السيرة الذاتية ا.د عصام خليفة

بيانات شخصية:

الاسم: ا.د عصام سيد فرج خليفة

تاريخ الميلاد: 19-12-1968

المنصب السابق: وكيل المعهد التكنولوجي العالي لشئون التعليم و الطلاب بالعاشر من رمضان و فروعه السادس من اكتوبر و مرسي مطروح.

المنصب الحالي: رئيس مجلس قسم الهندسة المدنية – المعهد التكنولوجي العالي بالعاشر من رمضان

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الشهادات الجامعية:

- **بكالوريوس الهندسة (الهندسة المدنية) – كلية الهندسة بشبرا – جامعة بنها – 1991.**
- **ماجستير الهندسة المدنية – كلية الهندسة بشبرا – جامعة بنها – 1995.**
- **دكتوراه في الهندسة المدنية (تخصص هندسة انشائية) – كلية الهندسة بشبرا – جامعة بنها – 2000.**

التدرج الوظيفي:

- **طالب باحث بقسم الهندسة المدنية – كلية الهندسة بشبرا – جامعة بنها من 1991 حتي 1993.**
- **معيد بقسم الهندسة المدنية – المعهد التكنولوجي العالي بالعاشر من رمضان من 1994 حتي 1995.**
- **مدرس مساعد بقسم الهندسة المدنية – المعهد التكنولوجي العالي بالعاشر من رمضان من 1996 حتي 2000.**
- **مدرس بقسم الهندسة المدنية – المعهد التكنولوجي العالي بالعاشر من رمضان من 2001 حتي 2007.**

- **استاذ مساعد بقسم الهندسة المدنية – المعهد التكنولوجي العالي بالعاشر من رمضان من 2008 حتي 2013.**
- **استاذ عامل بقسم الهندسة المدنية – المعهد التكنولوجي العالي بالعاشر من رمضان من 2014 حتي الآن.**
- **رئيس مجلس قسم الهندسة المدنية – المعهد التكنولوجي العالي بالعاشر من رمضان من 2014 حتي 2017.**
- **وكيل المعهد التكنولوجي العالي لشئون التعليم و الطلاب بالعاشر من رمضان وفروعه بالسادس من اكتوبر و مرسي مطروح من 2018 حتي 2020.**
- **رئيس مجلس قسم الهندسة المدنية من ابريل 2022 حتي الآن.**

المناصب و الخبرات:

- **استاذ عامل في المعهد التكنولوجي العالي بالعاشر من رمضان.**
- **رئيس قسم الهندسة المدنية في المعهد التكنولوجي العالي بالعاشر من رمضان.**
- **وكيل المعهد التكنولوجي العالي لشئون التعليم و الطلاب بالعاشر من رمضان و فروعه السادس من اكتوبر و مرسي مطروح.**
- **المشرف علي معامل الأختبارات و القياسات و الأستشارات الهندسية لقسم الهندسة المدنية بالمعهد التكنولوجي العالي بالعاشر من رمضان.**
- **الأشراف علي مركز خدمة المجتمع و البيئة بالمعهد التكنولوجي العالي بالعاشر من رمضان.**
- **خبرة اكاديمية في التدريس و البحث العلمي.**
- **نشر العديد من الأبحاث العلمية في مجلات عالمية ذات معامل تأثير مرتفع.**
- **الأشراف العلمي علي العديد من طلاب الماجستير و الدكتوراه.**
- **المشاركة في المناقشات العلمية و التحكيم للعديد من رسائل الماجستير و الدكتوراه.**
- **المشاركة في العديد من اللجان الدولية مثل لجنة (المهندسين الناشئين و انظمة الحاسب الآلي) في جماعة المهندسين الأمريكية.**
- **محكم للأبحاث العلمية في مجال التخصص في العديد من المجلات العالمية ذات معامل تأثير مرتفع.**
- **الأشراف علي مايزيد عن 25 مشرع تخرج للطلاب من قسم الهندسة المدنية.**
- **المشاركة في لجان اعداد اللوائح الدراسية الطلابية وكذلك اللوائح الأدارية و التنظيمية في المعهد التكنولوجي العالي بالعاشر من رمضان.**
- **المشاركة في تطوير المقررات الدراسية في قسم الهندسة المدنية.**
- **المشاركة في تنفيذ برنامج الكتروني خاص بتسجيل طلاب المعهد و كذلك اعمال الكنترول علي مستوي المعهد و كذلك اعداد البنية التكنولوجية و المنظومة البرمجية لميكنة ادارة شئون الطلاب.**
- **تفعيل العديد من المشاركات في الأنشطة و المسابقات الطلابية.**
- **المشاركة في العديد من المؤتمرات المحلية و الدولية.**

- **المشاركة في اعداد و التصميم الأنشائي و الأشراف الدوري علي تنفيذ العديد من المشروعات القومية داخل جمهورية مصر العربية و كذلك مشروعات عالية الجودة داخل مصر و خارجها.**
- **عضو مجلس ادارة في المعهد التكنولوجي العالي بالعاشر من رمضان و فروعه بالسادس من اكتوبر و مرسي مطروح في العديد من الدورات و كذلك معهد الهندسة و التكنولوجيا بالمنيا.**

اهم خمسة ابحاث منشورة:

م	عنوان البحث	اسم (المجلة / المؤتمر)	نوع المجلة (محلية /عالمية)	تاريخ النشر	معامل التاثير Impact Factor
1	Underground Structure D-Wall-Soil Interactive Finite Element Analytical Model for Huge TPS2	Structure Congress, Chicago, Illinois, USA 29-3-2012-ASCE www.structurescongress.org	عالمية	2012	ASCE
2	Macro-mechanical Strut and Tie Model for Analysis of Fibrous High-Strength Concrete Corbels	Ain Shams University Engineering Journal www.elsevier.com/locate/asej	عالمية	2011	
3	Experimental and Analytical investigation for Enhancement of Flexure Beams Using Multilayer Wraps	International Journal of Composites: Part B www.elsevier.com/locate/compositesb	عالمية	2013	IF-4.727 SNIP-2.29
4	Analytical Model for Steel Fiber Concrete Composite Short-Coupling Beam	International Journal of Composites: Part B www.elsevier.com/locate/compositesb	عالمية	2014	IF-4.727 SNIP-2.29
5	Experimental and analytical behavior of strengthened reinforced concrete columns with steel angles and strips	International Journal of Advanced Structural Engineering Springer	عالمية	2015	SSN: 2008-3556 (Print) 2008-6695 (Online)

السيرة الذاتية وفق متطلبات ملف الوزارة :

	رئيس مجلس قسم الهندسة المدنية ا.د عصام سيد فرج خليفة					
تاريخ الميلاد:	1968-12-19					
درجة البكالوريوس:	تاريخ الحصول على الدرجة:	1991	الجامعة:	بنها	الكلية	الهندسة بشبرا
درجة الدكتوراة:	تاريخ الحصول على الدرجة:	2000	الجامعة:	بنها	الكلية	الهندسة بشبرا
تاريخ الأستاذية:	تاريخ الحصول على الدرجة:	2013	الجهة المانحة:	المجلس الأعلي للجامعات		
التحصص العلمي:	منشآت خرسانية مسلحة	التخصص العام:	انشاءات			

نبذة عن التاريخ العلمي:

العديد من الأبحاث المنشورة في مجلات دولية ذات معامل تأثير و المشاركة في المؤتمرات و التحكيم للأبحاث في المجلات العالمية ذات معامل تأثير و المشاركة في ورش العمل المحلية و الدولية. و عضو في لجنة: Emerging engineering and computer systems-ASCE

نبذة عن التاريخ الوظيفي:

معيد في المعهد التكنولوجي العالي من سنة 1994 حتي 1995.

مدرس مساعد في المعهد التكنولوجي العالي من سنة 1996 حتي 2000.

مدرس في المعهد التكنولوجي العالي من سنة 2001 حتي 2007.

استاذ مساعد في المعهد التكنولوجي العالي من سنة 2008 حتي 2013.

استاذ في المعهد التكنولوجي العالي من 2014 حتي الآن.

رئيس مجلس قسم الهندسة المدنية في الفترة من 2014-2017 .

وكيل المعهد لشئون التعليم والطلاب للعام الدراسي 2018-2019 و 2019-2020.

رئيس مجلس قسم الهندسة المدنية من 26-3-2022 حتي الآن.

CURRICULUM VITAE

NAME : **Prof. Essam Sayed Farag Khalifa**
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EDUCATION AND QUALIFICATIONS:

1986-1991 B.Sc. in Civil Engineering (Honours), Zagazig University, Faculty of Engineering, Shobra, Cairo, Egypt.
Five year courses covering all aspects of Civil Engineering.
Intermediate and advanced course on Computer Languages and Science.

1991-1993 Advanced courses in Structural Analysis and Design (as a first and second part of M.Sc. degree Zagazig University, Faculty of Engineering, Shobra, Cairo, Egypt).

1993-1994 M.Sc. in Civil Engineering (Zagazig University Faculty of Engineering Shobra, Cairo, Egypt). A thesis submitted for partial fulfilment of the M.Sc. degree. Research subject was "Response of Reinforced Concrete Structures under Cyclic Loading ".

1995-1999 Ph.D. in Structural Engineering (Zagazig University Faculty of Engineering Shobra, Cairo, Egypt). A thesis submitted for the requirements of the degree of Doctor of Philosophy in Structural Engineering. Research subject was "A Non Linear Model for Steel Fiber Reinforced Concrete Planar Structures under Cyclic Loading ".

ACADAMIC QUALIFICATION:

Demonstrator & Lecturer at HTI 1995-1999.

Assistant Professor at HTI, 1999-2005.

Associate Professor at HTI, since 2005.

Professor of Reinforced Concrete Structures, Apr.' 2013.

2005: Reviewer of ACI "American Concrete Institute"- Structure Journal.

2009: Reviewer of "Construction and Building Material Journal'- Elsevier.

PROFESSIONAL QUALIFICATION:

1991 Member of Egyptian Syndicate of Engineers.

1994 Member of Egyptian Society of Engineers.

2009 PE for unlimited number of floors- Dubai municipality.

2009 Consultant of Design of Reinforced Concrete Structures.

2010: Member of ASCE Committee. "American Society of Civil Engineering"- Emerging Engineering and Computer systems

PARTECEPENT SHARE IN MANY NATIONAL AND INTERNATIONAL MAJOR PROJECTS.

COMPUTER WORK EXPERIENCE:

Programming languages	BASIC C (PLUS)
Software packages	MICROSOFT OFFIECE AUTOCAD SAP 2000 ETAB SAFE MIDAS ETABS B-LINE CSI COLUMN CONCISE ADD-SEC And Other

SOFTWARE DEVELOPMENT:

1989 As a part of undergraduate structural analysis course, computer program were developed for linear analysis of truss, space truss, beams, panelled beams, frames and space frames.

1992 - 1994 As a part of M.Sc. research, a complete finite element computer program, (FEACLS), has been developed for linear and non-linear analysis of reinforced concrete structures under Static and cyclic loading. The code predictions have been successfully compared with those results from other numerical and experimental studies.

1995 - 1999 As a part of Ph.D. research, a complete finite element computer program, (FEAFCL), has been developed for linear and non-linear analysis of SFRC structures under static and cyclic loading. The code predictions have been successfully compared with those results from other experimental studies.

2000–Till Now Development of many structural specialist numerical models for major project at national and international level.

SCALES AND INTERESTS:

Languages Fluent spoken and written in ARABIC (mother tong) and ENGLISH.

Communication Strong evidence of successful and effective interpersonal scale in my confidant dealing with elite and implies at all levels of industry, commerce and academia. Companies and Individuals.

PUBLICATIONS

Over 35 researches paper in the field of design of reinforced and composite structures were published in national and international magazine and conference.

SAMPLE OF SCIENTIFIC ACTIVITY

- Paper published in ASCE-International structure congress held in Chicago, IL. USA April-2012.
- Annual meeting of “Emerging Engineering and Computer System”- Committee on the side-line of structure congress activities (American Society of Civil Engineering).

- Many international seminars: USA, Dubai.

- E.S. Khalifa, ‘Analytical model for steel fiber concrete composite short-coupling beam’, Composite: Part B, Elsevier, pp. 318-329, January, 2014.

American Society of Civil Engineers

This Certificate is presented to

Essam Khalifa

*In recognition of successful completion of **15** Professional Development Hours (PDHs) for attending technical session(s) during the Structures 2012 Congress, March 29-31, 2012 in Chicago, Illinois.*

Director, Structural Engineering Institute
of the American Society of Civil Engineers

STRUCTURAL ENGINEERING INSTITUTE

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Analytical model for steel fiber concrete composite short-coupling beam

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ABSTRACT

Lateral stiffness of a high-rise building is significantly influenced by the design of coupling beams to spread plasticity over the system height. Design and reinforcement detailing should be performed to retain strength and a significant percentage of stiffness during large deformations into a plastic range. The cracking and low toughness problems of high-strength concrete can be overcome by the addition of short randomly distributed steel fibers. These steel fibers provide a crack bridging the interference plan between shear walls and coupling beam. An alternative design is proposed in this paper, using an analytical model for high-strength fiber reinforced concrete (HFC). This is to reduce the reinforcement congestion and construction difficulties. In this study, the fiber composite enables the use of straight bars as partial or total replacement of diagonal bars. An analytical relationship is proposed, herein, to generate the complete stress–strain curve of HFC subjected to uniaxial compression. The fiber generates a passive confinement inside the composite that prevents the concrete from spilling-out during cycles of seismic load. Based on nonlinear fracture mechanics, a continuum approach is developed, as a linear elastic-strain softening material, for modeling the tensile behavior of HFC. The model accounts for composite inelasticity and ductility. It also slows down crack growth, fiber debonding and pullout mechanisms, and also attenuates fracture energy and element size effect. There is a wide variation in the code limit for predicting maximum shear stress. For this reason, based on experimental results, a proposed strut-and-tie model is developed to determine the contribution of fiber composite in the shear resistance of short-coupling beams. Comparing the analytical results with experimental results, the adopted analytical model shows a good agreement. A non-linear finite element model is proposed to examine the effect of using HFC on forty stories high-rise building.

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1. Research significance

The aim of this paper is to use fiber composite as total or partial replacement of diagonal bars. For nonlinear analysis of HFC shear wall-short coupling beam system, analytical relationship is proposed. This is to generate a complete stress–strain curve of fibrous concrete under uniaxial compression and tension. Based on experimental results, a strut-and-tie model is developed to account for the contribution of fiber composite in shear resistance of short-coupling beams. To test hypothesis, the analytically predicted model was compared with corresponding experimental results, where a good coincidence was obtained. A non-linear finite element program has been adopted in this paper to study apply the use of HFC on forty stories high-rise building.

2. Introduction

Shear walls-short coupling beams are the most common method in structures resisting seismic loads. Windows, doors and service ducts require that shear walls be provided with openings. A number of empirical expressions [1–5] were performed to examine seismic performance of coupled shear walls made from high-strength and fiber concrete. Numerical models were published [6–10] to analyze the behavior coupled shear wall system subjected to seismic load. The test results of high strength fiber reinforced concrete coupling beams examined [4,5]. The traditional reinforcement of concrete walls subjected to little bending is not less than 0.25% of the wall cross section area. Such an arrangement does not efficiently utilize the steel at ultimate moment because many bars operate on a relatively small internal lever arm. Moreover, the ultimate curvature ductility becomes considerably reduced when a large amount of flexural steel is used in this form [1]. The typical reinforcement details of shear walls with coupling beam are shown in Fig. 1. The most common reinforcement type is represented as conventional reinforcement with longitudinal bars and transverse reinforcement or diagonally reinforcement [3] as shown in Fig. 2. Shear stress-story drift relationship for a fibrous and non-fibrous coupling beam having diagonally reinforcement is shown in Fig. 3. The non-fibrous specimen SP1 is compared with 1.5% (volume ratio) of steel fibers specimen SP4. For fibrous coupling beam (SP4), hysteretic loops have characteristics of a ductile

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ORIGINAL RESEARCH

Experimental and analytical behavior of strengthened reinforced concrete columns with steel angles and strips

Essam S. Khalifa · Sherif H. Al-Tersawy

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Abstract The need of strengthening reinforced concrete columns, due to loss of strength and/or stiffness, is an essential requirement due to variation of the loads and environmental conditions applied on these columns. Steel jackets around the reinforced concrete (RC) columns are usually made by means of steel plates covering all over the column surface area. For the value of engineering purposes, another technique was developed using steel angles at the corners of the RC columns connected with discrete steel strips. In this paper, an experimental program is designed to evaluate the improvement in load-carrying capacity, stiffness and ductility of strengthened RC columns, concomitant with steel angles and strips. Despite of prevailing a substantially increased loading capacity and strength a pronounced enhancement in ductility and stiffness has been reported. A need for experimental test results with low value of concrete strength to mimic the local old-age structures condition that required strengthening in local countries. Seven columns specimens are tested to evaluate the strength improvement provided by steel strengthening of columns. The method of strengthened steel angles with strips is compared with another strengthening technique. This technique includes connected and unconnected steel-casing specimens. The observed experimental results describe load-shortening curves, horizontal strains in stirrups and steel strips, as well as description of failure mode. The extra-confinement pressure, due to existence of steel cage, of the strengthened RC column can be also observed from experimental results. The code provisions that predict the load-carrying capacity of the strengthened RC composite column has a discrepancy in the results. For this reason, an analytical model is developed in this paper to compare the code limit with experimental observed results. The proposed model accounts for the composite action for concrete confinement and enhancement of the local buckling of steel elements. This adopted model is simplified and applicable to practical design field. In this respect, the experimental results and those of the analytical model showed a good agreement.

Keywords Experimental · Composite · Steel strips · Steel casing · Strengthening · Analytical · RC columns

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Research significance

This paper intended to perform an experimental investigation to examine the enhancement of strengthened RC columns, using steel angles and strips. The code provisions that predict the load-carrying capacity of the strengthened RC composite column has a discrepancy in the results. A need was required for experimental studies to compare the analytical model with the code limit. Thus, seven specimens have been developed to investigate the load-carrying capacity, stiffness and strength enhancement of the strengthened columns. The experimental results quietly addressed the load-shortening curve, horizontal strains in stirrups and strips. A comparison between strengthened RC column with steel angles and strips with those columns strengthened with steel-casing was developed. The obtained experimental results were compared with the code limit and then an analytical model was developed in order to monitor the studied strengthened column performance.