

Iraq Chapter – ACI Advances Concrete Industry in the Middle East

Ten months after August 2013, when the ACI Chapter Activities Committee approved the formation of the Iraq Chapter – ACI, large areas of Iraq fell under terrorist attack by ISIS. It was a serious challenge to launch the activities of the new chapter because much of the area was devastated. Local universities were closed and construction projects ceased. ISIS threatened the remainder of the country and the Chapter Board of Directors faced the challenge of attracting the interest of professors, engineers, technicians, and students to become members.

The first step in planning chapter activities was to host a Skype conference call with those who held leadership roles. The second step was to present seminars introducing the benefits of forming an ACI chapter to improve concrete knowledge, especially at engineering colleges in central and south Iraq. The third step was to launch a website and Facebook page and then invite people interested in concrete to be chapter members.

The following is a summary of chapter activities:

Educational Seminars

Educational seminars have been organized on various concrete topics, such as the benefits of reorganizing ACI 318, sustainable concrete, using fiber-reinforced polymer to strengthen concrete structures, and self-consolidating

concrete. The seminars were held at the University of Babylon, the University of Wasit, the University of Technology, and the Governorate Building of Mesan.

Student Project Competition

The chapter hosted the second Annual Concrete Project Competition, open to undergraduate students. The projects focused on concrete design, material, and/or construction. Students were required to submit a paper containing a problem statement, statement of research significance, a conclusion, and a list of references.

Sponsoring Industry Events

The Iraq Chapter – ACI supports the efforts of the Second International Conference of Building Construction and Environmental Engineering (BCEE2), organized by the Iraqi University of Technology and the Lebanese American University. It will be held in Beirut, Lebanon, October 17-18, 2015.

Honoring Industry Leaders

The University of Kufa College of Engineering and the Iraq Chapter – ACI organized a seminar in recognition of the legacy of Husain M. Husain on January 18, 2015—the anniversary of Husain’s death. Several professors described his research work on the structural use of concrete and a wall poster was



Seminar in the city of Hilla on the benefits of Iraq Chapter – ACI membership

Fast Facts About Iraq

- Shares a border with six countries: Iran, Turkey, Syria, Jordan, Saudi Arabia, and Kuwait.
- About 36 million people live in Iraq.
- Covers 169,000 square miles (438,000 km²) that includes 40% desert and 30% mountains.
- Five different languages are spoken (mainly Arabic and Kurdish).
- Temperatures reach over 100°F (38°C) in the summer and as low as 35°F (2°C) in the winter.
- Oil is the largest industry, while agriculture is the leading occupation.



Seminar on concrete sustainability in Baghdad



Presentation of the plaque in memory of Husain M. Husain at the University of Kufa

placed in the lecture hall carrying his name. At the end of the seminar, the College of Engineering Dean presented Husain's nephew with a plaque featuring the logo of the college.

In addition, the Iraq Chapter – ACI acknowledged the contributions of Khalid Najim, a Professor at the University of Anbar. Although his university campus was occupied by ISIS 2 years ago, he continued his research on concrete and published in international journals. Because of the security situation, Najim changed his residence many times in different Iraqi cities. He recently received a certificate from the *Journal of Construction and Building Materials* for his outstanding contribution in reviewing papers. The Iraq Chapter – ACI appreciates Najim's spirit of challenge and his contributions to concrete.

Challenges with Concrete in Hot Weather

Most areas in Iraq are known to have four pronounced seasons: 5 long and hot months of summer with temperatures sometimes exceeding 50°C (122°F) and other three seasons of about 7 months with temperatures generally moderate. Every



The Iraq Chapter – ACI website

year, Iraqi engineers have a recurring concern: How do we compensate for the added complication in concrete placing due to such hot weather? What kind of precautions should be taken in case of prolonged time of transport?

Iraqi contractors usually take the potential difficulties into account when they prepare to place concrete in the hot months from mid-May to mid-October. Unlike field conditions, mixture proportions in the laboratory are prepared under ideal conditions with a room temperature of 20 to 30°C (60 to 86°F). All the constituents used in the trial mixtures are stored in the laboratory at least 24 hours so that specimens are subjected to constant conditions of moisture and temperature. Moreover, if variations in aggregate moisture are expected, then aggregates (fine and coarse) are to be prewetted and probably covered overnight to reduce moisture variations at the time of making trial mixtures.

In Iraq, desert conditions in the field vary greatly from those in the laboratory mostly due to the elevated temperature of the concrete and low relative humidity leading to increased water demand, slump loss, plastic shrinkage, and need for curing. These conditions are also forcing contractors to add some water to the fresh concrete to increase the workability and reduce placing and finishing difficulties.