NRMCA Sustainability Initiatives

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Current Practices Study

- Continuously improve process
- Continuously improve product
Current Practices Study

- Identify Goals and Strategies (targets)
  - 30% CO2 reduction by 2012
  - 20% reduction in water use
  - 50% reduction in waste

- Educate (internal/external)
Current Practices Study

- Measure Results

- Communicate Results
Vision

The vision of the ready mixed concrete industry is to transform the built environment by improving the way concrete is manufactured and used in order to achieve an optimum balance among environmental, social and economic conditions.
Building Society
Life Cycle Perspective

- Material Acquisition
- Production
- Recycling
- Construction

Life Cycle Phases

Product Use
Objectives

- Minimize Energy Use
- Reduce Emissions
- Conserve Water
- Minimize Waste
- Increase Recycled Content
 Targets Per Unit of Concrete Produced from 2007 Levels

- Embodied energy:
  - 20% reduction by 2020
  - 30% reduction by 2030

- Carbon footprint:
  - 20% reduction by 2020
  - 30% reduction by 2030

- Recycled content:
  - 20% reduction by 2020
  - 30% reduction by 2030

- Waste:
  - 30% reduction by 2020
  - 50% reduction by 2030

- Potable water:
  - 10% reduction by 2020
  - 20% reduction by 2030
  - 200% increase by 2020
  - 400% increase by 2030
Material Acquisition

- Support material suppliers that adopt comprehensive environmental management systems, including wildlife conservation and quarry restoration plans.
- Support material suppliers located near concrete plants.
- Explore the use of innovative cements with lower carbon footprint through research, education and advocacy.
- Encourage supplementary cementitious material (SCM) suppliers to improve distribution systems in order to increase material availability.
- Increase the quantity of SCMs used in concrete through research, education and advocacy.
- Increase the quantity of recycled aggregate used in concrete through research, education and advocacy.
- Replace potable water with non-potable water used in concrete through research, education and advocacy.
Production

- Adopt rigorous environmental management systems to meet and exceed environmental regulations
- Use energy-efficient plant equipment and delivery vehicles
- Increase the use of recycled materials to lower the overall embodied energy of concrete through research, education and advocacy
- Use renewable energy, including biomass, solar, wind, geothermal and hydroelectric power to reduce plant CO₂ emissions
- Implement rigorous quality control programs to optimize the use of materials
Construction

- Deliver concrete from plants near construction sites
- Use fuel-efficient concrete trucks
- Conserve fuel by minimizing truck idling
- Use trucks made with advanced lightweight materials to reduce fuel consumption
- Use alternative fuels to power concrete trucks
- Use advanced technologies such as global positioning systems to minimize travel distances
- Advocate for increased truck weights on roadways
- Advocate for greater access to highways and special truck lanes on highways to reduce congestion and fuel consumption
- Increase the use of labor saving products such as flowable fill and self-consolidating concrete through research, education and advocacy
Product Use

- Provide expertise in the development of green rating systems for homes, buildings and roadways
- Educate engineers and architects on design techniques to benefit from concrete’s environmental attributes
- Advocate for sustainability standards in national and local building codes
- Advocate for local ordinances that support the use of green building practices
- Conduct research to improve and enhance the positive attributes of concrete construction such as thermal mass, high reflectivity, durability and long service life
- Conduct research to enhance innovative products such as pervious concrete, tilt-up construction, insulating concrete forms, flowable fill and self-consolidating concrete
Reuse/Recycling

- Advocate for recycled concrete aggregate, water and cementitious materials in national, state and local standards
- Support the use of recycled concrete aggregate as base and fill materials for new construction
- Educate concrete producers and specifiers on the proper use and benefits of using recycled concrete aggregate, water and cementitious materials in concrete
- Conduct research to demonstrate and improve concrete performance using recycled concrete aggregate, water, cementitious materials, and other pre- and post-consumer by-products
Industry Programs

- Research
- Education
- Measurement
- Advocacy
Research
Improved Specifications

- Guide to Specifying Concrete Performance
- Preparation of a Performance-Based Specification for Cast-In-Place Concrete
- Experimental Case Study Demonstrating the Advantages of Performance Specifications
Recycled Content, Waste and Footprint

- Crushed Returned Concrete as Aggregates for New Concrete
- Recycled Water in Ready Mixed Concrete Operations
- New Technology-Based Approach to Advance Higher Volume Fly Ash Concrete with Acceptable Performance
Sustainable Applications

- Effect of Pavement Type on Fuel Consumption and Emissions
- Side-by-Side Comparison of Pervious Concrete & Porous Asphalt
- Long-Term Field Performance of Pervious Concrete Pavements
LCA and Green Concrete Science

- MIT Concrete Sustainability Hub
- Green Concrete Science
  - Nanotechnology
  - More efficient cement hydration
- LCA
  - Buildings
  - Pavements
Education and Training

Career Tracks

- Business Management
- Concrete Technology
- Operations & Production
- Sales, Marketing & Promotion
- Sustainability
Courses for the Industry

“Concrete's Role in Sustainable Development” Seminar

Building Green with Concrete Course and Certification
Learn Design Strategies to Optimize Environmental Performance

LEED GREEN ASSOCIATE
Exam Study Course

Step 1

Step 2

Step 3
Environmental Professional Certification

- EPA regulations
- Clean Water Act
- Discharge Permits
- Stormwater Management
- 2½ days
- Certification
Concrete Sustainability Conference

Topics include
- Sustainable Concrete Construction
- Sustainable Concrete Manufacturing

www.SustainabilityConf.org
Continuing Education for Designers

Design of Concrete Pavements
Sustainable | Economical | Durable

Pervious Concrete Seminars
Continuing Education for Architects and Engineers

Building Green with Concrete
Course and Certification

Designing High Performance
Concrete Structures seminar

Storm-Resistant
Concrete Homes & Buildings

WWW.NRMCA.ORG
Education for Concrete Contractors

- Knowledgeable contractors
- Maximizing successful installations
- Over 6500 certified
National Accounts Program

- Resource Directors:
  - Technology Transfer
    - Seminars
    - General Calls
    - Specification Review
    - Field Issues
  - National Accounts Focus
- Focus on Green Building
Measurement
Green Star Plant Certification Program

- Environmental Management Systems (EMS) as a tool for environmental benchmarking and improvement
- Recognizes those industry members at the forefront of environmental stewardship
Sustainable Concrete Plant Guidelines

- Help meet objectives of NRMCA Sustainability Initiatives
- Sets baseline from survey results
- Set targets for plant performance
- Carbon calculator
- Pilot program starts April 2010
Advocacy
The P2P Initiative

- P2P Initiative (Prescriptive to Performance Specifications for Concrete)
- Removes limits on materials
- Allows producers to meet performance requirements
- Minimize environmental impact
Sustainability Standards
Industry Tools

Recycled Content & Regional Materials Calculator for the Concrete Industry

Ready Mixed Concrete Industry LEED Reference Guide

Concrete Solutions for Sustainable Development

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LEED

PCG

Concrete Delivers

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Thank you