

EVALUATION OF HEALTH AND SAFETY INSPECTIONS IN THE CONSTRUCTION INDUSTRY

GEORGIA C. SAVVA, ELIA A. TANTELE, and RENOS A. VOTSIS

*Dept of Civil Engineering and Geomatics, Cyprus University of Technology, Limassol,
Cyprus*

Safe and healthy working conditions are a legal obligation in most countries. They can also serve as an investment in a healthy business that can lead to positive economic effects. Accidents at work and occupational diseases are neither predetermined nor unavoidable - they always have causes, which are preventable in many cases. International research on the return on investments in prevention proves that every euro invested in safety and health generates a potential benefit of more than two euros in positive economic effects. By building a strong prevention culture, these causes can be eliminated and work-related accidents and occupational diseases are prevented. In this paper, the Health and Safety (H&S) guidelines along their practical approaches of the Construction Sector in Cyprus are presented and evaluated. The applied methodology for the evaluation of the current H&S state is also presented. Through the evaluation, suggestions for future improvements are presented and discussed.

Keywords: Vision Zero, Checklists, Regulations, Occupational hazards.

1 INTRODUCTION

At the beginning of the new decade, the construction industry in Cyprus is going through a huge change since complicated structures and skyscrapers are appearing day by day in every cities' skyline. Even though for the engineering part the required knowledge is adequate, the culture in the construction industry is far behind.

In the past few decades, the construction industry in Cyprus encountered many difficulties, especially during and after the economic crisis of 2013. This reduced the construction working activities and naturally led to a decrease in occupational accidents. In the national efforts to overcome the crisis, the construction industry had a major role, with new large projects and investments starting to emerge. This required many new workers that were employed in a quick process and their training/introduction to the Health and Safety regulations was insufficient, highlighting the lack of culture regarding safety in construction; the main focus in the industry is to complete the tasks, regardless of the safety deficiencies. This behavior and approach of the Cypriot employers and employees was the motivation for this work.

The purpose of this paper is to introduce new and more advanced methods and prevention strategies and compare them with the current situation in Cyprus. Also, it will demonstrate the beneficial effect on the construction industry generated by necessary changes in the current Health and Safety (H&S) measures.

2 HISTORY OF THE CONSTRUCTION INDUSTRY IN CYPRUS

The turbulent history of the island had adversely affected the steady progress of the construction industry in Cyprus. Noticeably, three big milestones have marked the history, economy, and consequently the construction industry: The Independence of Cyprus in 1960, the Turkish invasion in 1974, and finally, the economic crisis of 2013.

Between 1960 and 1974, the fast-growing development of the construction industry transformed the island into an attractive tourist resort. However, following the Turkish invasion of 1974, a steep downturn in the construction industry took place. Gradually, the economy and the construction sector improved and large construction works appeared on the island. The progress was temporarily halted at the third milestone, the economic crisis of 2013, which affected all aspects of the island.

In the past three years, the construction industry has grown to unprecedented levels and some of the highest buildings in the Mediterranean area can be seen in Cyprus.

2.1 Department of Labor Inspection

The Department of Labor Inspection, since its establishment during the British Governance, has a major part in the construction industry. In 1947, the first-ever law of protection of the workers was applied and in 1956, the “Factories Law” was put in effect; it is still applied today with appropriate adjustments from time to time.

After the Independence of Cyprus, the Ministry of Labor, Welfare, and Social Insurance was established, and the Department was placed under its administration. Today, the Department issues the safety regulations and it is also responsible for their proper application.

Among the several publications from the Department, the “Safety Instructions in the Construction Industry” Guide, is one of the focus points of this study. This Guide is an easy-to-comprehend booklet, with illustrations of the proper and safe activities at the construction site. The guidelines are translated into seven languages, so they can be understood and applied by the majority of foreign workers in the construction industry (MLSI 2011).

3 RESEARCH METHODOLOGY

The previous section highlighted the importance of the Department of Labor Inspection. Therefore, the first step was to seek information about the inspections on construction sites, mainly how they were carried out. Many of the Department’s publications were collected and studied along with the “Safety Instructions in the Construction Industry” Guide. Furthermore, a Health and Safety Officer was interviewed and provided consultation upon request. In addition to the local scheme, an attempt is made to comprehend the term Occupational Health and Safety, its application around the world and also, relevant international organizations and regulations.

4 APPROACHES, ORGANIZATIONS, AND REGULATIONS ABOUT OCCUPATIONAL HEALTH AND SAFETY

Since the beginning of the 20th century, all the developed countries began to have concerns about the working conditions of their employees. Through that period, many organizations initiated their efforts on constituted laws and standards. These laws and standards have since advanced and modified according to the current need of the industries. It can be stated that, at the beginning of the 21st century, major steps were achieved and there is only an upwards direction in the Health and Safety area.

4.1 Vision Zero

Vision Zero Strategy is an example of a new approach to the Health and Safety measures and applications. The aim is to change the culture of the employers and employees, to adapt to a safer and healthier environment at the workplace. To make it more appealing to employers, the main focus of this strategy is to show the economic advantage that a company can have with its application; it may cost more at the beginning, but later on, it will pay off and may result to even more profit. International researches prove that for one amount of currency invested in prevention, two or even more are added up in the benefit of the company.

The main reason that Vision Zero is dragging attention is that this strategy can be easily adjusted, adapted, and applied to give only positive outcomes, and it can be used to improve Cyprus' current state (Vision Zero 2020).

4.2 International Standards (ISO) and Cyprus Organization for Standardization (CYS)

ISO is an independent, non-governmental, international organization working globally with 164 national standard bodies as members. Its objective is to create standards that will improve every possible procedure. The most related ISO with Occupational Health and Safety is the 45001:2018. In this ISO, the prevention is enforced and the benefit in the economic state of a company is clearly stated (ISO 2020).

CYS is the national organization that overseeing the application of the ISOs in Cyprus and also present Cyprus's needs internationally. The role of CYS does not involve issuing new standards, but adjustment and modifications of the existing ones, in order to match the conditions of Cyprus.

In other words, the ISO is the international organization that develops the standards, whereas the CYS is the national partner that adjust them accordingly.

5 CURRENT STATE OF HEALTH AND SAFETY INSPECTIONS IN CYPRUS

Before the initiation of any construction works and the setup of a construction site, there are some steps that need to be followed. Firstly, on the Health and Safety front, a Health and Safety Plan must be created by the Preparation Coordinator. This plan consists of the possible hazards at the construction site and the necessary detailed measures to avoid or minimize them.

After the initiation of the construction works, the Health and Safety Plan is becoming a part of the Health and Safety Folder. This Folder is an "active" tool for the Execution Coordinator. The Plan is the instruction tool for prevention and the Folder is the tool for recording the ongoing procedure of the project. If any hazard appears that it was not expected, the Plan has to be updated accordingly in order to include that.

As it was mentioned above, the Department of Labor Inspection is responsible for the health and safety of the employees at the construction site. The Department performs random visits to the construction sites and evaluates the H&S level using the method of checklists. Based on this method, the Department seeks the necessary paperwork, including the Health and Safety Plan and Folder, as well as the permission for the initiation of the works (DLI 2020).

6 FURTHER IMPROVEMENT OF THE INSPECTIONS

All around the world, the sector of Health and Safety is only moving forward, so Cyprus must keep up. For this study, the first suggestion that was proposed was the improvement of the checklists that are currently used. As it was mentioned above, many organizations and strategies internationally have suggested methods and standards. Among those, it seems that the Vision

Zero strategy can be more easily adapted and incorporated into the system used in Cyprus. This strategy is based on the same evaluation method (i.e., the checklists), but it also has some differences in the content. A combination of the existing checklists with some attributes of the Vision Zero strategy can be proved beneficial for both the employees and the employers (Vision Zero 2020).

The new checklists must be aligned with the national laws and regulations, and incorporate new aspects from the Vision Zero strategy regarding the proper function of a company. The latter includes the mental health of the employees (in addition to their physical health), which can boost the outcomes of a company. The term mental health is referring to the psychology of an employee in the working environment, examining what makes the employee feel important and useful.

Another big step that can be easily achieved is the digitalization of the inspections' procedure. By completing the checklists in a digital form, and at the same time supporting the decisions with photographic materials (serving as potential evidence), the possibility of any external interference to the data is minimized.

Additional improvement can be achieved by further digitalization: an online H&S platform can be designed in the form of a map. This platform will be a database where all the construction sites across the island will be shown at their exact location. Every new entry will be a point on the map and it will contain all the information about the construction site, from the Health and Safety Plan and Folder, to the permissions and other documents. Furthermore, these entries will include the inspection data, along with photographs, completed checklists and comments. The development of such an H&S platform will be a very useful tool for everyone concern with the H&S in construction. All the organizations that are responsible for inspections, such as the Department of Labor Inspection, can easily check at any time the current state of a construction site and can monitor the construction operations all around the island.

Further automation of the H&S process can be another positive step: it is possible for a given construction site, provided its characteristics and other attributes, to automatically produce an H&S plan considering the available preventative options and the local legislations. Such an automatic tool can be developed using optimisation techniques (Tantele *et al.*, 2006).

7 CONCLUSIONS

Health and Safety is an area of major concern that finally attracts the proper attention globally. Especially in high risk working environments, such as a construction site, the procedures and the measures for healthy and safe working conditions should always be properly applied and constantly improved to cover emerging working hazards. Such practices will, of course, be beneficial for everyone involved, employees and employers. The right way to follow for improvement seems to be the study and examination of the many proposed guidelines appearing internationally in the H&S area and the adaption and/or incorporation of selected aspects in the national guidelines. Vision Zero strategy is an example illustrating such improvement towards a healthier and safer working environment.

Also, from the investigation carried out in this study, it can be concluded that the H&S sector in Cyprus will be benefited by employing technological advancements in its operation, such as digitization of certain procedures.

Lastly, it is important that companies (i.e., employers) realize that the investment in the H&S of their employees will always provide an economic benefit resulting from more efficient operations.

References

- DLI, Department of Labour Inspection, *Checklist for Dangerous Situations on-Site*. Retrieved from <http://www.mlsi.gov.cy/mlsi/dli/dliup.nsf/All/947BEDB41C0AD05CC2257E6C00355F86?OpenDocument> on March 2020.
- ISO, International Organization of Standardization, *ISO - About us - Our Story – It's All in The Name*. Retrieved from <https://www.iso.org/about-us.html> on February 2020.
- MLSI, Ministry of Labour and Social Insurance, *Safety Instructions in the Construction Industry*, Department of Labour Inspection, Republic of Cyprus, 2011.
- Tantele, E. A., Onoufriou, T., and Mulheron, M., *Optimization of preventative maintenance strategies for bridges*, Third International Conference on Bridge Maintenance, Safety and Management – Bridge Maintenance, Safety, Management, Life-Cycle Performance and Cost, IABMAS '06, Porto, Portugal. doi: 10.1201/b18175-33. July 16-19, 2006.
- Vision Zero, *Why Vision Zero? "Accidents at Work and Occupational Diseases Are Neither Predetermined nor Unavoidable – They Always Have Causes"*. Retrieved from <http://visionzero.global/why-vision-zero> on February 2020.