hossam maghraby

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

hossam maghraby

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

hossam maghraby

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة

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شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

ESTIMATING AND MANAGING CONSTRUCTION WASTE IN THE EGYPTIAN CONSTRUCTION INDUSTRY

By

Eng. ATEF ABD EL MOGHNY RAGAB

A Thesis submitted to the
Faculty of Engineering at Cairo University
In partial fulfillment of the requirements
For the degree of

DOCTOR OF PHILOSPHY

In

Civil Engineering (Structural)

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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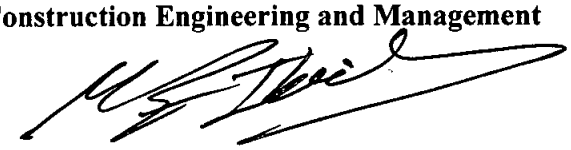
Prof.Of Construction Engineering and Management



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Prof.Dr.Moheeb El Said Ibrahim, Thesis Main Advisor

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Prof.Dr.Mohmed Abdel Latif Bakry, member

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ABSTRACT

For many contractors and builders in Egypt, as well as in many other developing countries, the issue of the construction waste is still recent and limited in the cost of waste and cost of disposals. As a mater of fact, the construction waste issue has many different aspects beside cost of waste and disposals. For example, using materials in an efficient way is becoming a new issue because of insufficient sources of natural materials, and the energy needed to create and assemble the products and materials. Without any doubt the environment issue including illegal dumping, landfills, pollution from contaminated soils, hydraulic liquids from construction equipment, and many other issues is now highlighted. In fact, construction Industry in Egypt needs to find a suitable solution regarding construction waste problem. The required solution has to be adequate to construction industry environment in Egypt, since it is a national problem. One of the important steps to achieve the solution is the estimation of the waste quantities. This study proposes a decision support system to estimate the quantity of waste for the most widely used construction materials. The proposed system is employs Fuzzy logic and depends on the experts' opinion. The system is also display the general average of the waste percentage for the assigned construction material as a market refrence.The proposed system adopts the project environment through estimating the values of mistakes in the different factors that affect waste quantities. These values are estimated through the project characteristics. In order to develop the proposed model, a data collected from 58 construction companies has been used. An assessment of the current practices from the Egyptian construction companies regarding construction waste, identifying the factors that affect the waste generating, the project characteristics that lead to estimate the mistakes in these factors, and the effect of each factor on the different construction materials is investigated. To validate the results estimated from the proposed model, a comparison through a statistical analysis between the actual waste quantity resulted from a real 30 construction projects and these resulted from the model has been performed. The results of this statistical analysis show that the model is accepted. The study is also suggested a guide for waste minimization and management all over the project lifecycle as a tool to save landfills and natural resources In addition, the guide has been validated to ensure that it is practical and

suitable for implantation .This validation has been performed through the feedback received from five large construction companies. The received feedback notes have been considered and the guide has been revised and so on till reaching the final guide proposal.