



***Arriving at Green Chemistry:
A Case Study in Integrating Sustainability
into a Construction Chemicals Company***

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Presentation Overview

- Define Green Chemistry for Us
- Corporate Overview
 - Trickle-Down Effect
- Tremco CS&W Case Study
 - Culture Shift
 - Specific Initiatives, Programs and Processes
- Wrap-up

Green Chemistry to Us

- Sustainability encompasses green chemistry
- Sustainability also encompasses...
 - Product function and application
 - Manufacturing practices and processes
 - Corporate identity and culture
 - People and community
 - Sustaining the organization
- Integration of sustainability into our strategy positions us to address the green chemistry challenge.

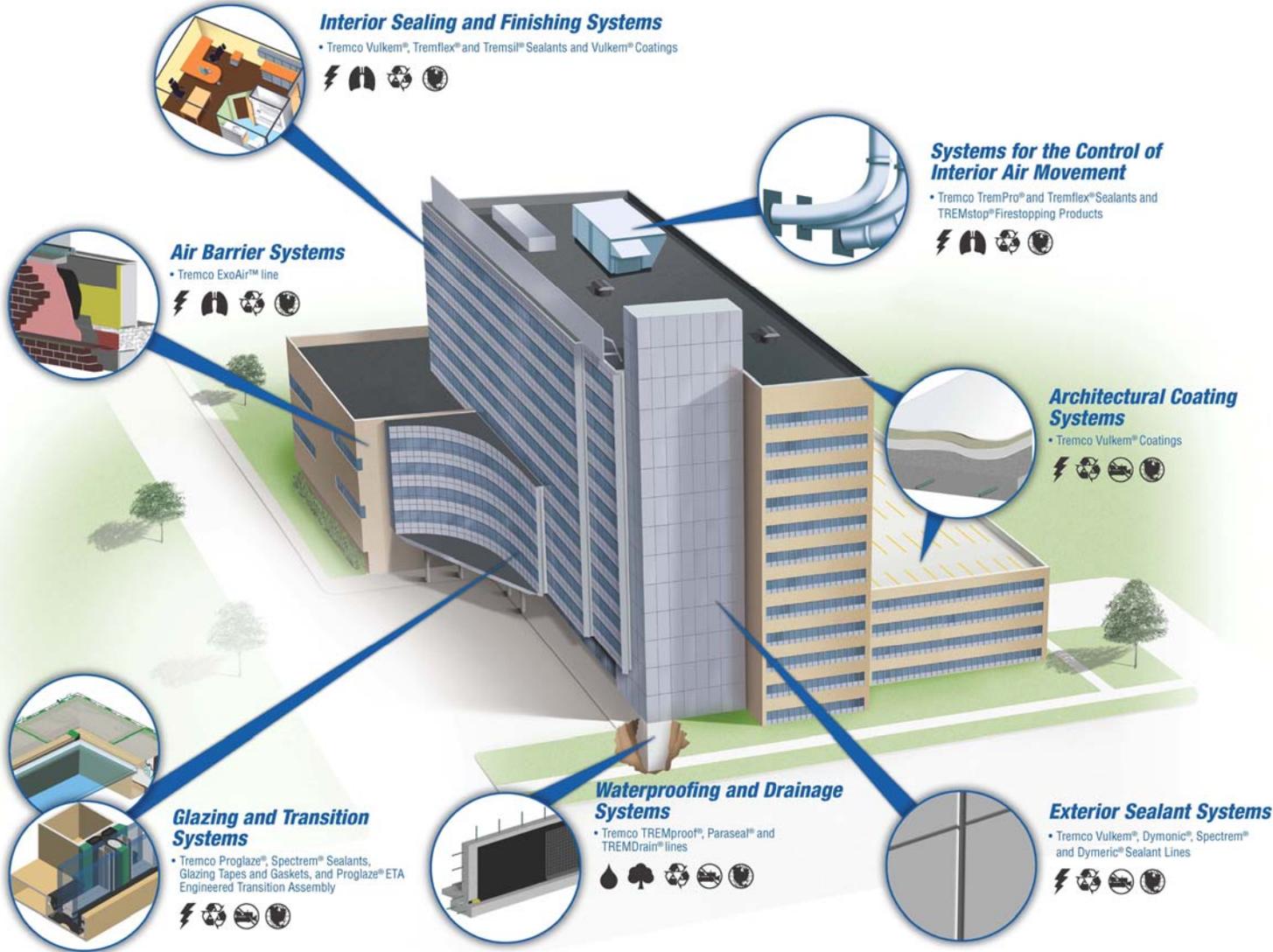
Corporate Overview



RPM-BSG Vision

As a **global sustainability leader**, the RPM Building Solution Group **considers people, planet and prosperity** in all business decisions. We are recognized for developing the world's most innovative integrated products and services that **contribute to high-performance, operationally efficient outcomes** for the built environment. Utilizing **responsible chemistry and exceptional manufacturing processes**, we **conserve resources and minimize our environmental impact** to support and enhance healthy, vibrant communities. With an engaged and empowered workforce, the RPM Building Solutions Group embraces a sustainable culture and creates lasting value for our stakeholders.

Tremco CS&W Strategy: The Building Envelope Solution



Tremco CS&W Mission

We provide value-added, *integrated, sustainable solutions* to the key stakeholders in the construction industry that result in *durable structures* through effective *air and moisture management*. We achieve this utilizing *responsible business practices*, technical competency, knowledgeable sales support and specialty distribution channels.

Market Drivers and Influences

- Climate Change/Carbon Footprint
- Design Trends
 - LEED Related
 - ASHRAE, EnergyStar, IgCC, etc.
 - Integrated Building Design

Market Drivers and Influences

- Regulation, Legislation and Politics
 - Air Quality/VOCs
 - Chemicals of Concern
- Energy & Material Costs/Supply
 - Oil and Water

Sustainability & Our Products

The Present Challenge:

Provide the same or better quality and function while integrating green chemistry principles.

The Solution:

Embracing sustainability!

Committing to a Green Strategy → A Green Company

- Organizational Capability:
 - Change must be anchored in culture!
 - Resource commitment
 - Community Development and Interaction
- Process Excellence:
 - Systematic “greening” of the organization and products via specific programs, initiatives and changes in practice.
- Value Creation:
 - For our internal and external stakeholders.
- Financial Growth

Organizational Capability: Education

- Training our staff and customers on sustainability concepts.
- Develop in-house experts to be industry leaders.
- Living as We Speak:
 - Headquarter Renovation.
 - Greensburg, KS

Organizational Capabilities: Resource Commitment

- A dedicated steward to bring focus and purpose.
- Employee time for training and projects.
- Alignment of projects, initiatives and efforts into corporate goals/objectives.
 - Tie that to personal reward (bonus)
- Eco-Committee to champion sustainability initiatives.
- Use innovation to reinforce concepts and commitment internally and externally.

Organizational Capabilities: Community

- Rebuilding of Greensburg, KS as a case study.
 - Town destroyed by tornado in May 2007 that has vowed to rebuild green
 - Donations, discounted material or funds to community foundations
 - Educating contractors and architects on sustainable building practices, specifying and design
 - Helping bring other resources to town
- Outreach to the External Community
- Internal Community

Process Excellence: Zero Landfill Program

- On-going project
- Reuse by-products in other finished goods/processes, sell them to those who can use them or use/sell as fuel blend.
 - In first full-fiscal year reduced ratio of landfill to goods shipped by 30%.
 - Toronto facility has no non-hazardous landfill, overall 90%+ way to goal.
 - Business Sense: Cost Neutral
- LEAN principles in place to reduce waste creation.

Process Excellence: Operations Initiatives and Programs

- Continual improvement teams examining process time reductions in our facilities
 - Reduction in cycle time by 40% for #1 volume (gallons) product
 - Reduced energy per unit.
 - Part of LEAN operations
- Emissions Reduction and Solvent Recapture
 - New Ultra-low VOC, Ultra-Low Process Emissions Urethane Sealant.
 - Solvent reuse reduces needs, limits emissions
- Carbon Dioxide:
 - Performing baseline “embodied energy” calculations for products to drive systematic energy reduction.

Process Excellence: Responsible Chemistry Initiative

- Corporate mandate we will evaluate and provide preference to “responsible” chemistry solutions (all things being equal).
- Management team to prioritize, develop a strategy and assign specific projects/actions to targeted chemistries of concern.
- Evaluating renewable based and recycled content raw materials.
- Targeted chemistries of concern:
 - Prop 65
 - EPA CAP Items
 - Other chemistries as identified by stakeholders.

Process Excellence: Product Development Enhancements

- Integration of alternative analysis concepts into our stage-gate process
 - These insure life-cycle thinking from initial project stage.
 - Includes the following requirements of all new products and significant reformulations:
 - Consideration of renewable and/or recycled raw materials
 - Consideration of Recyclability
 - Ultra VOC Compliance
 - No/Minimized chemistries of concern
 - Alternative cure mechanisms/catalysts.
 - Reduced Cycle Times
 - Evaluate “Process Harvesting”

Process Excellence: Product Development Initiatives

- Exploration of new technology platforms
 - Water catalyzed urethanes.
 - Reduced needs for amines or organometallic complexes (ie- tins)
 - Hybrid Sealant Technologies:
 - Silane-terminated urethanes
 - Potential for renewable based polyol backbones with life of silicone.
 - Aliphatic Urethanes:
 - Less of a health issue than aromatic based.

Creating Value: Involvement

- Technical Association Involvement:
 - ASTM (E60)
 - USGBC
 - ICC
 - ASC
- Regulatory/Government Involvement
 - EPA
 - CARB/AQMD's
 - DOE
 - Legislation and Policy Reviews
- Community and Employee Development Already Mentioned

Closing Comments

- Sustainability is relatively easy to work towards with sustainable practices integrated into the core strategy.
- A systematic implementation of such practices makes the end goal (“greener” products) attainable.
- As with any successful strategy execution, this will also yield a profitable and growing green organization
- We challenge our customers, competitors and ourselves to embrace these concepts.



Thank You for Your Time!

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