بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــســـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

BEHAVIOR OF NON-PRISMATIC FOLDED PLATE STRUCTURES

By
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A Thesis Submitted to the Faculty of Engineering at
Cairo University in the Partial Fulfillment of the
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Thanks for my parents, all friends, and colleagues specially Dr. Amir Bakhoum for his language help.

account

The [illegible]

(from [illegible]

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prestress [illegible]

A [illegible] parametric study is carried out [illegible]

between [illegible] longitudinal stresses [illegible]

the vertical [illegible] depth. A vertical [illegible] used to set

with experimental [illegible] (1982). This [illegible]

Two [illegible] observed [illegible]

bending [illegible] plane of the elements [illegible] are [illegible]

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moments and [illegible] tions of the cross section are created with significant values [illegible]

longitudinal prest[illegible] in the inclined plates of the open cross section of the discussio[illegible]

ABSTRACT

The behavior of non-prismatic folded plate system is investigated here taking into account the effect of depth variation along the span, and the variation of the plate thickness. The study is based upon finite element technique. The used element has six degrees of freedom (including plate bending and plane stress action). Simply supported panel and continuous panels with infinite number of spans are considered. The effects of gravitational load and prestressing force in the longitudinal direction are studied.

A dimensionless parametric study is carried out. Many figures illustrate the relationships between deflections, longitudinal stresses, and transversal bending moments are plotted versus the variation of the mid span depth. A verification case has been solved to compare the results with experimental work by Trivedi (1983). This showed a good agreement.

Two important phenomena are observed, namely membrane forces and longitudinal bending moment out of the plane of the elements. Membrane forces are developed when the depth changes along the span. These membrane forces affect the distribution of longitudinal stresses that are calculated considering the bending action only. Also transversal bending moments and distortions of the cross section are created with significant values due the longitudinal prestressing in the inclined plates of the open cross section of the discussed cases.

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