

DREXEL UNIVERSITY

PLANNING AND DESIGN POLICY STATEMENT ¹

DESIGN OF SUSTAINABLE FACILITIES AND INFRASTRUCTURE

November 7, 2007

Policy Statement:

It is the policy of Drexel University to incorporate sustainability principles and concepts in the design of all facilities and infrastructure projects to the fullest extent possible, consistent with budget constraints and customer requirements. It is further the policy of Drexel to seek to do this with no increase in first cost. In the case of larger projects, the application of integrated design concepts is the key to this accomplishment. This policy, which will lead to substantial improvements in life-cycle operations and reduce life-cycle costs, applies to renovation and alteration projects as well as new construction; applies to projects regardless of funding source or amount; applies to projects accomplished for all customers; applies to projects accomplished both in-house and through A-E contracts; and applies to design associated with all procurement methods, including design-build.

Purpose of Policy Statement:

The purpose of this policy statement is to identify and establish sustainability principles and concepts as the basis for the design of facilities and infrastructure accomplished by Drexel University, both in-house and by means of A-E and related contracts. Sustainability principles and concepts, as herein defined, and as reflected in Drexel's criteria, guide specifications database, and other identified sources of facilities and infrastructure guidance, shall be a major consideration in all facilities and infrastructure design decisions.

This policy statement provides overall policy for the inclusion of sustainability principles and concepts in the design of facilities and infrastructure. Future revisions and supplements to this policy statement will incorporate more specific design policies relative to site development, energy efficiency and conservation, the use of renewable energy resources, materials selection based on life-cycle environmental impacts and recycled content, efficiency in materials utilization, building ecology, and occupant productivity as a reflection of both interior and exterior environments.

Background:

Continuing worldwide population growth and technological achievements have resulted in increased natural resource utilization. The consequences have been a depletion of natural resources; air, land and water pollution; ozone depletion; global warming; and a wide range of

¹ Adapted from the Naval Facility Command's Policy Statement on Sustainable Facilities Design

other consequences detrimental to the environment. As a result, the earth's ability to replenish depleted resources and provide the ingredients necessary to sustain life is being threatened.

The built environment represents one of the major opportunity areas where Drexel can constructively address the environmental dilemma. As the world's population continues to expand and resources continue to be depleted, the implementation of resource-efficient facilities-related practices becomes imperative. The construction industry has started to approach the planning, design, construction, operation and maintenance of facilities with a new set of values -- values that appropriately balance environmental concerns with those associated with function, safety, aesthetics, expediency and cost.

The National Goals Toward Sustainable Development, established in 1993 by the President's Council on Sustainable Development and summarized in Attachment 1, have provided the overall framework for Drexel's Sustainability Program. Recent policies to reduce ozone depletion and control global warming have accentuated the importance of sustainability initiatives.

Basis for Policy Statement:

Building on existing definitions of "Sustainable Design," some of which are included in Attachment 2, Drexel's definition of "Sustainable Design" incorporates the following sustainability initiatives:

- Increased energy conservation and efficiency
- Increased use of renewable energy resources
- Reduction or elimination of toxic and harmful substances in facilities and their surrounding environments
- Improvements to interior and exterior environments leading to increased productivity and better health
- Efficiency in resource and materials utilization, especially water resources
- Selection of materials and products based on their life-cycle environmental impacts
- Increased use of materials and products with recycled content
- Recycling of construction waste and building materials after demolition
- Reduction in harmful waste products produced during construction
- Facility maintenance and operational practices that reduce or eliminate harmful effects on people and the natural environment

Sustainable design concepts and principles can be applied to any type of facility, anywhere, under any cost constraints. However, the extent to which specific sustainability strategies can be applied to a given project will vary, based on a wide array of local conditions, customer requirements, budget constraints, and other considerations. A sustainable building, quite likely, will look no different than any other building. Drexel's philosophy of sustainable design reflects an increased commitment to the principles of environmental stewardship and conservation. However, it also incorporates the concept that sustainable facilities and infrastructure do not necessarily have a higher initial cost -- that a substantial number of sustainability initiatives can typically be accommodated within original project budgets if those budgets are adequate from the start.

The critical key to accomplishing this is an integrated design approach, where the evaluation of any building element, material or system is not viewed solely on the basis of its own isolated merit and cost, but is designed and then appraised as an integrated part of the entire building, facility or infrastructure system. Under an integrated design approach, specific materials or systems within a facility may have higher first costs, but these are balanced by lower first costs for other components of the design. The goal is to design a facility for which overall quality is higher, life-cycle costs are lower, sustainability concepts and principles are incorporated to the greatest extent possible, and first costs are held to the original budget amounts.

This policy statement recognizes the fact that increases in first costs could lead to improved life-cycle costs and higher degrees of sustainability implementation, and that this can be in the best interest of students and faculty. In this regard, the policy below in no way diminishes the importance and value of continuing to establish these concepts and seek increases in budgets for projects such that life-cycle cost and sustainability concepts can be implemented to a greater extent. It also does not preclude, for specific projects, decisions being reached jointly with customers, major claimants and other involved parties to establish higher construction budgets that incorporate sustainability and life-cycle cost considerations to a greater degree.

Attachment 1

National Goals Toward Sustainable Development

(Extracted from the President's Council on Sustainable Developments report, Sustainable America: A New Consensus for Prosperity, Opportunity, and a Healthy Environment of February 1996)

The following goals express the aspirations of the President's Council on Sustainable Development. They reflect the Council's understanding that it is essential to seek economic prosperity, environmental protection, and social equity together. Accompanying the goals are indicators of progress, yardsticks to measure progress toward each goal. Some of these goals and indicators are directly relevant to Drexel University and its responsibilities for the built and natural environment, and are presented in underlined italics.

Goal 1: Health and the Environment: Ensure that every person enjoys the benefits of clean air, clean water, and a healthy environment at home, at work, and at play.

Clean Air

Safe Drinking Water

Reduced Releases of Toxic Substances

Decreases in Diseases and Mortality

Goal 2: Economic Prosperity: Sustain a healthy U. S. economy that grows sufficiently to create meaningful jobs, reduce poverty, and provide the opportunity for a high quality of life for all in an increasingly competitive world.

Increases in Per Capita Economic Performance

Increases in Employment

Decreased Poverty

Higher Per Capita Savings and Investment

Development and Use of New Economic Measures Reflecting Resource Depletion and Associated Economic Costs

Increased Per Capita Productivity

Goal 3: Equity: Ensure that all Americans are afforded justice and have the opportunity to achieve economic, environmental and social well-being.

Increases in Average Income

Development of Measures of Any Disproportionate Environmental Burdens Borne by Different Economic and Social Groups

Social Equity

Goal 4: Conservation of Nature: Use, conserve, protect, and restore natural resources of land, air, water, and biodiversity in ways that help ensure long-term social, economic, and environmental benefits for ourselves and future generations.

Increases in the Health of Ecosystems, including Forests, Grasslands, Wetlands, Surface Waters, and Coastal Lands

Reduced Habitat Loss

Decreased Numbers of Threatened and Endangered Species

Decreased Releases that Contribute to the Exposure of Natural Systems to Toxics and Excess Nutrients

Reduced Ecological Impacts to Exotic Species

Reduced Emissions of Greenhouse Gases and of Compounds that Damage the Ozone Layer

Goal 5: Stewardship: Create a widely held ethic of stewardship that strongly encourages individuals, institutions, and corporations to take full responsibility for the economic, environmental, and social consequences of their actions.

Increased Efficiency of Materials Use

Increased Source Reduction, Reuse, Recovery, and Recycling

Reduced Energy Intensity - Increased Energy Efficiency

Decreased Rate of Harvest or Use Compared to Rate of Regeneration in Fisheries, Forests, Soils, and Groundwater

Goal 6: Sustainable Communities: Encourage people to work together to create healthy communities where natural and historic resources are preserved, jobs are available, sprawl is contained, neighborhoods are secure, education is lifelong, transportation and health care are accessible, and all citizens have opportunities to improve the quality of their lives.

Increased Local Per Capita Income and Resulting Community Economic Vitality

Safe Neighborhoods

Increases in Urban Green Spaces, Park Space and Recreational Areas

Investment in Future Generations through Healthcare, Childhood Development, Education and Training

Decreases in Traffic Congestion; Increased Use of Public and Alternative Transportation Systems

Community Access to Information

Decreased numbers of Homeless People

Reduced Disparity in Per Capita Income between Urban Areas and their Suburbs

Decreased Infant Mortality Rates

Goal 7: Civic Engagement: Create full opportunity for citizens, businesses, and communities to participate in and influence the natural resource, environmental, and economic decisions that affect them.

Increased Voter Participation

Increased Citizen Engagement

Increased Community Participation in Civic Activities

Increased Use of Successful Civic Collaborations Such as Public-Private Partnerships, Community-Based Planning and Goal-Setting Projects, and Consensus-Building Efforts

Goal 8: Population: Move toward stabilization of U. S. population.

Reduced Rates of Population Growth

Increased Educational Opportunities for Women

Decreased Numbers of Unintended Pregnancies

Decreased Numbers of Teenage Pregnancies

Decreased Number of Illegal Immigrants

Goal 9: International Responsibility: Take a leadership role in the development and implementation of global sustainable development policies, standards of conduct, and trade and foreign policies that further the achievement of sustainability.

Increased Levels of U. S. Assistance for Sustainable Development Worldwide

Development and Use of New measures for Assessing Progress Toward Sustainable Development in Countries Receiving U. S. Assistance

Increased U. S. Exports or Transfers of Cost-Effective and Environmentally Sound Technologies

Increased Levels of U. S. Research on Global Environmental Problems

Goal 10: Education: Ensure that all Americans have equal access to education and lifelong learning opportunities that will prepare them for meaningful work, a high quality of life, and an understanding of the concepts involved in sustainable development.

Increased Access to Information

Curriculum Development Incorporating Sustainable Principles

Increased School Adoption of the National Goals 2000 Initiative

Increased Number of School Systems and Communities with Programs for Lifelong Learning

Increased Skill Performance of U. S. Students

Attachment 2

Definitions of Sustainable Design

Numerous definitions of "Sustainable Design" exist. The following are some that have influenced the development of the Drexel definition:

"Meeting the needs of the present without compromising the ability of future generations to meet their own needs" (The World Commission on Environment and Development {The Brundland Commission} - 1987)

". . . the achievement of a dignified, peaceful, and equitable existence . . . a growing economy that provides equitable opportunities for satisfying livelihoods and a safe, healthy, high quality of life for current and future generations . . . protect the environment, its natural resource base, and the functions and viability of natural systems on which all life depends." (The President's Council on Sustainable Design - 1996)

"Doing more with less, in many cases by substituting information and intelligence in solving problems rather than additional material or energy resources." (John E. Young and Aaron Sachs in *The Next Efficiency Revolution: Creating a Sustainable Materials Economy* - 1994)

". . . sustainable design is not a new building style. Instead, it represents a revolution in how we think about, design, construct, and operate buildings. The primary goal of sustainable design is to lessen the harm poorly designed buildings cause by using the best of ancient building approaches in logical combination with the best of new technological advances." (Dianna Lopez Barnett and William D. Browning in *A Primer on Sustainable Building*, Rocky Mountain Institute - 1995)