

# Framework 2008 summer


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# PAY IT FORWARD

**W**e all got our start somewhere. As professionals looking back, we often remember a pivotal event or a single person we encountered somewhere along the way who was central to our development. It could have been a teacher who spotted and encouraged a specific talent, an involved and inspiring parent, or the best friend's dad who helped build the go-cart that won that year's race. (He was probably an engineer.)

People who have had such experiences remember their stories vividly and fondly. They are inclined to want to return the universal favor by providing that same spark,

the "Aha!" moment, for someone else. While professional engineers haven't cornered the market on mentoring, they are an active bunch. Perhaps the inherent creativity of the profession drives them to nurture imagination and inquisitiveness in others. Whatever the reason, today's engineers – young and old – are just as likely to be found promoting their industry at schools and science fairs as in client meetings. They are paying it forward to get it back. By investing their time this way, they are literally mining the next generation of rocket scientists.

Is there a more noble cause? 

# ACEC/MN'S SCHOLARSHIP PROGRAM: *INVESTING IN THE FUTURE*

The costs of obtaining a higher education are continually on the rise. For many students, finding creative ways to fund their schooling requires as much effort as the course work itself. Since the 1970s, ACEC/MN's scholarship program has helped fund the education of promising young engineering students through generous donations from member firms, and funds raised during annual softball, golf and basketball tournaments. Lance Newman, Civil Engineer at Progressive Consulting Engineers and Scholarship Committee Chair for the last two years, has seen the return on investment firsthand.

According to Newman, when member firms employ past scholarship winners, they see their money in action. By spotlighting the winners, they become success stories for future applicants – who see that it can be done and how ACEC/MN can help them get to where they want to be.

“There’s an extreme feeling of satisfaction when you have past scholarship winners who are now working in the profession come back to serve on one of our committees,” Newman says. “These individuals are living examples of the power of our scholarship program.”

Thanks to the enthusiastic effort and generosity of member firms and sponsors, last year ACEC/MN awarded \$26,500 in scholarships to deserving students. Participation in the golf, softball and basketball tournaments continues to grow, with more players, increased donations from member firms, and more and bigger sponsors.

ACEC/MN's scholarship competition is open to any student who is entering their junior, senior or fifth year, or pursuing a master's degree in an accredited engineering or land-surveying program. Last year, of 38 applications received, 12 scholarships were awarded and the recipients were honored at last January's Engineering Excellence awards banquet.



## How to be an EVERYDAY HERO

ACEC/MN provides a variety of creative avenues for professional engineers to help make a difference in a young person's life by sharing their knowledge and experience. Plus, by tapping into the energy of those who are just discovering the many exciting things it can mean to be an engineer, these activities serve those who serve. It's a win-win scenario that offers information and guidance to a new generation, while helping the pros stay connected to trends and industry developments, and keep an eye on future talent. Following are some of the many ways ACEC/MN members have gotten involved:

### Hitting the Highlights

The fifth annual **Scholarship Golf Tournament** took place in June, with Geopier Foundation Company – Midwest as the title sponsor for the second year in a row. The sold-out tournament had 144 golfers, more than

60 sponsors, and raised \$11,600 for the scholarship program. After the tournament, golfers and non-golfers alike mixed and mingled over dinner, awards and a raffle that this year included more than \$3,000 in electronics, sports memorabilia, trips and other prizes.

While all are encouraged to apply, winning is no small feat. Applications (including essays) are reviewed by the Scholarship Committee, and students who make the cut are interviewed in person. They are then ranked based on leadership skills, academic achievement, school and community activities, work experience and their understanding of the consulting engineering profession.

***“There’s an extreme feeling of satisfaction when you have past scholarship winners who are now working in the profession come back to serve on one of our committees.”***

refreshing to talk with these students who want to change the world, because it’s a reminder of why you wanted to be an engineer, too,” he says. “But at the end of the day we’re mining the best and brightest, the ones who will literally build the future, and make the things we can only dream of a reality.” ☺

“The three guiding goals of the scholarship program are to promote interest, educate and finance,” Newman says. “The tournaments are a fun and exciting way to promote interest in the profession on a broad level. Students are educated by going through the application and interviewing process, and the winners are financed with money.”

Newman acknowledges that it would be great to be able to reward all applicants for their effort. “It’s so

“We have attendees and sponsors that participate in several events a year, and they tell me this one is the most fun and well organized,” says Pat McGraw, Transportation Engineer at Bonestroo and Chair of the Scholarship Golf Committee for the last two years. “It’s gotten to the point that sponsorships for this event sell-out quickly because it’s an ideal way for member firms, affiliates and other companies interested

in marketing to our membership to gain that awareness and build relationships,” McGraw says.



Hitting the Highlights :: continued on page 12

## SCHOLARSHIP SUPPORTERS

### CENTURY

BKBM Engineers, Inc.  
Dag Knudsen, Inc.  
H. Robert Anderson & Associates, Inc.  
Michaud Cooley Erickson  
TKDA  
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### PATRON

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### CONTRIBUTOR

McConkey Johnson Soltermann, Inc.  
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### GOLF TOURNAMENT TITLE SPONSOR

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*For information on volunteering, becoming a sponsor, or to make a donation to ACEC/MN’s scholarship fund, please contact Melissa Langowski at [melissa@acecmn.org](mailto:melissa@acecmn.org); 952-593-5533.*

# THE CHANGING FACE OF ENGINEERING

Perhaps not surprisingly, scholarship winners who go on to work in the profession are often the most active and vocal advocates for ACEC/MN's scholarship program and the organization as a whole. Some, such as Lyndsey Alm, who received a scholarship from ACEC/MN while in her junior year at the University of Minnesota and is now an Environmental Engineer at Environmental Resources Management, are very involved in the organization that once helped them get their start.



"I've been on the Education Committee, Strategic Planning Committee and Environmental Committee, and that led to being

asked to sit on the Board for a year," Alm says. (Every year, a different young Professional Engineer is asked to sit on ACEC/MN's Board of Directors for a 12-month term.) During Alm's term (2006-07), ACEC/MN nominated her for a new ACEC National award – Young Professional of the Year. She won – and became one of five in the country who received the award that year. (See photo below.)

"There is a perception that firm principals and senior staffers are the only ones who get involved in ACEC, but it's not true," Alm says. Even so, she's on a mission to increase the number of young professionals in ACEC/MN's membership. "The organization really values its younger members because they can be a great resource from many standpoints," she says, "such as influencing legislative issues – voting and staying in front of the politicians who are influential in keeping consulting engineers in business." Beyond the political aspect, potential engineering students often relate best to young engineers. Alm has delivered "engineering today" presentations to several youth groups, and has given FE/PE Exam Presentations at the University of Minnesota.

These days, Alm devotes a great deal of time to ACEC/MN's Emerging Professionals Committee, a newer group that she helped start (she is currently transitioning from committee Chair to Board of Directors). This committee focuses on developing educational content and networking

activities for professionals with 5-15 years of experience. “In school, you learn math and science and develop a skill set that relates to the technical side of the business,” Alm says. “What you probably don’t get are the peripheral things that are also very important – like writing, project and financial management, and marketing – these things are critical aspects of how a firm makes money.”

**“The organization [ACEC/MN] really values its younger members because they can be a great resource from many standpoints.”**

“It’s a free exchange of ideas, information and opinions,” Alm says, and points out that senior professionals are attending these events to get the youth perspective on how they want to learn and work, what their values are, and other generational issues. “We’re all working together to figure out how to go about continuing the legacy of the reputations our firms have established, while being progressive in a constantly changing world.”

## BOB ROSENE ON THE IMPORTANCE OF SCHOLARSHIPS



*University of Minnesota student, Brian Bell, receives the Bob Rosene Scholarship.*

Bob Rosene, one of the original partners at Bonestroo, was instrumental in founding ACEC/MN’s Scholarship Committee in the early 1980s. Retired since 1992, he stays connected to his industry, and thinks that recruiting consulting engineers by way of scholarships is just as important today as it ever was, if for somewhat different reasons.

“In my day, young people didn’t know that there was such a thing as being a Professional Engineer,” Rosene recalls. “They went to work for the highway department or a big manufacturing firm and developed these skill sets. The only form of recruitment was trying to lure members from other firms, or chance meetings with people who had appropriate backgrounds.”

Even though today people are aware of engineering as a profession in general, “Scholarships still have the power to be a deciding factor in someone’s career path,” Rosene says. “Especially as technology continues to evolve, there are so many ways to be an engineer –



*2008 Scholarship Recipients*

beyond structural, mechanical, civil or electrical – the possibilities are endless – and scholarships help people see the possibilities.”

# FEELING ADVENTURESOME?

## Exercise Your Inner Explorer!



ACEC/MN's **Engineering & Technology Exploring Post** program gives students and volunteers a chance to set aside the books and lectures and get hands-on experience with projects that have real-world inspiration and application.

The Exploring Post program is a career education program for youths between the ages of 14 and 20, and is one of seven programs under the Learning for Life umbrella (a wholly owned subsidiary of Boy Scouts of

America). Melinda Inman, Senior Learning for Life/Exploring Executive, works with organizations across the country to develop the programs on a local level.

"At one point, we identified that there were dozens, if not hundreds of students within ACEC/MN's reach that had indicated an interest in some aspect of engineering," Inman says. "We contacted ACEC/MN, and they added the program to their outreach efforts in 2006, and it has become a very successful program for them in a very short period of time." Bruce Paulson, Project Manager at Bonestroo and Associate Post Advisor, has been involved since the beginning.

"It's a very important, exciting program, because 14 to 20 is prime recruitment time and kids at that age are really open and adventuresome," he says. Even better, because most young people probably have only a vague idea of what engineering is all about, the program teaches by interactive example.

"You can't expect a young person who has no real idea of what engineering is to come forward and say they're interested in it," Paulson says. "So we back-end into it by collaborating with students to come up with real-world types of projects that they can relate to and that we can 'build' together, and in the process, they learn about the many different disciplines within engineering, and how they relate to each other."

Like a SuperTarget™, for example. Eighty-five students turned out to participate in the 2007 project, which provided a behind-the-scenes look at what goes into creating such a building. "There was great diversity in the participating firms, so the students could really see how all the different disciplines of engineering work together,"

Paulson says. The project also included affiliated partners such as architects and state, county and city entities, which helped students learn about the process. “As a result,” Paulson says, “we demystify engineering and demonstrate how creative it can be, and that’s what it’s all about.”

The SuperTarget project was followed by a bridge design project that was inspired by the I-35W bridge collapse. “This was a poignant project,” Paulson says, “because in addition to learning how to build a bridge, students got a sense of the huge importance of the engineering profession in terms of providing for the safety of *people*.”

Next up on the agenda? A stadium design project, inspired by the Twins and Gopher stadiums. “This project will be very different than the others because we’ll be dealing with an extremely unique construction type and the design challenges inherent with this type of facility,” Paulson says.

Outside of these projects, the Engineering & Technology Exploring Post offers other “adventures,” such as a trip to the Mall of America, where students learned how the facility handles security, parking, heating/cooling and other operational issues – and a similar visit to the Target Center, complete with a Timberwolves game.

“The Exploring Post programs give employers a direct influence on their future workforce, but what you see evolve is a personal mentoring and sharing,” says Melinda Inman, Learning for Life Executive. “These people have great passion for what they do and they want to share that passion and see it develop in young people.”

“This is a really great time to get involved, as a student or volunteer,” Bruce Paulson says. “There’s no age limit on learning, and even the most seasoned professionals usually come away from these programs with something new in their pocket, whether it’s an idea for a project they’re working on, or a business card.”

“It was a lot more hands-on than I expected,” is the first thing Sophie Buchite says of her experience as a participant in ACEC/MN’s Engineering & Technology Exploring Post program. Buchite is a freshman at the University of Minnesota Duluth, who participated in the SuperTarget and bridge projects.

“It was really fun to have big groups of kids that were interested in a certain area of engineering do group activities and have mini-contests to figure things out,” Buchite says. “We also figured out that we were on a common ground despite our different specific interests, and we got to learn new things about fields we might not have otherwise been exposed to.”

## Earlier this year, ACEC/MN’s Engineering & Technology Exploring Post

member firms were honored with the *Learning for Life Innovation Award* from the Northern Star Council, in recognition of their development of creative and innovative Post programming. Bruce Paulson was also honored as *Associate Post Advisor of the Year*, for his dedicated and enthusiastic leadership, insight and contributions.

### Participating firms included:

- American Engineering Testing
- Bonestroo
- Braun Intertec Corporation
- Gausman & Moore
- HGA
- TKDA
- SEH

## Engineering & Technology Exploring Post Kick-off Event

Monday, September 15, 6:30 p.m. at Bonestroo

Students and parents are invited to attend the upcoming Engineering & Technology Exploring Post Kick-off Event. This is a great opportunity to learn more about the program, and meet the engineering representatives as well as other explorers.

RSVP by September 8 to Lynae Peterson at [lpeterson@acecmn.org](mailto:lpeterson@acecmn.org); 952-593-5533.



## The Outer Limits of Imagination

# SCIENCE FAIRS

**S**cience fairs are cool! If you're a kid, you get to build stuff, and sometimes blow it up... on purpose. If you're an adult, it's the next best thing to being there (a kid).

Dennis Goodno, Structural Engineer at Paulson & Clark, has been on ACEC/MN's Education Committee for more than 20 years, and he's been judging entries at the Twin Cities Regional Science Fair for more than 15 of those years. He shows no signs of losing interest anytime soon.

"It gets to be a lot of fun when we go out on the floor and start talking to the kids," Goodno says. "The whole purpose is to be

encouraging, supportive and light-hearted," he says. "We ask them to tell us about their project and how they had fun doing it, and then the last thing we look at is if the project and their conclusions make sense scientifically."

Goodno has seen interest in science fairs increase significantly over the years that he has been involved, with more students from more schools participating. Competition is broken into four age groups – sixth, seventh and eighth grade, and high school, which encompasses ninth through 12th grade. Projects are judged by category within these age groups, e.g. biology, botany, math, physics, and engineering. "As representatives of ACEC/MN, we give out special awards for projects that are engineering-related," Goodno says. "So with an average of 10-12 from each age group, we end up

considering 40-50 projects." Two Honor awards are given to each age group, plus one Grand award for best project overall.

If you ask Goodno, he will tell you there is no lack of imagination or ingenuity in the youth of today. In 1992, the first year ACEC/MN participated in the judging, a ninth-grader did a project on cathodic protection that "knocked my sox off," he says. "She got the very first ACEC Grand award, and she came back two years later and won it again."

At the most recent competition in February of this year, the Grand award went to a ninth-grade girl who designed a tornado-resistant building. She had competed with the same project the year before, and had been in a dead-heat for the award against an 11th-grader.

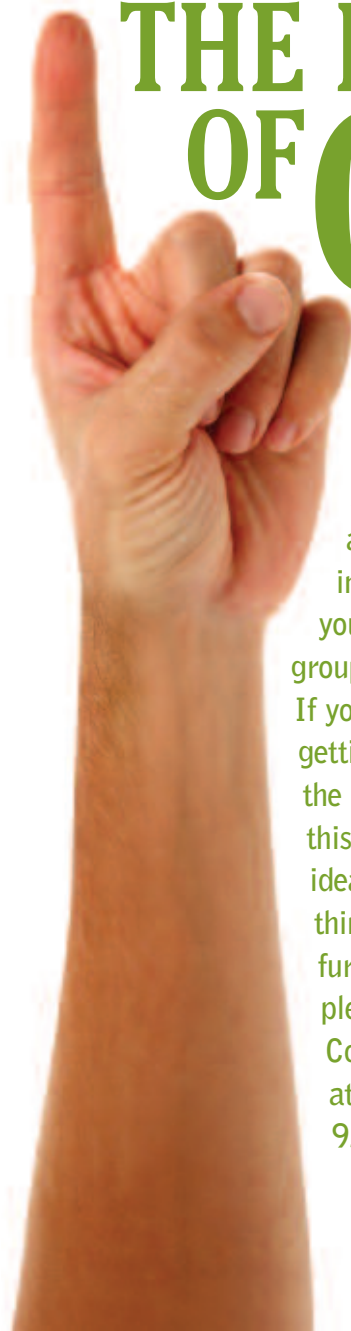
“She built this little structure and was trying to simulate the effects of a tornado on it, so she took the initiative to contact Iowa State University because they have a wind chamber,” Goodno says. “She and her parents went there and they let her do some testing on her structure and talk to the professors who gave her tips on bettering it. She made those modifications and was back this year, and we gave her the Grand award.” She continues to talk with people at the university and improve the project, and Goodno is sure she will be back to the science fair again.

“It’s about creativity and imagination, yes, but it’s also amazing to see the intensity and tenacity that some of these youngsters have,” Goodno says. The word has obviously gotten out, because science fairs have become a popular talent-spotting venue. “There’s a strong military presence, as well as big companies like 3M,” Goodno says.

Among many outstanding projects, Goodno recalls a high school student who built a hydrogen-fueled car. “He built a little model car and made his own hydrogen fuel to run it.” Stories of robots, hovercrafts and other futuristic inventions abound.

“This is how the technology changes, because of kids like this,” Goodno says. “I fully expect to see one of them on CNN someday, having developed something that will make the world a better place, and that’s why I keep doing it. To remind myself that what engineers do is important; that we can literally change the world.”

# THE POWER OF ONE



When it comes to volunteering, a single individual with a singular focus can have as much of a positive impact on students and young engineers as bigger groups and bigger events. If you are interested in getting involved in any of the programs discussed in this issue, or if you have an idea for an activity you think would be beneficial to furthering the profession, please let us know. Contact Lynae Peterson at [lpeterson@acecmn.org](mailto:lpeterson@acecmn.org); 952-593-5533.



## What do you think?

Please let us know how we’re doing; we welcome your feedback and ideas for future topics.

Please send your comments, updated mail list information or unsubscribe requests to [lpeterson@acecmn.org](mailto:lpeterson@acecmn.org).

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## GETTING SCHOOLED: FE/PE EXAM PRESENTATIONS HELP STUDENTS HIT THE BOOKS

Very often, trying to prepare for an exam is as stressful as taking it. Remember the hours of study, poring over books and papers and hoping you were spending your energy in all the right places? In an effort to encourage interest in the engineering profession and relieve some of this stress, for the last eight years Dave Blume, Professional Engineer (PE) at Gausman and Moore, has teamed-up with other industry pros to deliver FE and PE Exam presentations to students at the University of Minnesota.

The Fundamentals of Engineering (FE) Exam is a broad-spectrum test that covers the basics in engineering-related disciplines (such as math, chemistry, statistics, etc.) and is open to senior year engineering students. With it under their belts, they can be called an Engineer in Training under the supervision of a PE. Four years of experience later, they must pass the vastly more complicated, in-depth and discipline-specific Principles & Practices of Engineering (PE Exam) in order to gain that designation.

“Our goal is to encourage students to take the FE earlier rather than later,” Blume says, “so if they’re working at a big company and they happen to get downsized out, they have options.” He feels that students often don’t realize that consulting as a profession is a great way of life. “You can be a much larger fish in a smaller pond,” he says.

Presentations are given in conjunction with the Minnesota Society of Professional Engineers, and are typically broken into three sections, offering the perspectives of a principal/partner from a major consulting firm (a hiring manager), a mid-level PE, and a younger, recently registered engineer. Test specifics are addressed by a representative from the Board of Registration for the State of Minnesota.

“We want to do whatever we can to stem the drop in numbers of students entering the engineering profession that we’ve seen over the last several years,” Blume says. “We hope to help students by giving them answers and removing obstacles. They come in feeling anxious and leave with confidence and excitement. You can see it on their faces. That’s your reward.” ◀



# A Fine Presentation

## Job-Hunting Tips They Won't Get In School

Doug Cooley, Professional Engineer and principal at consulting engineering firm Michaud Cooley Erickson, has participated as a volunteer in many of ACEC/MN's outreach programs over the course of his 35-year career.

"I firmly believe that the more information and opportunities we can provide the youth of our society with, to put them in a stronger position as they move into the work force, the better off we all are," Cooley says.

For more than 15 years, he has worked with students to make them stronger in a critical area that he feels often gets overlooked: interviewing for a job.

Working with the University of Minnesota, Cooley presents mock-interview sessions that give students a practice run before the real thing. "I spend about 45 minutes with each student, first taking them through a simulated interview, and then they get to relax and we talk about the process,"

he says. Cooley covers all the bases – from resume writing and how to field questions, to the more subtle aspects of interviewing such as rate of speech and body language.

Working with ACEC/MN, Cooley also presents a course on "interpersonal skills" to engineering students at the University of Minnesota. Each week the class brings in a different industry professional to lecture, and Cooley's course covers the topics of proper handshakes, first impressions, body language and verbal and non-verbal communication.

"Many students really don't know what they want to be when they grow up, and activities like this help them figure out how to present themselves well and with confidence and direction," Cooley says. "These are some of the more practical things that are critical to success, that they don't teach you in school." 📌



**The 28th annual ACEC/MN Scholarship Softball Tournament** took place in August, with 28 teams raising more than \$4,500 for the scholarship fund. This year's event was held in memory of DuWayne "Dewey" Kasma, a Civil

Engineer who worked his entire career at TKDA (from 1963 until his death at age 48 in 1988). This event continues to grow in all-around participation – with an ever-increasing number of teams as well as friends and family spectators.

**The Scholarship Basketball Tournament** was started and is chaired by Scott Buscher, Human Resources Director at Westwood Professional Services. Now in its fourth year, the tournament was held in February with 14 teams participating. "It's the newest addition to the roster, and although the money raised to-date has been modest, we hope interest in it will continue to grow," says Buscher. "It's a great way to raise money for the scholarship fund while getting to know our peers outside of work." ↩

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