

Bridge to teaching

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Alex Aswad was a world traveler from the time he was a young boy.

Born and raised in Lebanon and Syria, he received a civil engineering degree from the University of Damascus, then spent four years as a junior civil engineer working on projects in places such as Italy, Saudi Arabia, and Kuwait. But when he decided he wanted

to pursue his master's degree, he set his sights on the United States. "I came as a legal immigrant with the goal to study and work in design and construction," he says.

In the late 1960s he began his studies at the University of Denver in Colorado, where he obtained his MS in civil engineering and later his PhD in engineering mechanics.

While pursuing his master's degree, Aswad learned about a federal competition to come up with an innovative design for low-cost, durable housing. Working with one of his professors at the time, the late F. Jerry Jacques, they came up with an all-precast concrete model. "We didn't win, but it was a good design," Aswad says. It was later implemented by a housing authority in Delaware. Although Aswad didn't win the contest, his professor also happened to be a vice president at Stanley Structures, the largest prestressed concrete manufacturer in the United States, and he hired Aswad, first as a summer engineer and later as a full-time associate in 1974. That cemented Aswad's career in the precast concrete industry.

"Stanley was one of the largest precast research companies in the United States," he says. During his 12 years at the company, Aswad worked on a number of major projects, including a massive federal bridge in Phoenix, Ariz., where his team was able to demonstrate how precast concrete girders could bring down the original projected cost, and the 24-story Cheesman East Condo building in downtown Denver, Colo., which in 1974 was the tallest fully precast concrete building ever built in the United States, he says. "It held that title for seven years!"

When Aswad joined Stanley, he also joined PCI, where he spent years working on the Bridges Committee, ultimately authoring the chapter "Loads and Load Distribution" in the *PCI Bridge Design Manual* that was published. He also contributed to the PCI Industry Handbook and Research and Development Committees, became a PCI Fellow, and was the recipient of the PCI Distinguished Educator Award in 1998.

"PCI was always a place for innovation," he says. He says that many of the advances the industry has made, including extending the length and width of double tees, can be traced back to conversations had at PCI conventions. "People saw what everyone else was doing at those meetings, and they took those ideas back to their firms."

Aswad was happy at Stanley, but in 1987, in the midst of the recession, the firm was about to be acquired and he was uncertain about his future. "Very few or no precast

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companies had PhDs on staff back then," he says, so he left the firm to become a professor of civil engineering at Pennsylvania State University in Harrisburg, where he taught structural design and mechanics to undergraduate and graduate students for 20 years. Simultaneously, he founded Jacques & Aswad Inc. in Denver with Jacques. The firm specialized in precast/prestressed concrete design and detailing.

During his time at Penn State, he introduced prestressed concrete analysis to the undergraduate curriculum and was a principal investigator on various research projects dealing with prestressed transportation structures. In 1992, he and his graduate students developed the first version of bridge design software Quikbeam, which is still being used by design engineers in the mid-Atlantic states for the automatic sizing of prestressed bridge girders.

He says he is proud to report that all of his students found jobs within a few months of graduation. "I worked assiduously to place my top students in precast concrete companies," he says. "Some of them are chief engineers now."

Like his mentors before him, Aswad encouraged those students to join PCI as soon as they began their careers. "The best way to drive innovation is to stay active in the industry, join committees, and go to those meetings," he says. "If everyone pulls together, we can keep the industry moving in the right direction." 