

# ASFE Practice ALERT

February 2008

**Sustainability Means Business. Do Something. Start Now.**

The “sustainable development” concept was introduced by the World Commission on Environment and Development in its 1987 report *Our Common Future*. The Commission defined sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

ASFE/The Best People on Earth became involved in the sustainable development movement in the early 1990s, as did the American Society of Civil Engineers (ASCE). In fact, ASCE went so far as to make sustainability an ethical responsibility. It changed Canon 1 of its Fundamental Canons of Ethics to read, “Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties.”

Although a number of well-informed people have been passionate about sustainability for two decades, the concept has “caught fire” only in recent years. “Climate change,” “resource conservation,” “carbon footprint,” and “green” are just a few of the terms that are now well known even to children in grade school. But what does sustainability mean to ASFE Member Firms? How can they get meaningfully involved? To date, much of the discussion about sustainability has focused on abstract issues that don’t seem to correspond with what Member Firms do.

And let’s face it: Scientific minds are skeptical about some of the more radical suggestions being advanced.

ASFE’s Emerging Issues and Trends Committee has examined the issue in depth. It believes that sustainability represents a sea change that will soon have a significant impact on how Member Firms operate and the services they provide. Make no mistake: Sustainability means business, and not just in terms of the opportunities it creates. Member Firms’ staffs – especially the younger individuals, the “new leaders” – want to be associated with organizations that are engaged in “issues of today.” Continued skepticism and inaction will therefore mean not only missed business opportunities, but also the likely loss of influential young staff who will move elsewhere for the opportunity to earn their living by making a difference; by helping today’s generations meet their own needs without compromising future generations’ ability to meet theirs.

The Emerging Issues and Trends Committee has prepared this *ASFE Practice Alert* to

encourage you and your firm to get involved with sustainability, and to identify some fairly simple steps to help get you started. With any luck at all, you will discover – as many ASFE Member Firms already have – that even simple initiatives gain notice, interest, and enthusiasm from staff and clients...and from prospective staff and clients, too.

The Committee has divided this *ASFE Practice Alert* into actions your firm can take to operate a greener business and ideas your firm can exploit to develop business opportunities. The Committee has also identified a number of resources that can provide additional information and services. Above all, the Committee recommends this: Do something. Start now.

### Green Your Firm

“Physician, heal thyself” is an expression that, from a business viewpoint, applies to Member Firms anxious to set up shop in the sustainability marketplace. Firms cannot expect their clients to purchase “green services” unless those firms have “gone green” themselves. Some operational changes will be easy to

make; some will require more effort; and some will evolve based on interest, local custom, and technology. The important point is this: Firms need to start their sustainability initiatives somewhere. And soon. While the first steps may have only limited effectiveness, they will get the organization moving toward continually more ambitious and noteworthy accomplishments.

You may discover that your firm has already implemented some or even all of the Committee's ideas. If so, all you need to do is package them into a more comprehensive "sustainability initiative" to make your firm more attractive to existing and prospective clients, to enthruse existing and prospective staff, and to create a springboard for more meaningful contributions. Encourage involvement and suggestions. When in doubt, support others' ideas, realizing that many efforts are relatively inexpensive. Try not to over-complicate your program. Consider the following ideas that give you the opportunity to do the right thing and collectively feel good about making an effort and thereby making a difference.

- **Awareness:** Start by becoming more attuned to sustainability as a societal trend and how you, your firm, and others in your firm can contribute in a positive or negative way. This effort does not require major lifestyle changes or sacrifice, nor does it mean forgoing important activities like travel for face-to-face meetings. Just be aware that contributing to sustainability is an obligation and use that awareness to make more informed decisions. Once you begin to understand that what you do and how you do it have an unavoidable effect upon the sustainability of our environment, you can inform, lead, and involve others by

example; i.e., think globally, act locally – even in your own backyard.

- **Resource Conservation:** Consider where it makes sense to conserve resources; embrace technology to do it. As examples of small steps you can implement today, rely more on electronic deliverables to reduce the use of paper and, when you do use paper, use two-sided copies when possible. Avoid fuel consumption and carbon emissions by using conference calls or teleconferencing instead of travel when the benefits of "being there" are not worth the price. (As a side benefit, this effort could actually increase billable hours through improved time management.) Discourage the use of bottled water; use purified tap water instead, and thus conserve the energy required to manufacture and transport plastics, reduce carbon emissions, and save precious landfill space.
- **Recycling/Reuse:** Encourage recycling and reuse directly and indirectly. As a start, initiate a recycling program for office paper and printer cartridges. Expand the program to include cans, bottles, and newspapers. Have your print stock printed on recycled paper or at least use paper manufactured through renewable forestry sources. Look for volunteers to run the program.
- **Energy Conservation:** Encourage staff to carpool by offering to match staff by residence ZIP code and providing preferred parking to carpool vehicles. Encourage walking, jogging, and bicycling to work by providing facilities that employees can use to shower and secure storage for their clothing and equipment (like bicycles). Encourage greater use of public transportation by subsidizing its cost. Develop and support a telecommuting program for your employees, which could also encourage more staff to re-enter or stay in the work force. (See *ASFE Practice Alert 19: Virtual Workplace, Real Risks.*) Require staff to turn off their office lights, computers, and printers at night. Consider specifying hybrid vehicles when replacing or expanding your fleet. Also consider providing financial incentives to encourage the purchase of hybrid vehicles by employees who customarily use their own vehicles for company business.
- **Facility Management:** Evaluate your office facility for the potential of installing cost-effective energy-conservation devices like: programmable thermostats; time-, light-, or motion-actuated lighting controls; energy-efficient light bulbs and tubes; and energy-efficient appliances and windows. Look into water consumption and methods for reducing it. You might even want to consider additional storm-water quality controls for your parking lot or installing a green roof, solar panels, or a geothermal HVAC system.
- **Vendor Requirements:** Incorporate sustainability into your routine maintenance operations. Require your cleaning service and other vendors to use biodegradable products exclusively. Talk to your landscape contractor about composting and mulching for reuse of yard waste. Consider requiring your vehicle-service technicians to recycle waste oil. Consider making sustainability a factor when selecting vendors of any kind. Incorporate sustainability into your office building and tenant improvements as well. Specify low-

VOC-emitting carpets, paint, and other materials for your office renovations.

- **Waste Stream:** Evaluate your waste stream. Donate obsolete electronics to charity or for local recycling, being sure to remove and destroy computer hard drives to protect sensitive information. Think about environmentally positive ways of disposing of your project soil, water, and construction-materials testing samples.

### Pursue Green Business Opportunities

While sustainability offers many opportunities to those Member Firms that maintain a geoengineering-/geoscience-based service mix exclusively, it offers even more opportunities to those that have a broader or more flexible service mix, or that want to head in that direction. "Heading in that direction" is not nearly as daunting as it used to be, given that the common bond of today's ASFE Member Firms is the objective of providing high-quality services by applying best-practices-based organizational/risk management. Achieving that objective opens up a world of possibilities, and that's good news, because, increasingly, the federal government and *Fortune*-500 firms are requiring their technical consultants to incorporate sustainable concepts and sensitivities into what they provide. This trend will continue to expand to a broad set of owners and clients that adopt "green thinking" voluntarily or because of local regulatory activity. In the latter regard, be aware that sustainability-related initiatives are already resulting in local development regulations that can be satisfied only through the involvement of firms that have augmented their geoengineering-/geoscience-based service mix with sustain-

ability awareness. In order to take advantage of these and other opportunities, consider the following business issues:

- **Get Your House in Order:** For your firm to seriously develop new sustainability-related business opportunities, you will need to understand sustainability thoroughly, and be highly conversant about what it involves and the "green" services your firm can provide in support of project goals. A superficial repackaging/relabeling of tried-and-true approaches will not yield meaningful new business opportunities. And as noted above, to achieve credibility, your firm needs to practice in its own workplace what it preaches in its clients'.
- **Accreditation Is a Driver:** The U.S. Green Building Council (USGBC) created the Leadership in Energy and Environmental Design (LEED) program to encourage green-building design, by assigning points for incorporating various sustainable elements into building projects. The more points a documented design achieves, the more distinguished the LEED recognition. The USGBC also established the "LEED Accredited Professional" ("LEED AP") designation. Now administered by the Green Building Certification Institute, the well-regarded LEED AP credential is awarded only to individuals. While it is particularly valuable with respect to LEED projects, USGBC requirements are such that only a limited number of owners pursue LEED accreditation. Nonetheless, the USGBC LEED initiative has struck a responsive chord: A rapidly increasing number of owners are incorporating sustainability features into their new and existing build-
- **Network in the Sustainable Community:** ASFE members report that becoming actively involved in sustainability-driven organizations, such as USGBC chapters, creates excellent opportunities for networking with building owners, facility managers, and architects. Members report that they encounter surprisingly little involvement on the part of other engineers and scientists. They also note that the architectural community has assumed a leadership role when it comes to sustainability for buildings.
- **Service Possibilities:** Several ASFE Member Firms have already applied their project management/risk management capabilities to nudge their technical capabilities forward into areas such as green-roof design and porous-pavement system design. Other Member Firms have gone far beyond that, because of their large size and multifaceted diversification. But the sustainability marketplace offers excellent

ings. They are looking to LEED APs for guidance. Encourage your staff members to earn the credential. If clients and prospective clients are to recognize your firm as an organization that can provide valuable sustainability services, your firm needs to employ LEED APs who are familiar with the LEED checklists. Two other organizations – Green Globes and Green Advantage – also promote sustainability and provide assistance and certification opportunities. They believe in incremental sustainability improvements rather than achievement of somewhat arbitrary minimum standards. As such, they are more inclusive than USGBC, a factor that could significantly increase their influence.

opportunities even to those firms that offer a geoen지니어ing-/geoscience-based service mix only. Consider the following list of services derived directly from the LEED checklist for project certification:

- site selection and smart growth;
- reduced site disturbance (development footprint or open-space protection);
- use of local/regional materials;
- reuse of resources like tires, concrete, asphalt, and fly ash, and the appropriate reuse of environmentally tainted materials;
- construction-waste management;
- recycled content;
- brownfield redevelopment;
- storm-water management (rate, quantity, and treatment, which include infiltration systems and hydrogeologic modeling);
- energy-efficient systems, such as geothermal;
- innovative wastewater technology;
- water-use reduction; and
- indoor air-quality management plan.

- **Compliance**

**Documentation:** The paperwork required to achieve LEED certification includes specific documentation of the rationale for and implementation of each sustainable project element. While the project architect typically provides this service, it could easily be performed by construction materials engineering and testing (CoMET) firms with a LEED AP on staff.

- **Grant Writing:** Although applying for grants and finding other funding sources may not be a lucrative business in and of itself, it can be an important service because it could create significant value for clients. ASFE members report that they are locating a number of funding sources for sustainable projects.

The need for sustainable practices increases every day. The need for sustainable services likewise increases, making sustainability an important, emerging area of practice. Firms that get involved sooner rather than later will gain the name recognition and reputation needed to move into the forefront and stay there. The opportunity to be a leader tomorrow is readily available to those that get involved today. Do something. Start now!

## RESOURCES

The organizations and other resources listed below comprise just a few of the many that are involved with sustainability.

### **American Society of Civil Engineers (ASCE)**

has established a Committee on Sustainability to help promote the principles and practice of sustainability by distributing information on developments and issues that relate to sustainable engineering education and practice.

([www.asce.org/instfound/techcomm\\_cs.cfm](http://www.asce.org/instfound/techcomm_cs.cfm))

### **American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE)**

is a leader in heating, ventilating, air-conditioning, and refrigeration technologies and applications. The organization develops and disseminates technical information, standards, educational programs, and research that promote building energy-efficiency and sustainability.

([www.engineeringforsustainability.org](http://www.engineeringforsustainability.org))

**Carpet & Rug Institute (CRI)** is the science-based source for facts about carpets and rugs. ([www.carpet-rug.org](http://www.carpet-rug.org))

**Cradle to Cradle Community Forum** presents an innovative concept and tools for designing products, processes, and systems to optimize material health, recyclability/compostability, product life cycles, renewable energy use, water efficiency, water quality, and social responsibility. ([www.mbd.com](http://www.mbd.com))

**EC3 Global** is an environmental advisory group that provides assistance through a range of products and services to set, manage, and achieve sustainability targets. ([www.ec3global.com](http://www.ec3global.com))

**Energy Star** is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. It certifies energy-efficient products and practices that help save energy and money and protect the environment. ([www.energystar.gov](http://www.energystar.gov))

**Forest Stewardship Council (FACT)** and **Rainforest Alliance** certify products that support forest practices that protect biodiversity and promote decent conditions for workers and their communities. They offer free guidebooks

**RESOURCES (CONTINUED)**

and databases. ([www.fsc.org/en](http://www.fsc.org/en) and [www.rainforest-alliance.org/index.cfm](http://www.rainforest-alliance.org/index.cfm))

**Green Advantage** is an environmental certification program for building-related practitioners, primarily contractors, subcontractors, and trades people. It issues commercial, residential, and commercial/residential certifications. ([www.greenadvantage.org](http://www.greenadvantage.org))

**Green Building** promotes green-building ideas in design and construction practices. ([www.greenbuilding.com](http://www.greenbuilding.com))

**Green Building Resources** is a website that provides links to various tools and resources available for assessing and identifying green resources. ([www.whatsworking.com/resources.html](http://www.whatsworking.com/resources.html))

**Green Globes** is an interactive, online green-building assessment and design protocol, characterized as “quick, accurate, affordable and easy to perform and understand.” ([www.greenglobes.com](http://www.greenglobes.com))

**Green Guide**, developed by the National Geographic Society, provides product reviews from a green perspective. ([www.thegreenguide.com](http://www.thegreenguide.com))

**Green Outlook** presents news and focused coverage of the green-building movement. ([www.globest.com/green](http://www.globest.com/green))

**Green Seal** is an independent, nonprofit organization that uses product certification to promote the manufacture, purpose, and use of green products. ([www.greenseal.org](http://www.greenseal.org))

**Green Space Forum** is an online resource for sustainable initiatives. ([www.green-space.us/forum](http://www.green-space.us/forum))

**GREENGUARD Environmental Institute (GEI)** is an industry-independent, nonprofit organization that oversees the GREENGUARD Certification Program for indoor products, environments, and buildings. ([www.greenguard.org](http://www.greenguard.org))

**Master Painters Institute (MPI)** maintains an approved products list that it publishes twice a year in booklet form and updates regularly online. ([www.specifygreen.com](http://www.specifygreen.com))

**Planet Positive** certifies that a business has measured and reduced the footprint of its services and products and offset the remainder beyond carbon-neutral status. ([www.planet-positive.org](http://www.planet-positive.org))

**Sustainable Choice Scientific (SCS)** offers evaluation and certification services to a broad range of manufacturing sectors. Certified products include office-furniture systems and components, seating, building materials, carpets and rugs, hard-surface flooring, paints, finishes, wood products, and cleaning supplies. ([www.scs-certified.com/ecoproducts](http://www.scs-certified.com/ecoproducts))

**Sustainable Forestry Initiative (SFI)** offers a certification search tool so customers and stakeholders can learn more about SFI-certified forests and identify suppliers that can offer certified forest products from the SFI program. ([www.sfi-program.org](http://www.sfi-program.org))

**U.S. Department of Energy Building Technologies Program** works to improve the efficiency of buildings and the equipment, components, and systems within them. The program supports research and development activities and provides tools, guidelines, training, and access to technical and financial resources. ([www.eere.energy.gov/buildings](http://www.eere.energy.gov/buildings))

**U.S. Green Building Council (USGBC)** is a nonprofit organization committed to expanding sustainable building practices and providing educational programs on green design, construction, and operations for professionals from all sectors of the building industry. ([www.usgbc.org](http://www.usgbc.org))

**USEPA's Green Building Workgroup** brings together U.S. Environmental Protection Agency programs that work with the building and development sectors to improve their environmental performance. ([www.epa.gov/greenbuilding/pubs/about.htm](http://www.epa.gov/greenbuilding/pubs/about.htm))

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- sustainable development**
- sustainability**
- U.S. Green Building Council**

*\* A list of keywords for all ASFE Practice Alerts is available at ASFE's website or by contacting the ASFE office. ASFE Practice Alerts are available to ASFE members only, at no charge.*

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