



Safety Management Evaluation for Construction Projects in Jordan
Case Study: Executing Concrete Works

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(قُلْ إِنَّ صَلَاتِي وَنُسُكِي وَمَحْيَايَ وَمَمَاتِي لِلَّهِ رَبِّ
الْعَالَمِينَ ۖ لَا شَرِيكَ لَهُ وَبِذَلِكَ أُمِرْتُ وَأَنَا أَوَّلُ الْمُسْلِمِينَ)

(الانعام 162. 163)

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Mustafa Alfahdawi

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This thesis "Safety Management Evaluation for Construction Projects in Jordan, Case study: "Executing Concrete Works" was successfully defended and approved on May 2017.

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Dedication

To the Spirit of my Father,

To my Mother, May God Prolong her

Age,

To my Brothers and Sisters, the Candies in

this Life,

To Mr. Abdullah Muklif,

Safety Management Evaluation for Construction Projects in Jordan

Case Study: Executing Concrete Works

ABSTRACT

In all developed and developing countries, the construction sector is considered as the most sector affecting the health and safety of labors who work at construction sites, particularly those who work in concrete activities.

This research is aimed to investigate and evaluate the current situation regarding the safety management at Jordanian construction sites in accordance with the existing standards. Accordingly, the collected data was with the aid of the Jordanian construction companies through a field survey by distributing a pre-designed questionnaire sheet that consisted of four categories. The first of these contains Safety procedures at the construction site and included twenty-two questions. The second category contains Human staff and work force and their records and involved eleven questions. The third category contains Programs and equipment for general safety precautions and included nineteen questions. Whereas, the last category contains Encouragement rewards, incentives, and penalties and involved eleven questions. In general, the questionnaire sheet was distributed over seventy construction companies in Amman (large and medium scale companies). However, sixty-one respondents have returned the filled questionnaire (with a response rate of about 87%). Expert system was designed and presented in this research to assist in managing the safety requirements at construction projects in Jordan. This system consists of several windows. However, it requires uploading for the project's activities in addition to their start and finish times through an Excel Sheet. In general, three options appear at the start stage of the program. The first option is to upload all projects activities, the second is to draw the bar chart; whereas, the third option is to separate the concrete works. However, once pressing on the intended

activity (related to concrete works), the system will present the required safety procedures for those activities. Considering the results and the analyses obtained from this research (using SPSS Software) it was concluded that about (44%) of the investigated sites don't pay remarkable interest to the availability of the first aid measures inside the site (for emergency treatments), also the same percentage of these don't consider setting of suitable and required engineering design for the formworks of concrete (especially those for casting ceilings). In addition, Engineers and other labors who work inside the project site for about (57%) of the investigated projects are not committed to use the relevant helmet during the work hours, also the project management is not interested in assigning specialized person (or persons) to implement the general safety provisions for the participants in the project. On the other hand, the results revealed that sufficient number of the technicians and specialists in casting concrete for about (85%) of the investigated sites is available and stand by during the casting period to consider any emergency related to the safety of the formwork during casting, and the waste of excavations and other products (if any) are stored in specific places without affecting the movement of machines to prepare the concrete works.

Out of the results and conclusions for this research, it was recommended that project management staff inside the construction sites should accurately conduct the requirements of general safety for projects (in accordance with the existing standards) and especially for works related to concrete activities. In addition, representatives from the Jordanians Engineers Association and from the Ministry of Works and Housing should monitor the application of those requirements, and to check whether they are matched with the requirements of the Jordanian code. Furthermore, to improve the current situation of the safety management for the Jordanian sites that was classified in this research to be of "Medium Level", the research suggested to implement the "Expert System" in following up the application of safety management procedures in construction sites.