

CONCRETE SUSTAINABILITY

A VISION FOR SUSTAINABLE CONSTRUCTION WITH CONCRETE IN NORTH AMERICA

Initiated by the Strategic Development Council (SDC), this document is the result of efforts by a diverse group of concrete industry volunteers who have contributed their time and experience throughout 2007 and 2008. The SDC also thanks the many Concrete and Masonry-Related Associations (CAMRA) who supported the SDC's efforts with financial and in-kind support (a list of those supporters can be found at www.concreteSDC.org).

Without a renewed mandate or additional financial resources from the concrete industry, this initiative is on hold. However, this document is made available to be used in whole or in part by the various segments of the concrete community as they seek to construct a vision and plan of action for their own unique segments. In using the material and background information from these documents, the SDC trusts that individuals or organizations will acknowledge the source and their use of such information and the leadership of the SDC as part of this effort.

The Strategic Development Council, again, thanks all who participated in this effort.

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Learn more at www.concreteSDC.org

DOCUMENT PURPOSE

This vision document has been produced by and for the concrete industry under the auspices of the Strategic Development Council. The goals outlined in this statement will help align the initiatives of the different segments of the industry and their associations, thus enabling the industry to speak with one voice on sustainable construction with concrete.

CONCRETE AND SUSTAINABLE DEVELOPMENT

The concrete industry is proud of its progress to date and is committed to improving the sustainability of the built-environment, and, within the industry, to improving concrete's environmental footprint. Society is widely adopting accepted holistic definitions of "sustainable development" and "the built-environment". The potential for concrete to have a more beneficial impact on the built-environment is great. The way forward requires determination and widespread cooperation.

VISION

The vision of the North American concrete industry is to transform the built environment by improving the way concrete is designed, specified, produced, transported, installed, maintained, and recycled to ensure an optimum balance between environmental, social, and economic conditions for the industry and the world.

APPROACH

To achieve this vision the approach includes three key objectives:

- **Lead society in achieving a built-environment** that will one day make a net environmental contribution to the planet,
- **Work as a team** to achieve the vision, and
- **Improve the environmental footprint of concrete.**

OBJECTIVE: THE BUILT-ENVIRONMENT

In this broad context, the concrete industry will be a leading player in helping society build infrastructure to support its desired standard of living, and achieving a built-environment that will make a net sustainable contribution to the planet. The industry will work as a team with every involved party to improve the sustainability of our communities for future generations. The industry has already made important advances. The industry is committed to continuously

improving its contribution to the sustainable building community and to invoking sweeping changes, if proved necessary, to achieving the vision.

Consequently the concrete industry's initial objectives are:

By 2010: Create and adopt action plans with all relevant parties for achieving significant improvements in the sustainability of the built-environment, to include measurable process objectives.

By 2020: Improve the sustainable characteristics of the built-environment through the efficient and effective use of concrete in green building, improving design to take full advantage of concrete's attributes, and adopting specifications that facilitate innovation in product design.

OBJECTIVE: TEAMWORK AND AN INDUSTRY SUSTAINABILITY CHARTER

The concrete industry recognizes that appropriate governance structures and teamwork are essential if it is to succeed on its sustainability journey. The industry has developed a Concrete Industry Sustainability Charter (refer to attached). The Charter articulates the industry's values and team-focused operating principles, and will form an integral part of all future plans and protocols.

OBJECTIVE: REDUCED ENVIRONMENTAL FOOTPRINT OF CONCRETE

The concrete industry has made significant progress reducing the environmental footprint of its product. For example, since 1990, the US concrete industry has reduced the amount of CO₂ to produce a cubic yard of concrete by over 20%. The industry is committed to setting similar aggressive targets to continue this trend, both in the immediate future and over the longer term.

– near term

The concrete industry is determined to set specific targets for all key environmental performance indicators of its product. Industry leaders recognize that time is of the essence, and that ambitious targets will help mobilize the industry to adopt the changes necessary to make real progress in reducing concrete's environmental footprint. The industry is adopting objectives to immediately drive baseline research to enable the setting of CO₂ reduction targets, and to enable the setting of targets in other sustainability areas, by or before 2010. These targets are as follows.

Reduce by 2030 the carbon footprint per unit of concrete and concrete product produced.

Reduce by 2030 the total annual carbon footprint for all concrete and concrete put in place.

Reduce substantially by 2030 the environmental footprint of concrete with regards to embodied energy, water conservation, water quality, air quality, recycling, and reuse.

Improve substantially by 2030 the sustainable characteristics of new structures through the efficient and effective use of concrete in construction to take full advantage of concrete's attributes, and adopting specifications that facilitate innovation in product design.

– to 2050

The attainment of its targets for 2030 will challenge the industry, given the boundaries of existing technologies. But the industry recognizes that to continue improvement at the same pace through 2050 will require major changes to those technologies, as well as substantial changes to our social and regulatory framework. At a 2.5% annual growth rate, demand for concrete will increase by 425% as compared to 1990. To return to 1990 absolute CO₂ levels will require a reduction in CO₂ output per cubic yard of concrete of 85% over current levels.

Given this scenario, and the other longer term uncertainties outlined above, the concrete industry pledges to drive research and monitor developments with a view to setting firm and ambitious sustainability targets for 2050 by 2015.

The industry will reach agreement on new 2050 targets through a North American Concrete Sustainability Protocol, as well as the contribution of each industry segment to the achievement of each target reduction, and will measure and publish its progress on an annual basis.

GOALS AND INITIATIVES

To achieve these targets the industry will pursue the following goals and initiatives.

CONTINUOUS IMPROVEMENT

Goal:

Continuously improve, through technical, process, and other innovations, concrete's environmental, social, and economic impact at every step in the concrete lifecycle; and demonstrate through measurement the reality of concrete's sustainability footprint.

Key initiatives:

- Identify key performance indicators and set targets
- Develop, maintain, and implement a comprehensive plan for improvement in performance
- Create and maintain an inventory of concrete's past and current sustainability performance
- Create and maintain an inventory of global best practices
- Develop tools and approaches to achieve these goals.

ADVOCACY

Goal:

Advocate for public positions, policies, laws, regulations, ordinances, and actions that encourage both sustainable business practices/operations and holistic integration of cement- and concrete-related products in sustainable design and application.

Advocacy is defined as issue management, policy development, and public affairs communication. Public is defined as regulators, legislators, designers, specifiers, planners, owners, and end users.

Key initiatives:

- Engage in national dialogue on policies and positions related to sustainability issues
- Translate technical information
- Make information accessible
- Identify critical issues
- Identify and build relationships with key leadership at all levels
- Influence the development of laws and regulations
- Provide implementation and compliance guidance
- Develop, maintain, and implement an advocacy plan

SPECIFIED CONSTRAINTS

Goal:

Work to remove technical constraints in building codes, standards, and specifications that may prevent concrete and construction from reaching its full sustainability potential.

Key initiatives:

- Catalogue existing technical constraints
- Develop justification for addressing constraints
- Work as appropriate to remove or modify technical constraints
- Develop, maintain, and implement a plan

EDUCATION

Goal:

Provide education that will engage and empower the industry and its partners to understand, develop, and implement best sustainability practices.

Key initiatives:

- Educate the industry internally
- Develop education and tools for specifiers and designers
- Educate the general public
- Educate the educators
- Develop, maintain, and implement a strategic education plan

COMMUNICATIONS

Goal:

Accurately convey at all times, both within the industry and to all interested parties, the positions and actions of the North American concrete industry related to the sustainability of concrete and/or its role in supporting sustainable development in our communities.

Key initiatives:

- Develop, maintain, and implement a plan
- Inventory and track important trends
- Develop, introduce, and maintain appropriate communications tools

MOBILIZATION AND TEAMWORK

Goal:

Through structured, dynamic, and innovative approaches enable the varied and disparate components of the North American concrete industry to work together as a team to ensure optimally sustainable applications of concrete; and that the sustainability imperative becomes anchored in the culture of the whole industry.

Key initiatives:

- Develop, implement, and maintain a plan for the continuity of this industry initiative
- Ensure the endorsement of the various segments of the concrete industry
- Ensure initiatives are adequately resourced
- Ensure the process of developing and implementing the concrete sustainability vision and roadmap are efficient and effective

ACHIEVING THE GOALS

Making this vision a reality is a major undertaking involving all facets of the concrete industry working together as a team. These activities, and their resourcing, would be best coordinated and funded by the industry if led by a dedicated paid staff to avoid reliance on volunteer time. Consequently, the industry will create a new not-for-profit entity to coordinate, track, and help communicate its sustainability initiatives. This organization will facilitate the collective action required to make this vision for the sustainability of construction with concrete a reality across North America.

This organization will adhere to and promote the finalization of the Concrete Industry Sustainability Charter. To ensure the continuity of this vital industry initiative, the organization will undertake the following:

- Seek agreement on industry-wide targets and initiatives, and coordinate the contribution of each industry segment to achieve the effort of the whole
- Review of the vision document and plan framework by as many industry stakeholders as possible with a view to making such adjustments as are necessary to help the industry collectively achieve it
- Consult with other participants who have a stake in the sustainability of the built-environment
- Develop action plans (tactics, workplans, change plans, measurable objectives, etc.) in each goal area
- Identify best sustainability practices and steps industry groups can incorporate into their operations and culture
- Coordinate an integrated industry information base

- Start or continue to pursue and implement this vision wherever a related activity is sufficiently well scoped and resourced
- Create awareness and mobilization of industry efforts
- Track and communicate industry progress
- Embed systems, goals, and initiatives into an organizational culture.

The new association will help industry partners by adopting a model (see example below) for integrating industry input and progress (e.g. for recording the goals each industry segment may have set for itself, its sustainability initiatives, etc.) This model recognizes that different segments of the industry can more effectively affect specific areas of sustainability.

Issues to Address	Organizations						
	CRSI	NRMCA	PCA	PCI	ACI	ASCC	and others
Reduce CO2							
Reduce Water Use							
Reduce Embedded Energy							
Increase the Use of Recycled Material							
Reduce use of non-recycled material							
Reduce materials to landfill							

Each segment of the concrete industry to participate in goals as they are able, by providing data, setting their own targets, identifying initiatives, coordinating their actions to align with an overall vision for the concrete industry.

This model also will be used to store and track sustainability data and track progress to goals and targets, to ensure coherence of roadmap actions, to facilitate alignment of industry messages, etc.

THE CONCRETE INDUSTRY SUSTAINABILITY CHARTER

While we in the industry recognize the historical improvements in concrete's environmental footprint, we are committed to continue on this path as stewards of our environment. As a diverse industry, we share a common vision to ensure that all processes generating modern concrete and concrete products contribute to fulfill sustainable needs of this and future generations. We will cooperate with integrity and honesty to achieve our goals. Time is of the essence. We the undersigned pledge to affect change to the best of our ability in the areas over which we have responsibility or control.

VISION

The vision of the North American concrete industry is to transform the built environment by improving the way concrete is designed, specified, produced, transported, installed, maintained, and recycled in such a way as to ensure an optimum balance between environmental, social, and economic conditions for the industry and all our communities.

OPERATING PRINCIPLES

We the undersigned agree to abide by these principles, to reinforce them in the behaviour of others, and to act with a common vision when assessing, improving, and promoting how concrete can best contribute to sustainable construction.

To this end we will...

1. Act transparently
2. Be honest with our data
3. Act professionally with, and be respectful of, other members of our industry
4. Leverage our industry's diversity to contribute to sustainable practices
5. Encourage and reward innovation in finding positive solutions to industry challenges
6. Contribute resources to accomplish our common sustainability goals at every opportunity
7. Always consider the impact of our actions on our society, environment, and economy
8. Be tolerant and accepting of change
9. Recognize that there are sustainable construction solutions outside our industry
10. Demonstrate sustainable practices in our own facilities, companies, organizations, and communities
11. Bring a sustainable perspective to all appropriate conversations
12. Assist in making sustainability part of our industry's culture
13. Establish, measure, and report the metrics from our own organization
14. Advocate for sustainability improvement and enable this to happen within our own organization
15. Identify the needs for, and support, research within our industry to support sustainable initiatives
16. Support the verification of all claims made in our annual industry reports through an independent third-party
17. Elevate the awareness and consciousness of sustainability