CONCRETE NEWS

Volume 4 - No. 2 - July 2001

aci *Kuwait Chapter*

www.aciKuwait.com

from PRESIDENT

A Word from the President
April - June 2001

The first quarter of this year included several important activities that were accomplished with the support and hard work of our members. Our third Exhibition which took place on April 9-13, 2001 entitled "Concrete Construction and Design", was opened by his Excellency the Undersecretary of the Ministry of Public Works (MPW), Engineer Ali Al-Fawzan. Many participants from local and regional well-known firms exhibited their activities and expertise. Distinguished lecturers gave a series of seminars on important topics over a two-day period.

In a private and special visit to his Excellency the Undersecretary of MPW to show ACI appreciation for his efforts, the undersecretary expressed his admiration for our activities in Kuwait and hoped that our efforts will go beyond information dissemination to engineers and technical professionals, to reach the general public. He voiced his concern for the quality of construction in Kuwait and the general lack of guidance of the public. He requested members of ACI-KC to help in this regard with basic lectures and handouts to help the public in understanding how to improve the quality of their construction. Therefore, I believe that ACI-KC should form a task force to work with public and private organizations in Kuwait (KISR, KU, contracting companies, consulting offices, material suppliers, Kuwait Municipality, MPW, Ministry of Electricity and Water, Ministry of Housing, and others) to develop a series of pamphlets to enlighten the general public on important issues with the goal of improving our structures. We look forward to feedback and suggestions from our members or interested professionals and hope we can all contribute to this noble cause.

Dr. Ahmed Essawy will be leaving Kuwait to head back home to Egypt to pursue his career there. He will surely be missed by all of his friends and colleagues in Kuwait. Dr. Essawy has always been an active member of ACI-KC and other organizations in Kuwait (KU and Projacs). He made significant contributions to ACI-KC activities especially in the technical committee. He had a major role in technical publications, seminars and training. We wish Dr. Essawy a happy, successful and peaceful life and look forward to his future contributions.

As a final note, I would like to announce that the Board is working on two awards to be presented to an individual and an organization in recognition of outstanding contributions to the field of concrete in the State of Kuwait. The announcement for both awards is planned to take place before the summer of 2001. If you would like to nominate an individual or a project, look for the announcement and fill in the required forms, soon to be available.

We on the Board of Directors are looking forward to your comments in any matter related to ACI-KC affairs to enhance our organization. Please be generous with your ideas, suggestions and prayers.

CONTENT

ACI INTERNATIONAL

The American Concrete Institute, (ACI), is a nonprofit international organization that promotes improved technology, technical competence, design, and construction related to concrete for the benefit of society

ACI Kuwait CHAPTER

The purpose of the Chapter is to further the charter objective for which the American Concrete Institute was organized, i.e., to further education and technical practices, scientific investigation and research by organizing the efforts of its members for a nonprofit, public service in gathering, correlating, and disseminating information for the improvement of the design, construction, manufacture, use and maintenance of concrete products and structures.

How the chapter FUNCTION

The ACI Kuwait Chapter is approved and authorized by the Board of Directors of ACI International to advance the objectives of the Institute in the State of Kuwait. The Chapter is managed by a local Board of Directors whose members constitute the Chapter officers. Chapter membership is open to all individuals and organizations with an interest in any aspect of concrete technology. The Chapter operates through its committees, which are made up of volunteers from members. Programs are developed by the committees to meet the needs of the Chapter members. The Chapter may hold several meetings each year and engage in activities that include:

* Sponsoring educational seminars, short courses or workshops.
* Holding or sponsoring certification training courses and examination.
* Publishing technical information and newsletters.
* Conducting awards programs for local concrete structures.

Calender of EVENTS

YEAR 2001

Date	***Event***
9 - 13 April	***Exhibition*** "Concrete & Construction Exhibition"
May	***Technical, Training Course*** "Maintenance, Repair and Replacement of Concrete Structures"
8 May	***Social*** Field Visit: "Ghassan Al-Khalid Factory for Blocks"
September	***Technical*** Training Course; "Advance Materials for construction and Repair of Concrete Structures"
September	***Social*** Dinner Banquet
October	***Technical*** Seminar: "Arbitration & New Trends in Project Delivery"
October	***Social*** Field Visit:"Kuwait Cement Company"
October	***Technical*** Training Course: "Construction Management"
November	***Annual Meeting*** Election & Dinner at KSE

Who's WHO

BOARD OF DIRECTORS

1. Dr. Naji Al-Mutairi	President
2. Eng. Anas Al-Kassem	Vice President
3. Dr. Bader Al-Hoti	Past President
4. Mr. Ubedur Rahman Arain	Director / Secretary
5. Eng.Abdulwahab Rumani	Director / Treasurer
6. Mr. Gaby Khalaf	Director
7. Dr. Khaldoun Rahal	Director
8. Eng. Malakah Noor	Director
9. Mr. Mohammed Naser Al-Haque	Director

CHAIRPERSONS OF THE COMMITTEES

1. Dr. bader Al-Hoti	Exhibition Committee & Nomination Committee
2. Eng.Abdulwahab Rumani	Membership Committee
3. Eng. Mohammed H. Madbouly	Publication Committee
4. Dr. Naji Al-Mutairi	Public Relation Committee
5. Eng.Ebtisam Al-Kazemi	Social Committee
6. Dr. Moetaz El-Hawary	Technical Committee

C. N. MISSION

Concrete News is published periodically by ACI-Kuwait Chapter to share information between members, exchange technical knowledge and enhance the Chapter's position within the engineering community.

CONCRETE NEWS

ACI - Kuwait Chapter
Kuwait Society of Engineers - KSE
Arabian Gulf Road
P.O. Box 12608 - 7165 - Shamiah - Kuwait
Tel.: 2448975 - Ext.: 307
e-mail: info@acikuwait.com

Chapter NEWS

Field Visit to Hebel Blocks Factory

ACICO is a Kuwait company producing Hebel building materials of execllent quality for local and foriegn markets.

The Kuwait plant produces :

- non-reinforced building materials (blocks, jumbos) in different sizes.
- reinforced building materials (wall panels, slabs, lintels and stairs.
- supplementary products (thinbed mota, plaster and repair mortar).

The building material is of excellent quality, having :

- the best thermal insulation of all solid building materials.
- high acoustical insulation.
- non-combustible and highly fire resistant porperties.
- light weight and can be easy handled.

- economical finishing works (tlies, plaster ,electrical work, etc).

Autoclaved Aerated Concrete (AAC) is made by a patented process from the raw materials quartz-sand, cement and lime.

It is a building material of the light-weight concrete category.

The raw materials are mixed with water and trace of aluminium is added and then cast into big moulds.

The reaction bewteen aluminium and lime envolves hydrogen gas which causes an expanding process forming millions of tiny air pores. Only the remains in the pores.

After a few hours the raw blocks are machine-cut with high accuracy to form the various Hebel elements. The elements are then steam-cured in autoclaves.

Dr. Essaway Recieves an Appreciation Award

ACI hosted a farewell dinner for Dr. Ahmmad Essaway who will be moving to Ain Sahms University in Egypt. ACI Kuwait chapter presented an appreciation award to Dr. Assaway's for his valuable contribution to the field of concrete and civil engineering in Kuwait.

www.aciKuwait.com

Please visit the newly established home page for the Chapter. Feedback is welcomed and Volunteers are needed to complete and maintain the site; if you are interested, please contact webmaster@acikuwait.com

PRODUCING OF SYNTHETIC AGGREGATE FROM LOCAL RAW MATERIALS

By : Suad Al Bahar

The steady depletion of Kuwait's natural gravel resources is of growing concern to major users. The situation is even aggravated by the continued practice of using the high quality desert gravel for low strenght concrete products such as non-load-bearing blocks. Moreover, the introduction of the legislation on interest in the benefits of lightweight aggregate concrete.

In other countries, similar scarcities of natural stone and gravel have led to the use of a wide range of alternative aggregates in concrete work. Many of these are waste materials, such as clinker and furnace ash from coal fired power stations and pelletized slag from steel manufacturing plants throughout the world and the production technology is well established.

Uses of lightweight aggregates include drainage, horticulture and fire resistant compositions but he major application is the production of lightweight concrete for blocks, panels and structural use. Synthetic aggregates are used in concrete instead of crushed stone or natural garvel, primarily to reduce the weight and thermal conductivity of concrete (FIP 1978, Follet 1985). In addition to the lower weight and good thermal resistance, which are the primary benefits of using synthetic lightweight aggregates, it also has the following advantages as a construction material:

- It substitutes scarce natural gravel for normal and high strength concretes.
- Its closed cell structure makes it more effective in the long run because of its stability.
- It resists water penetration, thus keeping thermal conductivit constant.
- Since it is an inorganic material, it is non-combustible and fire-proof; therefore, it does not need fire protection as do most organic thermal-resistant materials.
- Synthetic lightweight aggergate concrete reduces loads on the structural members (slabs, beams, columns and foundations) which reduces their sizes and the cost of building construction.
- Lightweight aggregate concrete exhibits less cracks from shrinkage, creep and thermal expansion.
- It is more resistant to chemical attack than normal concrete, so it is more stable and durable in aggressive enviroments.
- Synthetic lightweight aggregate concrete is more easily pumped than concrete made from natural dense aggregate.

Preliminary investigation on the laboratory scale at KISR's Civil and Building Department has demonstrated that good quality dense and lightweight synthetic aggregate can be produced from all available local raw materials such as marine clay, gatch and sand suitable for use in concrete blocks, precast panels and structural applications.

PROFILE

Dr. Khaldoun Rahal

Profile article is intended to introduce members of ACI-Kuwait Chapter and individuals who made a significant contribution to advance the goals of ACI or the engineering profession in general. ***(By A. Kassem)***

Khaldoun Rahal is one of the most active and supportive members of the chapter. Currently, he is serving his third year as a director of the organizing committee of the 2000 and 2001 Exhibitions, mainly of the membership committee for two years .

He is an Associate professor at the Departement of Civil Engineering at Kuwait University and has been working there since September 1996 when he came to Kuwait arriving from Canada .

Khaldoun's participation with ACI is not limited to Kuwait Chapter. On the international level, he is a member of the Torsion Subcommittee in the ACI-ASCE joint committee 445; Shear and Torsion. He has attended the ACI conventions in Toronto and Washington D.C in the early 90's (as a doctoral student) and lately attended the 1998 Winter Convention in Chicago and the 2000 Winter Convention in Toronto.

Khaldoun recommends attending such conventions because they are a good source of information and can broaden everyone experience.

He has written numerous journal papers, eight of which are in the ACI Structural journal and two in the Canadian Journal of Civil Engineering (CJCE), and numerous conference papers.

When asked about the benefits of joining ACI Kuwait Chapter, he stated that it has given him an opportunity to meet many prople interested in similar engineering topics, and expanded his professional network.

For two years, prior to moving to Kuwait, he worked as a concrete specialist on the design verification of the Gravity Base Structure (GBS) of the Hibernia offshore oil platform - a two Billion Canadian Dollar project - while employed by Morrison Hershfield Limited in Toronto, Canada. He was later involved in the design of building, and communication structures .

Khaldoun recalls, as an amusing and recurrent incident in his academic profession, when new student in first year classes mistake him for a fellow student. He is typically asked before the begining of the first class, "are you in mechanical or civil or electrical?" and "What do you think of this guy named Dr. Rahal? Is he is easy on students in exams and in marking ?"

Dr. Khaldoun Rahal

Children: Nuha (Grade 2), Zaynab (Grade 1) and Abdullah Ahmad (KG1)

ACI-Kuwait Chapter: Dr. Rahal has been elected as a director, and is currently serving his third year.

Professional Profile:

Currently, Associate Professor, Department of Civil Engineering, Kuwait Universty

Previously worked as Design Team leader, Morrison Hershifeld Ltd. Consulting Engineers, Toronto, Canada (1993-1996)

Education:

- Ph.D. in Civil Engineering (Structures), University of Toronto, Canada, 1993
- M.S.C.E, The University of Michigan, Ann Arbor, U.S.A, 1987
- B.E., American University of Beirut, 1986

Awards

- Gzowski Meadal for "Best paper in all subjects" in the Canadian Journal of Civil Engineering in 1999- From The Institute of Engineering and the Canadian Society of Engineering, Canada, 1999
- "Best research paper in the field of Science in 1999" - From KFAS, Kuwait, 1999
- "Outstanding Researcher Award for Assistant professors" in the University - From Kuwait University, Kuwait, 1999
- "Outstanding Researcher Award for Assistant professors" in the College - From Faculty of Engineering and Petroleum, Kuwait University, Kuwait, 1999

Hobbies: Soccer, Arabic calligraphy

Last book read: "Al-Sahwa AL-Islamia Bayn al-Jumood Wal Tatarruf", by Dr. Yusuf Al-Qaradawi

State of ART

This section reviews abstracts from international journals that relate to the lates in concrete technology. For more information please refer to the sources.

INSULATED WALLS

MAINTAIN EFFICIENCY AND INTEGRITY

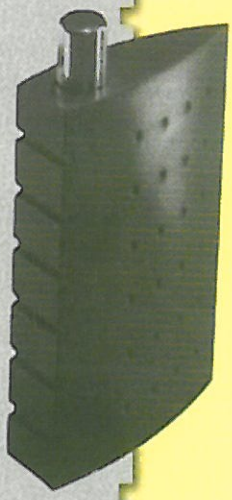
AN IMAGINATIVE USE OF CONCRETE

Possibilities which concrete a bit too far Packaging a new "eau de toilette" in a designer concrete bottlew.

Symbol of performance and material for all challenges, the concrete is now associated to a scent..

LE PARFUME DE LA MATIERE
THE SCET OF **CONCRETE**

THE MATERIAL
The bottle is made of grey or white cement concrete, without surface treatment.
Every hand-crafted piece is uniqe !



THE DESIGN
The design of the concrete bottle reveals the material, inviting to the touch and combines elegance and sophistication.

EAU DE TOILETTE

POUR LUI
FOR HIM

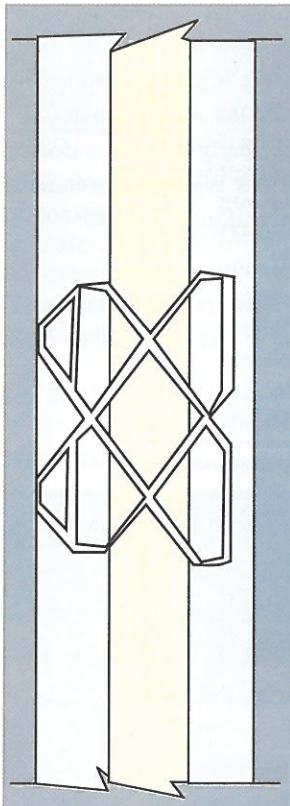
POUR ELLE
FOR GER

If you feel like buying the perfume to sense the scent of CONCRETE contact ACI-Kuwait Chapter for assistance.

Shear Resistance with Low Conductivity

Insulated concrete sandwich panels should function as a single unit in transferring loading to the building frame and foundation .

However, many connectors fail to resist bending force under panel loading and reduce the panel's thermal efficiency. A newly patented fiber reinforced plastic connector sloves both of these problem.



A newly patented "bow-tie" connector for insulated precast sandwich walls is designed such that 1. strands of thermally nonconductive material are located parallel to the outer concrete layers to resist bending under loading, and 2. angled strands connect the concrete layers and are in tension under loading.

Trouble SHOOTING

BLACK OR CLEAR PLASTIC FOR COVER?

I have a choice to carry either clear or black plastic for flat work curing. Which should I use and why?
Curing of concrete is a function of two things: moisture and temperature. The more moisture present and the higher the temperature, the faster the concrete cures. Less moisture and a lower temperature means less curing takes place. Covering fresh concrete with plastic is designed to serve two purposes: to keep as much moisture present for curing, and to minimize temperature release.

The difference between clear and black plastic is as simple as wearing a white or black T-shirt in the sun. The black T-shirt makes the wearer much warmer. The same is true for black plastic. Under identical conditions, black plastic generates a higher temperature for curing than clear plastic does. A higher temperature moves the hydration reaction along faster, which typically means that more water should be present during curing.

So, you could use either one, black or clear. Just understand that by using black plastic the temperatures underneath could be much higher than you are used to with clear plastic. Take appropriate steps to ensure that adequate moisture is present during curing.

EVENTS

TRAINING COURSE

ADVANCED MATERIALS FOR CONSTRUCTION AND REPAIR OF CONCRETE STRUCTURES

Name : Kuwait Society of Engineers
Time : 5:30 - 8:30 pm
Date : 24 - 26 September 2001

INTRODUCTION
The Technical Committee of the ACI-Kuwait Chapter would like to invite ACI members as well as other engineers who are not yet members to attend our third training program.

COURSE OBJECTIVES
This course aims to provide design and supervision engineers, specifications specialists, and contractors with the properties and specifications of advanced materials used in construction and repair such as:

- High strength high performance concrete.
- Polymer concrete and Fiber reinforced concrete
- Fiber-Reinforced Plastics and its use in repair.

COURSE DIRECTORS
Dr. Ahmed Sherif Essawy, Technical Advisor, Projacs. (Course Coordinator)
Dr. Moetaz El-Hawary, Research Scientist, Kuwait Institute for Scientific Research.
Dr. Khaldoun Rahal, Associate Professor, Kuwait University.

AGENDA

Technical Session	5:30 - 6:45 pm
Break	6:45 - 7:15 pm
Technical Session	7:15 - 8:30 pm
Snacks	8:30 - 9:00 pm

ATTENDANCE FEE

ACI Members:	K.D. 30.000
KES Members:	K.D. 45.000
Others:	K.D. 60.000

REGISTRATION
Registration for this program is available only through the Chapters office:

ACI Kuwait Chapter
Kuwait Society of Engineers [KSE]
Arabian Gulf Road
Tel.: (965) 2448975 Ext. 307

The number of the participants in this program will be limited to only 20 in accordance with the order of names in the registration sheet available at the office.

PROJECTS

BRIEF SCOPE OF PROJECT WORKS

Location: Shuwaikh, Kuwait

Owner: K.P.C

Designer & Supervisor : S.S.H

Construction Management: Bovis-Projacs Joint Venture (Bp-JV)

The Kuwait Oil Sector Complex Project involves the construction and management of headquarters of Kuwait petroleum Corporation (KPC) and Ministry of Oil (MoO) spread over apporximately 57,000 square meters on a water frontage site of partly reclaimed land in the Shuwaikh area. The total gross Internal Building Areas are envisaged as below:

The complex features two fan-shaped high-rise towers; each composed of a lens-shaped building at the front and a triangular-shaped building at the back. Both towers are connected by a bridge and an obser varion lobby at each floor through a central lifts core. The KPC and MoO Lens Towers are 100 meters and 80 meters high, from basement level, with 19 and 14 office floors respectively. The basement is 10 meters high. Roofs of the triangular building and central core are sloped. The apex of KPC and MoO Triangular buildings are 80 and 60 meters high from basement level respectively. The central lifts core is elliptical in plan and its apex will be 115 meters from basement. A spacious glazed main atrium at ground level and two full height glazed internal atriuns, between the lens and triangular buildings, will complete the design .

The project will have a framed, reinforced concrete stucture and the load shall be transferred to bored piles through a reinforced concrete mat .

ACI-KUWAIT CHAPTER THANKS OUR ORGANIZATIONAL MEMBERS.
Their support and willingness to share knowledge is appreciated.

Your company could be here!