

View from the top

The 2010 MEP Giants provide insight on the state of the engineering industry and what to look for in 2011.

BY PATRICK LYNCH, *Project Manager*

CSE: What part of your engineering firm is growing the most quickly? Do you think this trend will continue?

Rich Smith: I see healthcare, commissioning, government, and retail sectors growing most rapidly.

Dan Tollman: Energy Performance Services serves both the needs of owners to reduce their operating and maintenance costs, extend the useful life of their facilities, and do so in a manner that reduces their carbon footprint. Owner's constituencies are increasingly demanding both of these outcomes continually improve and this should drive demand for this bundle of services over the next 10 or so years.

Gary Brennan: The financial sector has rebounded considerably, driving new data center infrastructure work. We see this continuing into 2011.

Lance Benham: Opportunities related to energy-savings, ranging from conventional building or campuswide energy assessments to design and implementation of alternative energy systems such as biomass, wind, geothermal, and solar. Yes, we think there is a wide range of opportunities, given the sentiment across the country to reduce energy consumption, minimize greenhouse gas emissions, and transition energy sources to include a higher mix of alternative and renewable sources.

Greg McPhee: Currently, our areas of specialty services are growing faster than our basic MEP design services. Security system design, energy analysis and implementation, facility assessments, commis-

sioning and retrocommissioning, lighting and daylighting, and sustainable design services are all in a positive growth mode at the moment. This trend will definitely continue in the short term, as the North American marketplace looks to get our economy back on its feet. In the meantime, building owners are looking for every advantage they can find to make their existing individual assets or portfolio of buildings more attractive to the leasing public and more operationally cost-effective from an energy use perspective.

Roy Gifford: As a large international A/E/C Firm, HDR maintains a backlog of projects in various business groups—healthcare, science and technology, and civic—that fluctuate with current market conditions. Our federal program has been the area of most growth this past year and has provided a strong backlog of healthcare projects throughout the nation and internationally as well. This trend appears to be continuing as the federal government's stimulus funds are applied to aging infrastructure and facilities.

Vince DiPofi: Over the last few years, our process-driven businesses (chemical and food) have shown the most growth. These industries have not been immune to the recession, but have weathered it well. Capital investment with our core clients in these areas has remained strong, and our long-term relationships have served us well. While we expect them to remain strong, we see our future growth tied much more closely to energy, be that power infrastructure upgrades; alternative energy installations such as solar, wind, and biomass; or energy savings projects such as reducing water and other

utility usage. Our last two acquisitions focused on firms with power and alternative energy capabilities. We expect this to become an ever-increasing part of our business over the next five years.

CSE: Moving into 2011, in what types of buildings do you anticipate the most engineering work?

Smith: We anticipate retail, commissioning, and government buildings to offer the most work.

Tollman: Two examples: health science and data centers.

Brennan: We anticipate that hospitals and public sector infrastructures such as courthouses and prisons will keep us busy.

Benham: Data centers, as customers are consolidating their operations among multiple sites. Hospitals, because healthcare providers must find more cost-effective ways of delivering services and managing their bottom line. We believe this market will continue to provide robust design and construction opportunities.

McPhee: Healthcare will continue to provide the greatest opportunity for engineering work, however, the number of brand-new projects will be down considerably compared to recent historical opportunities. Renovation and renewal projects will likely drive the bulk of engineering services in the healthcare market for the next few years.

Geoff McMahon: In the early part of the year, we will continue to see healthcare and higher education laboratory projects to be the bulk of our work effort firm-wide. With uncertainties surrounding healthcare reform and struggling state budgets, we

anticipate those markets will slow in the U.S. as the year progresses. We anticipate that toward the end of the year we will see more opportunity in the private sector research and development market.

DiPofi: We think the industrial plants will see a rebound, and in particular we have started to see our automotive business rebound on the facilities side. We're seeing a downturn in K-12 school facility work due to the budget tightening in many communities; however, we are see-

ing higher education investing in more energy-efficiency and energy-savings projects for their facilities.

CSE: What new markets has the economic downturn pushed you into? Do you see a continuation of this trend?

Smith: We have started to focus more on government and commissioning work and will most likely continue our focus when the economy recovers.

CSE: What is the biggest soft skills challenge your engineers face? (Soft skills are defined as communication, business, finance, etc.)

Brennan: Communicating high-performance, sustainable opportunities and strategies in business terms is a big challenge for our engineers. We need to simultaneously relay to our clients our firm's passion for high performance and sustainable design, but also communicate that this method is highly beneficial for them in terms of cost and energy-savings.

McPhee: In our changing marketplace, understanding the needs and requirements of our clients is the biggest issue we all face. As engineers, we like to solve problems and design solutions. However, the needs of our clients in the marketplace are evolving, and it is imperative that before we start designing the MEP systems that we have historically provided, our engineers must spend the necessary time with our clients to understand what they truly need, and how they define success.

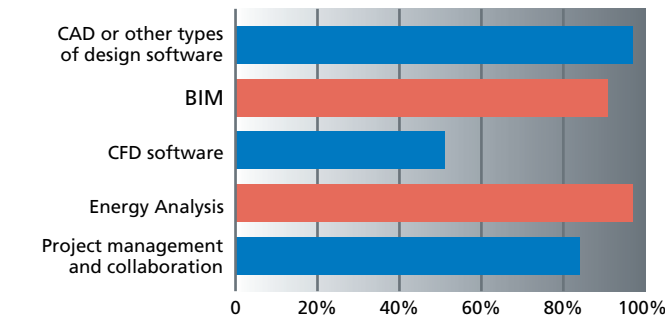
McMahon: The ability of engineers to think critically in all aspects of their work, both technical and nontechnical, is a challenge many young professionals face. The ability to effectively assess all the information available at their desktop and beyond and synthesize it into a cogent concept, presentation, project approach, etc. is key to their development as professionals.

DiPofi: Understanding international cultures has risen to the top of our list for soft skills training. We have two offices in China and are working extensively in India as well. We have made significant investments in training our people to work with our counterparts, be it clients or colleagues. Our international business has grown from 5% two years ago to 10% this year and we expect it to reach 30% in the next three to five years. We still feel there is a gap and are work-

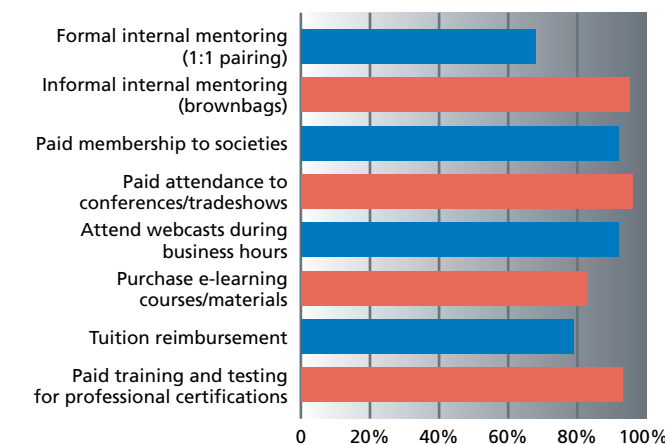
PARTICIPANTS:

- **Lance Benham, PE**, Corporate Vice President, Benham (an SAIC Company), Oklahoma City.
- **Gary Brennan, PE, LEED AP, CRM**, Co-Chief Executive Officer/Co-President, Syska Hennessy Group Inc., Los Angeles
- **Vincent DiPofi, PE**, Sr. Vice-President, SSOE Group, Toledo, Ohio
- **Roy Gifford**, Vice President, Director of Engineering, HDR Architecture, Inc., Pasadena, Calif.
- **Geoff McMahon**, Principal, Affiliated Engineers Inc., Seattle
- **Greg McPhee, MBA, PE, LEED AP**, Vice President, Buildings Engineering, Stantec Consulting Ltd., Edmonton
- **Rich Smith, PE, LEED AP**, Executive Vice President, Henderson Engineers, Inc., Lenexa, Kan.
- **Dan Tollman**, President, Sebesta Blomberg, St. Paul, Minn.

What types of software does your firm use?



What educational and mentoring programs does your firm offer its engineering staff?



ing hard to get our U.S. personnel exposed to more international assignments. Construction in the U.S. will account for a continually decreasing share of the world construction market over the next five years, and we are preparing for that now as well.



Brennen: Markets we have been pushed into include public sector at all levels, including local, state, and federal.

McMahon: We are always looking at a variety of new technical and geographic markets to diversify our practice and provide opportunity for growth. While the economic downturn has not pushed us into new markets, we continue to look for those opportunities. At this point many of the new geographic markets are over-

“For every discipline, the single most important thing is knowing how to communicate effectively with our clients, and then doing so throughout the life of a project.” – McPhee

seas where clients are looking for strong expertise on highly technical facilities.

Benham: Energy-centered projects have come into focus, and we see this as a market that will continue to offer opportunities. Our national energy security will be realized best by a balanced approach that addresses efficiency improvements in generation, transmission, and distribution to the end customer as well as broader use of alternate fuels and renewable energy sources. In this regard, the exploration, production, and refining of conventional fuels is part of that balance as our country continues a measured transition from traditional fuel sources to a higher percentage mix of alternative and renewable energy options. Many opportunities exist for customers to engage others to finance, design, build, and even operate their facilities. The concept of net zero energy use for a building or campus creates new business opportunities.

McPhee: Stantec has always been able to provide a wide variety of specialty and niche services. However, the changing economy has warranted a refocusing of our efforts into a number of these specialty services where we see greater opportunities existing for the next few

years. This trend will likely continue for a number of years, as building owners and operators look to refine and improve the business model associated with their current building assets and portfolios.

Gifford: The economic downturn has brought about a “return to basics” attitude for most of our clients. In this market, HDR is strengthening our sustainable design initiatives and has provided advice and solutions through our proven Sustainable Return on Investment (SROI) process. Owners are able to select programs and projects that provide economic, social, and environmental value.

Sustainability is gaining momentum in the design industry because the process strengthens the outcome. HDR offers our clients the best possible value by delivering integrated and sustainable solutions.

DiPofi: As mentioned earlier, the energy market for sure. Additionally, we have made investments into projects driven by federal government funding. Obviously, the funding in this market has increased significantly and has affected many of our core sectors such as health-care, where the government is upgrading VA facilities.

CSE: Looking forward, what's the most important thing a mechanical engineer needs to know? Electrical engineer? Plumbing engineer? Fire protection engineer?

Smith: BIM, communication skills, and energy modeling.

Brennen: For mechanical engineering, it is parlaying expertise into a much more collaborative and consultative role with our clients to develop high-performance building systems.

Benham: All the below apply equally to each of the engineering professional categories:

- Interpretation of client requirements

- Code compliance/safety considerations
- Cost analysis
- Efficiency analysis
- Appreciation of the holistic design process so that well reasoned, environmentally sound design decisions are made that promote cost and energy efficiencies.

McPhee: For every discipline, the single most important thing is knowing how to communicate effectively with our clients, and then doing so throughout the life of a project.

McMahon: We believe the answer to be the same for all engineers; they will need to know how to innovate in their respective disciplines and be able to translate those new ideas into strong, applicable technical concepts. Engineers today must recognize changes in technical design, project delivery approach will continue throughout their careers, and they must develop the ability to thrive in that environment.

Gifford: As technology continues to advance, HDR engineers work collaboratively with each other to integrate their knowledge and expertise within the entire design team. Our clients are very involved with decisions about sustainability, and HDR engineers need to know how to communicate the intent of their designs with the clients' requirements as well as those of other design team members in order to meet operational goals, budgets, and timelines.

DiPofi: Certainly for our mechanical and electrical engineers, where capital is intensive, our clients want the highest value service and the highest value installation for their capital. Lingered effects of the current economy will be felt for years, and we expect the current focus on cost reductions to continue into the foreseeable future. Our engineers are constantly challenged with driving scope towards budget with no sacrifice in safety or performance. Innovation will be key to that goal, and we look for that quality in the people we assign to lead projects and interface with clients. **cse**