شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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

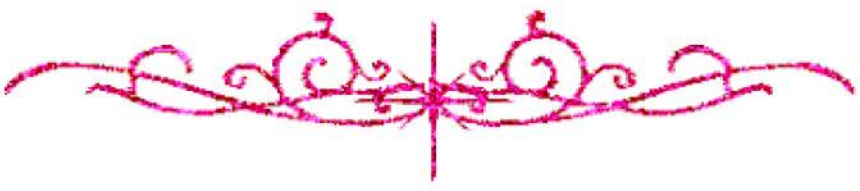
يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

بالرسالة صفحات لم ترد بالأصل

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة



WASTE MINIMIZATION OF REINFORCING STEEL BARS IN RESIDENTIAL BUILDINGS

By

Tarek Fouad Hamdy Gomaa

A Thesis Submitted to The
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
Master Science
in
STRUCTURAL ENGINEERING

SUPERVISED BY

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GIZA, EGYPT
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Abstract

Material management systems' functions include identifying, acquiring, distributing and disposing of materials for a specific project. More recently the construction industry has become more cognizant of project materials' costs, which can represent 50% or more of project costs. For this reason, minimizing materials' wastes is considered an important feature for reducing project's costs.

Previous researches studied the optimization of concrete structures materials' wastes such as gravel and cement. Unfortunately, these studies that are concerned with steel bars' cost optimization get the solution using logical algorithm and ignore wastes that are produced from each stage and can be re-used in next stages.

The objective of this research is to develop a new teqnique of cutting and setting up of steel bars. This objective can be achieved through: (1) development of a mathematical model that can be applied to the construction variables of steel bars, (2) determination of wastes generated from each stage that can be re-used, and (3) development of graphical interface and well designed environment. To demonstrate the objective of this study a computer program, designed by Microsoft Visual Basic language, is developed. This program utilizes integer linear programming procedure to minimize steel bars' wastes.

Finally, a case study is presented to verify the computer program and to compare the results with traditional methods that are used in determining steel bars' cuttings methods and wastes. The analysis presented in this case study illustrates that the designed program minimize steel bars' wastes efficiently compared with traditional techniques.

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