

بسم الله الرحمن الرحيم

قال تعالى: (وَوَصَّيْنَا الْإِنْسَانَ بِوَالِدَيْهِ إِحْسَانًا حَمَلَتْهُ أُمُّهُ كُرْهًا وَوَضَعَتْهُ كُرْهًا وَحَمَلُهُ
وَفَصَالُهُ ثَلَاثُونَ شَهْرًا حَتَّىٰ إِذَا بَلَغَ أَشُدَّهُ وَبَلَغَ أَرْبَعِينَ سَنَةً قَالَ رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ
نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَىٰ وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَصْلِحْ لِي فِي ذُرِّيَّتِي
إِنِّي تُبْتُ إِلَيْكَ وَإِنِّي مِنَ الْمُسْلِمِينَ (15) [الاحقاف: 15]

صدق الله العظيم

Dedication

To ...

My father and my mother . . .

To . . .

My brothers and my sister . . .

To . . .

All whom I love . . .

Acknowledgements

First of all, Thanks be to Al-mighty Allah; the most beneficial, the most Merciful.

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My thank fullness goes to my university, individuals, My friend

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Abstract

This research is aimed to compare between experimental and numerical values of axial deformation and compressive strength of 12 concrete cubes. The numerical concrete models were analyzed using computer software (UDEC) and (Phase2).The concrete mix was prepared according to the British standard specifications.

The 12 concrete cubes were classified in to four groups, each group consists of 3 models that were tested at 7, 14, 21and 28 days respectively by compressive machine to obtain the values of axial deformation and compressive strength.

It was found that concrete cubes which crushed at 7 day gave high values of axial deformation and low values of compressive strength. After 28 days the axial deformation were reduced to 57.7% and compressive strength increased by 78.6% in comparison with concrete cubes at 7 days

It was found that, the difference between experimental and numerical values of axial deformation was about 4.6%. in comparison with concrete cubes at 7 days

It may be concluded that, the computer software UDEC and Phase2 can be used for simulation of concrete models to obtain the axial deformation and compressive strength.

المستخلص

يهدف هذا البحث للمقارنة بين قيم التجارب المعملية والعديدية للتشوه المحوري ومقاومة الانضغاط لاثني عشر مكعب من الخرسانة و تم تحليل نماذج الخرسانية باستخدام برنامج (UDEC) و (Phase2) . كما تم تصميم الخلطات الخرسانية وفقاً للمواصفات البريطانية.

تم تصنيف الاثني عشر مكعب لاربعة مجموعات في كل مجموعة ثلاث مكعبات وتم اختبارها بماكنة الضغط لاعمار 7 , 14 , 21 , 28 يوم علي التوالي لايجاد قيم التشوه المحوري ومقاومة الضغط .

وجد ان المكعبات بعمر 7 ايام قد اعطت قيم كبيرة للتشوه المحورى وقيم اقل لمقاومة الانضغاط. بينما المكعبات بعمر 28 يوم قد أعطت قيم اقل للتشوه المحوري بنسبة % 57.7 من نسبة سبعة أيام . وزيادة فى مقاومة الانضغاط بنسبة % 78.6 من نسبة سبعة أيام. كما وجد ان الفرق بين قيم النتائج المعملية والعديدية للتشوه حوالى % 4.6 .

كما تم التوصل الى ان نتائج نمذجة مكعبات الخرسانة باستخدام برنامجي (UDEC) و (Phase2) متقاربة جدا لايجاد قيم التشوه المحوري ومقاومة الضغط للخرسانة .

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