

Article for SEI Update SEI-MD

The Maryland Structural Engineering Institute Chapter (SEI-MD) helped to provide volunteers for the ACE Baltimore mentoring program for the 2010 school year.

ACE is an extra-curricular program which gives students a hands-on introduction to the fields of architecture (A), construction management (C), and engineering (E). The program matches professionals involved in those fields (mentors), who volunteer their time and energy to work with students interested in those fields. The ACE program mission is to “increase the awareness of high school students to career opportunities in architecture, construction and engineering and related trades and professions through mentoring; and to provide scholarship opportunities.”

For 2010, ACE-Baltimore had 11 teams of students, with 117 students participating and 98 mentors. The mentors were composed of a full range of professionals associated with the building field, from architects and planners, to a full range of engineers including structural engineers, to construction managers. Teams meet weekly for 12 weeks to work on an assigned project and learn about the disciplines involved in designing a building. At the end of the 12 weeks, each student team prepares a Power Point presentation and presentation board, and presents their project during a special presentation night to all of the other student teams, mentors, parents, and teachers.

This year’s ACE project was to design a station for the Baltimore Red Line project. The Baltimore Red Line is a proposed 14-mile, east-west transit corridor, to provide enhanced mobility and connecting service to Baltimore’s existing transit systems.

The students who participated in the ACE program this year were asked to design a concept for one of the new stations on the Red Line route. Students could research other transit systems and decide on the type of station that they would like, and what the station would look like. Students were given the proposed route, and the mentors guided the students through the process of planning, architectural design, engineering design, and construction estimating and scheduling for their concept of a new station. A behind-the-scenes tour of an existing subway station was offered to the students from the Transit Authority, and students were able to observe the “back of the house” of the subway station, including the controls, the electrical areas, the mechanical areas, etc. Students not only learned about the technical aspects of the station design, they also learned that the community is a critical element, and that the design of a station such as this must involve the community.

Representatives from the Baltimore Red Line requested ACE Baltimore to choose this project. Several representatives attended presentation night to observe what the student ideas were. Students presented ideas on what the station could look like, how it could be accessed, and what types of things could be located in the station to make it a destination, rather than just a transit stop. One team even suggested using it as a satellite school campus location. Several great ideas were generated by the students, and presented to everyone involved. Red Line representatives indicated afterwards that they hope to use some of the ideas.

Students who participate with ACE find the experience to be challenging and an excellent learning experience. Several earn scholarships through their participation, and internships are often available also. Mentors who are involved with the program find their involvement to be very rewarding, and many continue to mentor year after year once they are involved.

SEI-MD obtained a SPAG grant this year to assist with the ACE Baltimore program. The SPAG grant paid for 6" scales for all of the students involved, trace paper, and calculation paper for the students. These items were used by the students throughout the program as they worked on their project. The scales and trace paper were extremely useful for the students as they designed their concept for the transit station. In addition, most of the structural engineers involved in the ACE program this year are members of ASCE and SEI. Participation with the ACE program is an excellent way for engineers to share their experiences with students. It also gets the students interested in structural engineering and encourages them to study structural engineering and join the structural engineering profession.

For more information on SEI-MD, contact Cyndi Smith, P.E., President SEI-MD.