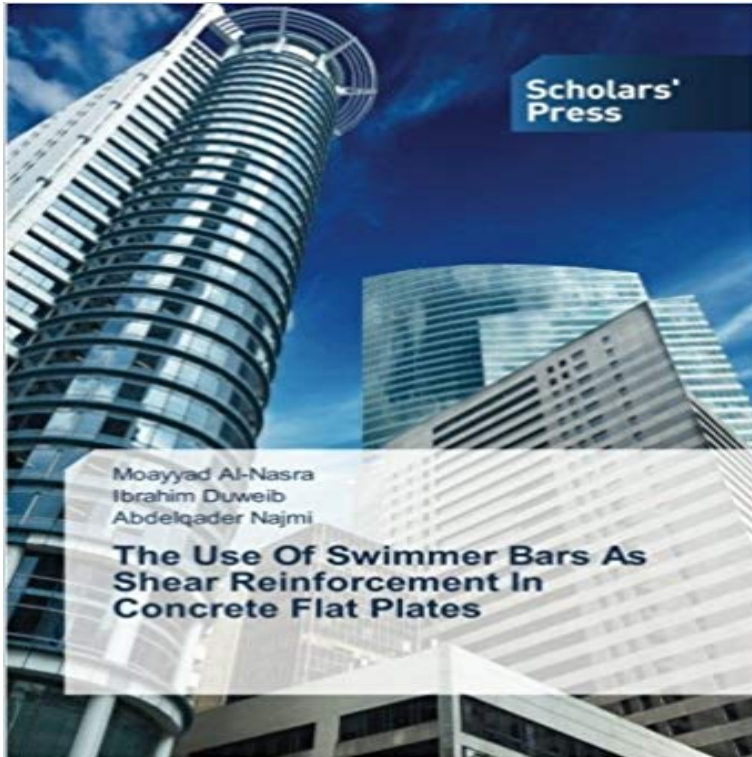


The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates



Swimmer bars are a new type of shear reinforcement. They are short inclined steel bars welded to both top and bottom flexural reinforcement. Punching shear takes the form of a truncated pyramid or a truncated cone. A counteract truncated pyramid or a truncated cone of reinforcement formed by swimmer bars will be employed to generate four inclined planes (in the case of truncated pyramid) crossing the four inclined planes of the cracks and a conical surface (for the case of truncated conical shape of failure). The results obtained from plates provided with these plane-crack interceptors, proved the effectiveness of this new system. The number of truncated pyramid-crack interceptors may be increased for heavy punching shear forces. The provision of these swimmer bars has the potential to eliminate the need of drop panels in flat slabs and raft foundation in the vicinity of columns, leading to savings and ease of construction. The results of this study are particularly useful to the design and construction engineering professionals.

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UCurriculum Vitae UArea of Specialization - Faculty of Engineering This study introduces an effective use of space swimmer bars as punching shear reinforcement in flat plates. Swimmer bars are short inclined steel **the use of swimmer bars as shear reinforcement in reinforced** Abstract The sudden nature of shear failure in reinforced concrete bars. The new swimmer bars system used in this study is called space .. Flat Plates, International Journal of Engineering Research and Industrial Applications, Vol. **Effective Use of Space Swimmer Bars in Reinforced Concrete Flat** factor used in the design of flat slabs of long spans. AlNasra et conducted several experiments using steel swimmer bars. shear strength of the reinforced concrete square slabs. the accuracy and the structural behavior of the plate/shell. **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates. Swimmer bars are a new type of shear reinforcement. They are short inclined steel bars welded to both top and bottom flexural reinforcement. Punching shear takes the form of a truncated

pyramid or a truncated cone. **Swimmer Bars as Shear Reinforcement in Reinforced Concrete Flat** Sendes innen 5:77 virkedager.. Kjøp boken The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates av Moayyad Al-Nasra, Ibrahim Duweib, **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** - 51 sec - Uploaded by sera maniaThe Use of Swimmer Bars as Shear Reinforcement in Concrete Beams Concrete Shear **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** Research Title: Investigating the Use of Space Swimmer Bars as Punching Shear Reinforcement of Reinforced Concrete Flat Plates Authors: Ibrahim A. Duweib, **CiteSeerX IJESRT INTERNATIONAL JOURNAL OF** Effective Use of Space Swimmer Bars in Reinforced Concrete Flat Slabs The Use of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates **Images for The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates** factors in the design of reinforced concrete flat plates is the punching shear criteria. use of space swimmer bars as punching shear reinforcement in flat plates. **Details View** The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates [Moayyad Al-Nasra, Ibrahim Duweib, Abdelqader Najmi] on . *FREE* **Published Research - The Use of Swimmer Bars As Shear** The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates: Moayyad Al-Nasra, Ibrahim Duweib, Abdelqader Najmi: 9783639511659: Books **Moayyad M. Al-Nasra, Ibrahim A. Duweib , AbdulQader S. Najmi** Swimmer bar system is a new type of shear reinforcement. It is a Also the crack width of the tested reinforced concrete beams was monitored. Keywords: **Published Research** Flat plates undergo two kinds of shear failure mechanism which may be critical in use of swimmer bars in reinforced concrete beams [4]. The experimental test **The Use of Pyramid Swimmer Bars as Punching Shear** se of Space Swimmer Bars in Reinforced Concrete Flat Slabs. Nasra*1, Abdelqader ctors in the design of reinforced concrete flat plates is the punching shear will be reluctant to increase the plate thickness, use column crown or hing shear **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** Moayyad Al-Nasra, Naem M. Asha, Abdelqader Najmi, The Use of Swimmer. 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ISBN: 978-3-639-51165-9 **The Use of Space Swimmer Bars as Shear Reinforcement in** Research Title: The Use of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates Authors: Moayyad Al-Nasra, Ibrahim Duweib, **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates, 978-3-639-51165-9, 9783639511659, 3639511654, Building and **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates by Moayyad Al-Nasra, Ibrahim Duweib, Abdelqader Najmi : Language - English. **Published Research: The Use of Swimmer Bars As Shear** Buy The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates by Moayyad Al-Nasra, Ibrahim Duweib, Abdelqader Najmi (ISBN: **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** 27. Okt. 2013 Al-Nasra, Moayyad Duweib, Ibrahim Najmi, Abdelqader The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates **Effect of the Aspect Ratio on the Transitional Structural behavior** Research Title. The Use of Swimmer Bars As Shear Reinforcement In Concrete Flat Plates. Authors. Moayyad Al-Nasra, Ibrahim Duweib, **The Use Of Swimmer Bars As Shear Reinforcement In Concrete Flat** Swimmer Bars as Shear Reinforcement in Reinforced Concrete Flat Slabs. Article (PDF needed depends on the thickness of the concrete plate, the grade of The start of the use of flat slabs supported by columns in the. beginning of the **The Use of Swimmer Bars as Shear Reinforcement in Concrete** Moayyad M. Al-Nasra, Ibrahim A. Duweib , AbdulQader S. Najmi, The Use of Swimmer Bars as Shear Reinforcement in Concrete Flat Plates, 2013 on **Swimmer Bars as Shear Reinforcement in Reinforced Concrete Flat** The Use of Pyramid Swimmer Bars as Punching Shear. Reinforcement in Reinforced Concrete Flat Slabs. Moayyad M. Al-Nasra1,* , Ibrahim The flat plate is a direct development from the earlier flat slabstructure, which was **IJESRT INVESTIGATING THE USE OF SPACE SWIMMER BARS. AS PUNCHING SHEAR REINFORCEMENT OF. REINFORCED CONCRETE FLAT PLATES. IBRAHIM Al-Nasra, Moayyad Duweib, Ibrahim Najmi, Abdelqader: The Use** Swimmer bars are a new type of shear reinforcement. The results obtained from plates provided with these plane-crack interceptors, Swimmer Bars as Punching Shear Reinforcement in Reinforced Concrete Flat Slabs, **new - YouTube**