

Sustainable Construction in the United States of America A perspective to the year 2010

Preliminary Survey Responses - 02 March 1999

1) **Name, Affiliation, Contact Information:** (n = 27 respondents as of 03/02/99)

<Respondent names confidential by request>

2) **How do you describe your role in sustainable construction? Check all that apply.** (Note: some respondents checked multiple roles)

 3 Owner

 3 Contractor

 11 Designer/Architect/Engineer

 Materials Manufacturer

 7 Consultant

 3 Researcher

 3 Teacher/Professor (please list institution & subject areas)

- Teaches in the Architectural Studies area, with students a mixture of Architectural studies, builders, and the general community. Teaches Energy Efficient Design and Alternative Structures.
- Teaches/trains sustainable construction

 8 Other (please describe)

- City Engineer
- Regulator/Facilitator
- Supplier (Materials)
- Web site developer for "green" companies
- Private Citizen
- Public Relations for a Developer
- Student

3) Please describe your work as it relates to sustainable construction, e.g., “I teach a course on green building” or “I perform environmental audits for homeowners”, etc.

- I incorporate both building science and sustainability values in both of my courses. Remodeling and healthy home technology and resource conservation are included in the material. Social justice is another of the "thorny issues" related to these concepts.
- Provide technical and analytical support to construction professionals
- Developing guidelines and standards in ASTM E-50
- Conduct research on performance claims for building materials
- Provide energy efficiency, indoor air quality, solar design analyses
- Work with condo boards to study their energy efficiency and IAQ needs, and reserve funding requirements
- Develop low-cost Internet sites for non-profit groups and small businesses
- I lead the Sustainable Building Task Group at Kvaerner Construction, Inc. The task group is responsible for "greening" our processes mainly in the area of C&D waste management and in the area of education of our staff on all other sustainable issues (energy efficiency, IAQ, conservation of resources, alternative building materials, waste management).
- I attempt to build the most sustainable buildings that my customers will approve.
- I encourage and educate our clients about sustainable construction.
- We are a design/build company, and we try to incorporate as much ecological design into our projects as possible.
- We perform professional civil/structural engineering that incorporates sustainable technologies to the greatest extent possible, including rainwater catchment, wetlands wastewater treatment, pervious pavements, natural stormwater treatment, low toxic materials, recycled content building materials, and environmental planning and design.
- I promote and develop building projects using alternative materials and methods of construction, teach workshops in natural building, and am helping to develop a statewide salvage network for building materials.
- I create buildings.
- I promote energy efficient retrofit in commercial, multi-family, and institutional buildings.
- We review construction documents for state agencies and make recommendations.
- I am an environmental engineer (air, wastewater, site remediation) and the chairman for my county storm water management committee.
- I learn and try to educate myself about sustainable ways of designing, building, and maintaining structures, and try to incorporate that knowledge in future architectural designs
- I design lighting, power, and related systems.
- I preach about sustainable transportation systems.
- I develop web sites for “green” companies.
- I design buildings for various clients.
- I work with community groups to develop goals and indicators of sustainable development.
- I work with the Sustainable Development Challenge Grant Program to promote sustainable practices.
- I write articles about the activities at Dewees Island and try to motivate the written and oral press to cover us and disseminate our philosophy.
- I am a student now and hope to do consulting with owners and builders.
- I write articles on sustainable development for a monthly energy newsletter and press releases that I distribute to the media.
- I teach and train sustainable construction.
- I perform technical design services.
- I am helping my company – commercial construction – start a sustainable construction division.
- I provide information on best management practices to Georgia State Parks.
- I do engineering/construction.
- I design facilities for state parks.

4) How do you define “sustainable construction”? If you are using someone else’s definition, please include a reference.

- Definition—Hmmm. I see this as a general goal or an approach, where a definition would see [to] have limits. For what it is worth, I always use a definition of sustainability as "Sustainability means providing for the needs of the present without detracting from the ability to fulfill the needs of the future" (from the Earth Summit).
- I also explore William McDonough's "Waste is Food" concepts when looking at materials (Planet Neighborhood and his writing).
- I have urged my students to try to "Solve for Pattern" as expressed by Wendell Berry: "A good solution will: solve more than one problem, while not making new problems; satisfy a whole range of criteria; be good in all respects; accept given limits, using, so far as possible, what is at hand; improve the balances, symmetries, or harmonies within a pattern."
- I copy the Architects' Chicago Declaration of Interdependence for a Sustainable Future, 1993, <http://www.context.org/ICLIB/DEFS/UIAAIA.htm>
- *Green Building* - "a structure which provides over its life-span the most efficient performance of land use and building materials impact on construction, operations, and maintenance to optimize efficiency, to minimize human health risk and environment risks, and to maximize pollution prevention" (Drafted by Bion Howard for ASTM - Standard Guide for Residential Green Building)
- "Meeting the needs of the present without compromising the needs of the future." (after WCED 1987)
- Reflecting the natural processes of nature in our industry whenever possible in order to maximize the integrity of the product.
- Building to minimally impact the planet with respect to reducing [sic] the ability for our descendents and other species to thrive.
- Sustainable construction encourages advanced methods of construction that emphasize energy conservation, native habitat aesthetics, and wise-use planning development.
- I prefer ecological design (it is more intuitive): designing everything with an eye to the greater ecological reality within which we operate.
- Simply put: a) build less; b) use less; and c) low toxic.
- I use the one which includes "to meet the needs of the present without compromising the potential of future generations meeting their needs" (paraphrase of WCED 1987).
- Self-supporting.
- Construction practice which considers long term impacts to the environment.
- Conservative in the use of resources in the construction process as well as in the functioning of the facility.
- Construction that promotes sustainable development concepts.
- The way of conceiving processes and using materials and methods that don't compromise the ability of all forms of life to remain existing, and at the same time, is economical at all levels, efficient, and in harmony with the community's interests.
- Design for now and the future.
- Construction which uses recyclable materials and uses local products as much as possible.
- Self-sufficient, low energy use, open space, and located near needs.
- A collaborative and integrated approach to building design and construction whereby the architect, the builder, and the client believe in the philosophy of energy conservation, natural habitats being maintained, and other means of preserving resources.
- Minimal waste and toxicity, use local products as much as possible, reasonable cost, and energy efficiency.
- Construction which is environmentally friendly at many levels – social, economic, spiritual, cultural, physical (obviously not ANYONE'S definition!!)

- Construction is inherently destructive to the Earth. Sustainable construction considers locally available resources, embodied energy, durability, scale, and resource efficiency and conservation as priorities in the process.
- Takes into account energy, water, and resource efficiency, recycling and the use of recycled materials, and provides a healthy living and working environment.
- Using resources wisely – doing all the easy things.
- There's no such thing at present, but "meeting the needs of today without compromising the ability of future generations to meet their needs." (paraphrase of WCED 1987)
- Construction where a sensitivity to our natural resources is included. Thus, you look at resource consumption and energy consumption in the design and construction.
- Using materials that don't adversely affect future generations.
- One that is environmentally sensitive, economic, and fits the social aspects of the area.

Note: for the next three questions, write-in comments for each issue are noted in bullets below each issue in the list. One respected reviewer commented, “Great list – all are significant”.

5) The following is a list of issues relating to sustainable construction in the United States. Please give each of the following issues a rank between 1 and 10 to indicate how important you think each is to the sustainability of construction in the U.S.

1 = not important

10 = very important

- _____ Energy conservation measures
- _____ Land use regulations and urban planning policies
- _____ Waste reduction measures
- _____ Resource conservation strategies
 - 1. Energy efficiency & renewable energy
- _____ Indoor environmental quality
- _____ Environmentally-friendly energy technologies
- _____ Re-engineering the design process
 - 2) Re-THINKING the design process
- _____ Proactive role of materials manufacturers
- _____ Better ways to measure and account for costs
- _____ New kinds of partnerships and project stakeholders
- _____ Adoption of performance-based standards
- _____ Product innovation and/or certification
- _____ Adoption of incentive programs
- _____ Education and training
- _____ Recognition of commercial buildings as productivity assets

Numerical results for returned surveys to date:

CIB Report Indicators:	Mean	Median	Std. Dev.	Rank
Energy conservation measures	8.93	10	1.44	2
Land use regulations and urban planning policies	8.62	9	1.79	3
Waste reduction measures	8.37	9	1.67	5
Resource conservation strategies	8.59	9	1.62	4
Indoor environmental quality	8.07	9	2.15	6
Environmentally-friendly energy technologies	8.00	9	2.30	7
Re-engineering the design process	7.89	8	2.12	8
Proactive role of materials manufacturers	7.31	7	2.19	12
Better ways to measure and account for costs	7.88	8	1.81	9
New kinds of partnerships and project stakeholders	7.30	8	2.27	13
Adoption of performance-based standards	7.68	8	2.12	10
Product innovation and/or certification	7.16	7	2.49	15
Adoption of incentive programs	7.24	8	1.98	14
Education and training	9.31	10	1.29	1
Recognition of commercial buildings as productivity assets	7.33	7	1.85	11

6) Are there other issues you believe are important for sustainable construction? If so, please list and describe them.

- Recognition of the values of energy efficiency and healthy indoor air in helping protect the environment.
- Productivity and health, safety, and durability issues require guidance and independent info from third party sources.
- Standards and guides from consensus sources – benchmarks for regional programs to help avoid consumer confusion and trade association “greenwash”
- Recognition of contractors who practice sustainable construction, e.g., ISO 14000 certification.
- I think that all of the issues above are important and therefore difficult to rank.
- Mindfulness.
- I think you’ve covered all of the bases .
- I believe education of contractors, subcontractors, developers, architects, and the general public as well as manufacturers and product reps, suppliers, and commercial outlets (chain stores, etc.) is essential!!! Needs to be a media priority instead of the current diatribes about Clinton and Y2K.
- You seem to have covered all of them in one way or another.
- Using/redeveloping brownfields
- Community involvement
- Educating developers
- Economic incentives
- A reeducation/incentive program for politicians to look after the Earth’s assets, care for them, and to promote that.
- POLICY
- Changing values/caring for future generations
- Eliminate nonsustainable (sic) subsidies and disincentives
- Cultural shift (revolution)
- Population
- Social Justice
- Implementation of building standards, guidelines, and codes
- Restoring/preserving native habitats and/or regions.
- WATER, WATER, WATER!!!
- Low energy and natural “waste”water/storm water treatment
- Water reuse, including greywater
- Rainwater catchment
- Synergistic approach (combines all factors)
- Reengineering the construction process

7) On which of the following issues will we make the most progress between now and the year 2010? For this question, we're trying to understand how the A/E/C industry will naturally evolve in the next ten to fifteen years. Please indicate your predictions by rating each item on a scale from 1 to 10.

1 = won't change
10 = will change very much

- Will all be functions of the amount of effort expended
- Collaboration between all government and private sector, consumer and suppliers, owners and builders, developers and local government needs to occur in order to create change.
- Sorry to be bleak.

- _____ Energy conservation measures
- _____ Land use regulations and urban planning policies
- _____ Waste reduction measures
- _____ Resource conservation strategies
- _____ Indoor environmental quality
- _____ Environmentally-friendly energy technologies
- _____ Re-engineering the design process
- _____ Proactive role of materials manufacturers
- _____ Better ways to measure and account for costs
- _____ New kinds of partnerships and project stakeholders
- _____ Adoption of performance-based standards
- _____ Product innovation and/or certification
 - Only if there is market "pull"
 - Not certification
- _____ Adoption of incentive programs
- _____ Education and training
- _____ Recognition of commercial buildings as productivity assets
- _____ Other (please describe)

Numerical results for returned surveys to date:

CIB Report Indicators:	Mean	Median	Std. Dev.	Rank
Energy conservation measures	6.93	7	2.42	1
Land use regulations and urban planning policies	6.93	8	2.37	1
Waste reduction measures	6.44	7	1.76	8
Resource conservation strategies	6.19	5	1.94	9
Indoor environmental quality	6.93	7	1.94	1
Environmentally-friendly energy technologies	6.69	7	2.15	6
Re-engineering the design process	5.19	5	1.70	15
Proactive role of materials manufacturers	5.54	5.5	2.21	14
Better ways to measure and account for costs	6.00	6	2.47	10
New kinds of partnerships and project stakeholders	6.72	7	2.23	5
Adoption of performance-based standards	5.81	5.5	2.23	11
Product innovation and/or certification	6.84	7	2.51	4
Adoption of incentive programs	5.65	6	2.48	12
Education and training	6.69	7	2.36	6
Recognition of commercial buildings as productivity assets	5.59	5.5	2.67	13

8) Which of the following should receive the most focus between now and 2010 in order to achieve sustainable construction? For this question, we'd like to know where you think the U.S. should put its policy emphases and research dollars. Please rate each item on a scale from 1 to 10.

1 = doesn't require any additional focus

10 = will require a lot of additional focus

- Synergistic approach needed.

_____ Energy conservation measures

- There was/is funding out there, but much of it goes back into the D.C. pool for lack of awareness that it exists, or too many hoops to jump through to qualify for the funding, or funding has to go through a government entity or non-profit which puts some people off or doesn't allow them to participate.

_____ Land use regulations and urban planning policies

- Critical concern in urban, suburban, and rural areas nationwide.
- Developers pushing to encroach on agricultural and recreational land to make money.
- Builders supporting developers to "meet demand" they have created for large homes and continued new home purchase without concern for infill within core of community where it's really needed, without remodeling, renovating, and upgrading existing housing stock.
- Building new at inferior quality level without upgrading well-built existing housing stock.

_____ Waste reduction measures

- There's already money funneled into this, but it needs to continue

_____ Resource conservation strategies

- Lobbying and government regulation will be the only way to secure this.

_____ Indoor environmental quality

- Becoming a forefront issue as more and more people develop asthma, allergies, and other health conditions because they work, live, go to school, and play in unhealthy buildings.
- Need to educate designers, architects, contractors, and other builders that air-tight housing and buildings are not the solution to higher energy efficiency.

_____ Environmentally-friendly energy technologies

- Lots of government money going into this, but the public needs to be educated to gain support and get information out to those who want to get off the grid and use those technologies.

_____ Re-engineering the design process

- And the construction process.
- Again, a major educational effort, lobbying, etc.

_____ Proactive role of materials manufacturers

- Essential to change in this area.

_____ Better ways to measure and account for costs

- Should be a part of the process of re-engineering and change by materials manufacturers, etc.

_____ New kinds of partnerships and project stakeholders

- Need to find ways to bring the consumer, the general public, the entrepreneur, the owner/builder into the process or it will fail.

_____ Adoption of performance-based standards

- This should come after there's a better base of data/information, etc., on which to develop them.
- _____ Product innovation and/or certification
- Think we have lots. We just need to use them.
 - There are lots of entrepreneurs out there and lots of ideas which need capitalization – where's the venture capital to support this, or the government funding to encourage it?
- _____ Adoption of incentive programs
- And eliminating disincentives.
 - Incentive programs tend to become political and costly, I believe.
- _____ Education and training
- Should be highest priority in order for change to occur!!!
- _____ Recognition of commercial buildings as productivity assets
- _____ Other (please describe)

Numerical results for returned surveys to date:

CIB Report Indicators:	Mean	Median	Std. Dev.	Rank
Energy conservation measures	7.78	8	2.03	3
Land use regulations and urban planning policies	8.78	9	1.63	1
Waste reduction measures	7.19	7	1.92	7
Resource conservation strategies	7.52	8	2.03	4
Indoor environmental quality	6.88	7	1.88	10
Environmentally-friendly energy technologies	7.27	8	2.86	6
Re-engineering the design process	7.38	7.5	2.33	5
Proactive role of materials manufacturers	6.28	6	2.65	13
Better ways to measure and account for costs	7.16	7	2.03	8
New kinds of partnerships and project stakeholders	5.80	7	2.68	15
Adoption of performance-based standards	6.92	8	2.43	9
Product innovation and/or certification	6.72	7	2.37	11
Adoption of incentive programs	6.30	7	2.34	12
Education and training	8.54	9	2.08	2
Recognition of commercial buildings as productivity assets	6.00	7	2.74	14

9) Would you be willing to answer a more detailed set of questions based on your reading of the U.S. Sustainable Construction report? If yes, please ensure that your contact information is correct as provided above. (Note: participants who said yes are indicated by asterisks in Part 1)

____13____ Yes
 ____14____ No