

APPLICATION

Due: Friday, March 6th, 2015

AMERICAN CONCRETE INSTITUTE – MISSOURI CHAPTER GRADUATE SCHOLARSHIP AWARD

PERSONAL INFORMATION

NAME: Omar Abdelkarim	
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HIGHER EDUCATION

INSTITUTION	DATES ATTENDED	CREDIT HOURS	DEGREES AWARDED AND DATE
Missouri University of Science and Technology	760	48	Ph.D.- Expected May 2016
Ain Shams University	1,460	72	M.Sc.- October 2010
Ain Shams University	1,825	90	B.Sc. September 2006

GRADUATE STUDY

Institution: Missouri University of Science and Technology	Location: Rolla, Mo	
Date of Admission: Jan. 2013	Period of Study: 3.5 Years	
Degree Expected: May 2016	Major Civil	Minor Structure
Previous MO-ACI graduate scholarship? Yes ☐ , No ☒ If yes, when?:		

- 1. What reasons do you believe support your application for this award? (Financial need is not an important criterion.)**

Two reasons: 1st reason, I am working hard to have good production with number of scientific papers. I have 15 accepted papers to be published during 2014-2015 year whether to be published in scientific journals or in international and national conferences. This award will encourage me a lot to work harder and harder.

2nd reason, this award will help me to participate in number of conferences.

2. What is your background in the field of concrete? Of particular interest is your experience in design, materials, construction, and/or research. Include a summary of your work experience and accomplishments.

I am leading a big project of accelerated concrete bridge construction at Missouri University of Science and Technology during my Ph.D. research. In this project, I introduce a new innovative lightweight precast hollow-core concrete column with a weight represents 35% of that of the conventional reinforced concrete column. This project is supported by Missouri Department of Transportation (MoDOT) and Mid-America Transportation Center (MATC).

I taught a course of design of concrete structures for approximately 7 years in Ain Shams University which is the best university in my country.

I worked in designing of concrete bridges for 5 years in an international company "Dar Elhandasah Shair and Partners." I designed around 20 concrete bridges were constructed in six countries.

I did my M.Sc. research on the strengthening of concrete segmental bridges using carbon fiber laminates.

3. What is your plan for continuing your education? What goals have you established for your education?

I am planning to finish my Ph.D. during next year (2016). I still have number of points to be covered in my research such as design guidelines for the new columns and some construction detailing. I am planning to submit more 3 to 4 journal papers on that topic.

4. What specific work relating to concrete, such as design, materials, construction, or research, will you pursue during your graduate work?

My research is investigating the behavior of an innovative precast hollow-core fiber reinforced polymer-concrete-steel column under extreme loading. The new columns are also for accelerating bridge construction as they are lightweight and precast so they need low capacity cranes, low workmanship, and short time of construction. I tested four large-scale of those columns and one large-scale of conventional reinforced concrete column under seismic loading.

In addition, I investigated the behavior of the new columns and the conventional reinforced concrete bridge columns under vehicle collision. I proposed two equations to calculate the equivalent static impact force of the vehicle collision depending on the vehicle's mass and velocity only. The new columns reduce the dynamic impact loading from the vehicle collision by approximately 35% which is so effective to reduce the column's damage and to improve the safety of the vehicle's driver.

5. What will your program of study be during the year of this award? (List coursework and research)

I will take one more course about concrete bridges. I am planning to continue my research on the accelerated construction and vehicle collision with reinforced concrete bridge columns. I am steel working on the design methodology of the new columns. Also, I am planning to work on comparisons among different type of columns including the new columns in terms of design and cost.

REFERENCES

List the names of two people from whom you have requested recommendations be emailed or mailed to the ACI-MO Chapter at the address below.

NAME	TITLE	EMPLOYER	ADDRESS
Mohamed ElGawady	Associate Professor	Missouri University of Science and Technology	1401 N. Pine street, 324 Butler-Carlton Hall, Rolla, Mo, 65401
Kamal Khayat	Full Professor	Missouri University of Science and Technology	224 Engineering Research Lab Rolla, MO, 65409

I certify that the information contained in this application is true and that I have answered all of the questions to the best of my ability. I agree that I will notify the ACI Missouri Chapter immediately when my educational program is interrupted or changed in any manner that may jeopardize the intent of the award. I further agree that I will accept the award only as long as I successfully pursue the graduate study program I have described above and for which the reward was made.

Signature: Abdelhakim Date: 03/02/2015

RETURN COMPLETED APPLICATION PACKAGE BY FRIDAY, MARCH 6TH, 2015 TO
dane.shaw@jacobs.com (PREFERRED SUBMISSION METHOD)

or

**Dane M. Shaw
Jacobs Engineering
501 N. Broadway
Saint Louis, MO 63102**