The Architectural Engineering Institute - A Professional Society for Architectural Engineers

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On October 1, 1998, the National Society of Architectural Engineers (NSAE) merged with the Architectural Engineering Division (AED) of the American Society of Civil Engineers to create the Architectural Engineering Institute (AEI).

It has long been recognized that lacking a strong national professional society, graduates of Architectural Engineering programs quickly lose their identity as Architectural Engineers. Both NSAE and AED have worked at correcting this problem, however the synergism provided by the AEI will be much more effective than either alone. In addition, the purpose of the AEI is to create a multi-disciplinary meeting place for the exchange of technical, educational and professional concerns for those involved in the building-related fields.

This paper briefly describes the history, current organization and future plans for the AEI. Special emphasis is on the relationships with student groups and support to the education process.

I. Introduction

The first Architectural Engineering (AE) program was offered at the University of Illinois. Penn State offers the longest continuously operating program. It has been accredited since 1935. There are currently 13 ABET accredited AE programs in the U.S. with at least two more under development.

In general, graduates of AE programs have aligned themselves professionally with other disciplines such as mechanical, structural, electrical or architecture. This is due to a lack of professional recognition which comes from a strong professional society and also the lack of profession engineer licensure designating them as Architectural Engineers. The Architectural Engineering Institute addresses both of these issues. It immediately provides a strong professional society. It is currently working at developing an appropriate professional registration exam for Architectural Engineering. It is accomplishing this by joining the strengths of the National Society of Architectural Engineers and the ASCE Architectural Engineering Division.

II. Development of the Architectural Engineering Institute

The Department of Architectural Engineering at Penn State University is credited with starting the first student organization. The Penn State Student Society of Architectural Engineering (SSAE) began in 1969 to provide a strong binder for its students. Other universities began similar groups including the Architectural Engineering Association at the University of Kansas. All faced similar challenges; namely, providing a professional organization for its students and instilling a professional attitude for their lifetime careers.

In 1981, Dr. Ronald N. Helms, while Chair of the Architectural Engineering Department at the

University of Kansas, outlined a plan to develop a national society for practicing architectural engineers. The concept was to unite the student chapters throughout the country and to then build professional chapters among the graduates from these chapters. The name selected was the National Society of Architectural Engineers. The first meeting of this new organization was held at the University of Kansas in August, 1982. It included delegates from the University of Texas, Oklahoma State University, the University of Miami (Florida), the University of Colorado, Kansas State University, North Carolina A&T and the University of Kansas.

Dr. Helms explained his rational for starting NSAE to the group with these comments:

"One of the major problems facing the architectural engineering graduates and students is a lack of identity and recognition among professionals from more traditional programs. We are a hybrid program with ties to both architecture and engineering that may vary from one university to another. This lack of identity becomes apparent to students when they approach the typical job placement or career placement office at most universities. Most firms come on campus not recognizing the potential of an architectural engineering graduate to fill the company's job needs. We are the 'damn architects' to the engineering profession and the 'damn engineers' to the architectural profession. In most states, we have no direct input into the professional registration process, since we have no professional society to represent our program. If your program is an ABET accredited program, it is listed as a non-traditional program, since the program has no professional society in Architectural Engineering."

The NSAE succeeded in creating a focal point for the existing student chapters. It built two professional chapters in Philadelphia and Kansas City. It conducted yearly conferences at locations convenient to student chapters. The NSAE leadership obtained approval from the National Council of Examiners for Engineering and Surveying (NCEES) to begin development of a professional registration examination. They also aggressively sought financial support from the NSAE membership to fund this undertaking. This process was underway as NSAE merged with AED. NSAE had accomplished a great deal since 1982.

The Architectural Engineering Division (AED) of the American Society of Civil Engineers (ASCE) was conceived by J. Paul Guyer, P.E., R.A. Guyer has been a very active member of ASCE for many years. He saw that many persons in the architectural engineering field joined ASCE. With the exception of those specializing in structural engineering, there really was no central focal point for them. Also, those in the building related professions outside of civil engineering had no interest in joining ASCE. Guyer developed a core group and began a nation-wide campaign to petition the Technical Activities Committee to begin an AED. Within a short period of time, his group formed the AED that began functioning in October, 1993.

Almost as soon as it was formed, the AED began discussing how to truly become the "home organization" for the building design profession. By 1996, they had decided to become what ASCE called an Institute, a semi-autonomous organization within ASCE designed to be multi-disciplinary and embrace all professionals related to building planning, design, construction and operation. While AED provided an excellent journal publication and nationally coordinated technical committees, it lacked local involvement and the critical mass to become an Institute under ASCE's measurement criteria.

The turning point for both organizations came in April 1997 in Omaha, Nebraska. NSAE President Mark McAfee and Vice President M. Clay Belcher visited the AED meeting in Omaha to request support in raising funding for the Building Architectural Engineering Exam. Both groups discussed their strengths and weaknesses and realized that together they were able to become the organization that each alone could not achieve. By July, the two groups signed a memorandum of understanding to develop the Architectural Engineering Institute and received preliminary approval from ASCE to develop their plan. The groups worked out all of the details of the new association, developed business and operations plans, finalized their bylaws and opened their doors officially on October 1, 1998.

II. Current Organization

Membership in AEI is open to all participants in the building industry. The grade of Member is limited to those with a professional licence in engineering or architecture. Non-licenced individuals may join as Associate Members if they are graduate engineers or architects or as Affiliate Members if they do not hold a degree in engineering or architecture. Student Membership is available to those in a university program. Industry Memberships are also encouraged from AE firms and related entities.

The AEI is lead by a Board of Governors. The first Board was established with 6 members representing the AED and the NSAE and 1 representing ASCE. Beginning in the fall of 1999, two Governors will rotate off and members will be elected from the body of the AEI. Each year, the rotation of two Governors will continue to keep fresh ideas and excitement flowing. Nationally, there are currently a dozen technical committees in areas such as Residential Buildings, Building Systems, and Mitigation of Terrorism that report directly to the Board. Similarly, the Educational and Professional Committees and Academic Council have been developed with a direct reporting to the Board. This flat structure was developed to maintain the speed and flexibility necessary to respond quickly to new initiatives.

The first important undertaking of the AEI is to continue to advance the NSAE's role in developing the Building Architectural Engineering Exam (BAE). ASCE was able to provide the capital to hire a consultant to do the Professional Analysis of Knowledge (PAK). The PAK was begun in October 1998 by bringing together practitioners and academics in the fields of construction management, electrical, structural and mechanical engineering. These professionals listed all of the important aspects of their fields that were necessary to prove professional competency. The consultant consolidated the lists. A survey was then sent to practicing AEs primarily in the 5 to 10 year range out of school to find what is known and practiced by the group who will take the exam. The results of the survey will be used to determine the types and numbers of problems on the exam in each subject area. Problem writing can begin once the survey results are finalized. The exam is on track to be offered in Spring 2001.

Of almost equal importance was the integration of the NSAE student chapters. Most of the chapters have changed their name to AEI. New life has been breathed into some of the less active chapters through a new focus and excitement about the profession. AEI has provided mailing lists

to some chapters of professionals in their area. These lists will provide the students with a database of future speakers in their area and local contacts to invite to programs. The AEI has also committed to continuing NSAE's conference and adding a job fair to help AE students and AE professionals meet. To assure that students play an active role in the AEI, a student governor was added to the AEI Board of Direction. Students are recognized as the future and are treated as such.

An Academic Council is now being established. The council will represents the Department Heads of the ABET accredited programs and those schools currently establishing accredited programs. The first meeting of the Academic Council focused on ABET 2000. The second meeting provided training for ABET visitation. ASCE has served as the lead organization for AE accreditation thus far. The AEI will take responsibility for providing high-quality visitors to assure the excellence of the AE academic curricula. AEI also recognizes that without the encouragement of the academic AE Departments, the students may not be convinced of the need to participate in professional activities throughout their careers.

Building on the strength of the AED, the national technical committees of AEI are being encouraged to expand their membership and activities. These national committees conduct their work through periodic meetings, conference calls and E-mail. The results advance the state-of-the-practice by producing publications and informative technical sessions at national conventions.

The start-up of the AEI has been a success. The membership of the two organizations combined was slightly over 900 on October 1, 1998. Within 5 months, the membership grew to over 2100. As the groups put into place more activities, continued expansion will occur.

III. Future of AEI

Local activities need to be developed to serve the needs of those practicing the multi-disciplinary aspects of building planning, design, construction and operation. We believe as membership growth continues, the critical mass will be achieved to start these groups. We believe they will start in one of three ways. The first is as a technical group associated with the local ASCE chapter. ASCE has a significant infrastructure in place and the mechanisms to conduct local meetings. This will appeal to the AEI members who are also members of ASCE. The second option is to begin local chapters through the student chapters. By providing students with mailing lists, the students can invite professionals in their area to listen to the quality programs being presented to them. It also encourages interaction for employers to meet future employees in a casual setting. The third option is the development of local activities by one or two motivated members within each area.

At the national level, the technical, professional, and educational committees need to grow. The technical committees must continue to promote technical excellence and advance the profession through papers, conferences, and publications. Additionally, the education committee needs to focus attention on students at the national level to assure that their needs are met. A forum must be developed for faculty advisors to share ideas and coordinate national competitions. The AEs need to find a national equivalent of the concrete canoe or steel bridge competition. The professional activities committee will continue to support the AE registration exam by promoting

it throughout the U.S.

The final goal for the AEI is to promote the profession through education of the general public. AEI needs to promote academic AE programs by showing what an AE graduate is capable of doing. Through this the highest quality students will be attracted to the profession. AEI also needs to encourage additional universities to add the AE programs to their curriculum.

IV. Conclusion

The Architectural Engineering Institute will become the professional home for building-related professionals in the United States. Its strength comes not only from the merger of the NSAE and the AED, but in the pipeline of students who have chosen AE for their careers. The development of professional registration examination will be a significant step in truly uniting this profession.

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