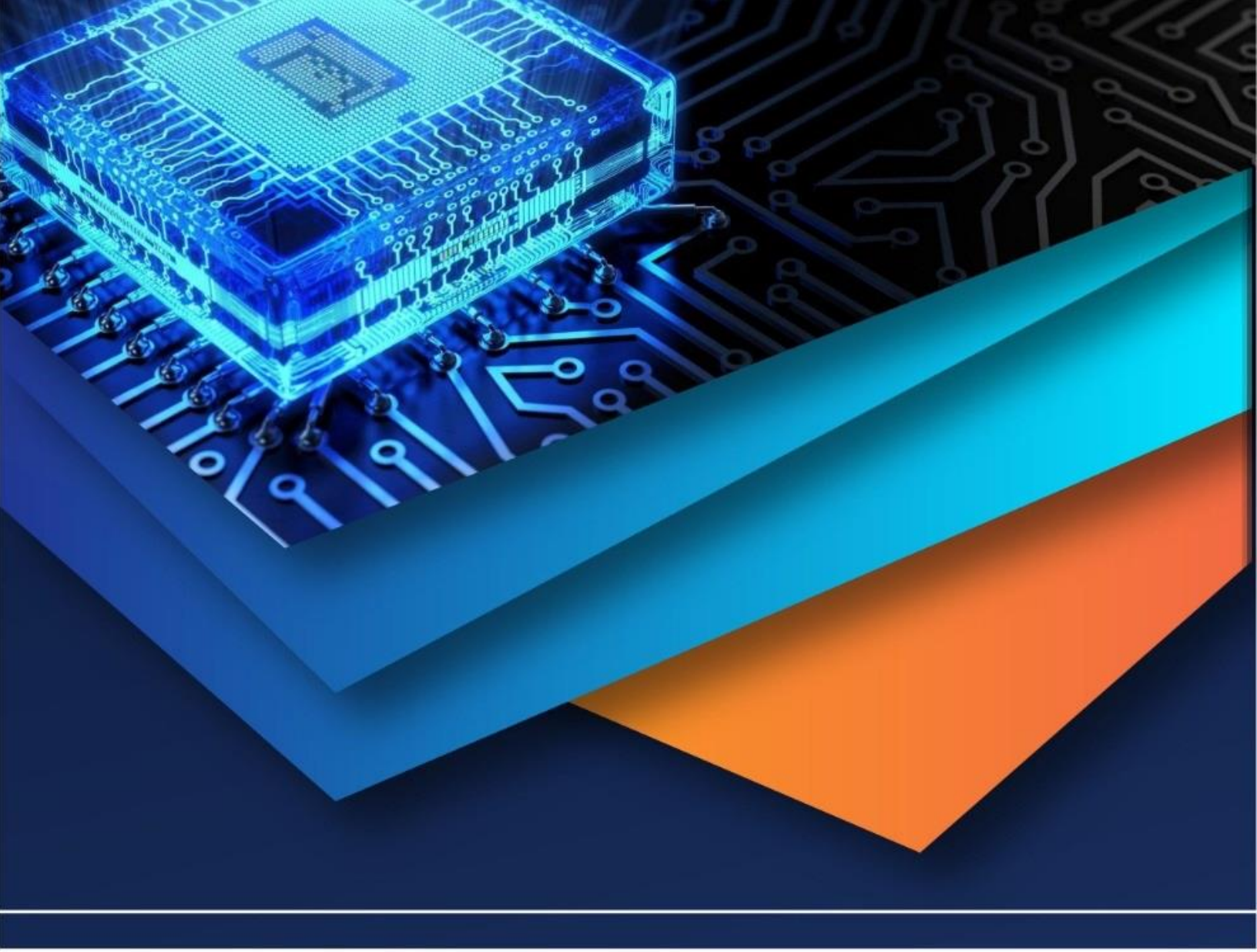
This paper shows the how to work in construction industry and how to protect from all hazards. The research and collection of all results has shown that work has been undertaken as concerns health and safety in the construction. A health and safety contingent within the construction industry is a very important one, as it protects the client, employee, contractor, sub-contractor and customer from any harmful or indeed any legal eventuality.

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