The Chemistry of Sustainable Construction

BASF
The Chemical Company

West Virginia University Coliseum features an ELASTOSPRAY® roofing system.

The main Texas A&M University campus boasts over 7 million square-feet of SPF roofing.

Cooper River Bridge features a BASF latex-modified concrete bridge deck overlay.

The Habben Home is built with structural insulated panels made with BASF polyurethane insulation.

ENERGY EFFICIENCY
DURABILITY
SPEED OF CONSTRUCTION

Chemistry is the building block of construction. It's used in almost every component of every structure—commercial, educational, infrastructure or residential. Chemistry helps save energy. Makes materials stronger. Speeds construction. The ingredients of improved sustainability.

As The Chemical Company, BASF is a leader in the construction industry. With more than 600 products serving 75 construction product categories, BASF offers the broadest portfolio of products used directly on construction sites, or integrated into other products, to improve the performance of construction projects.

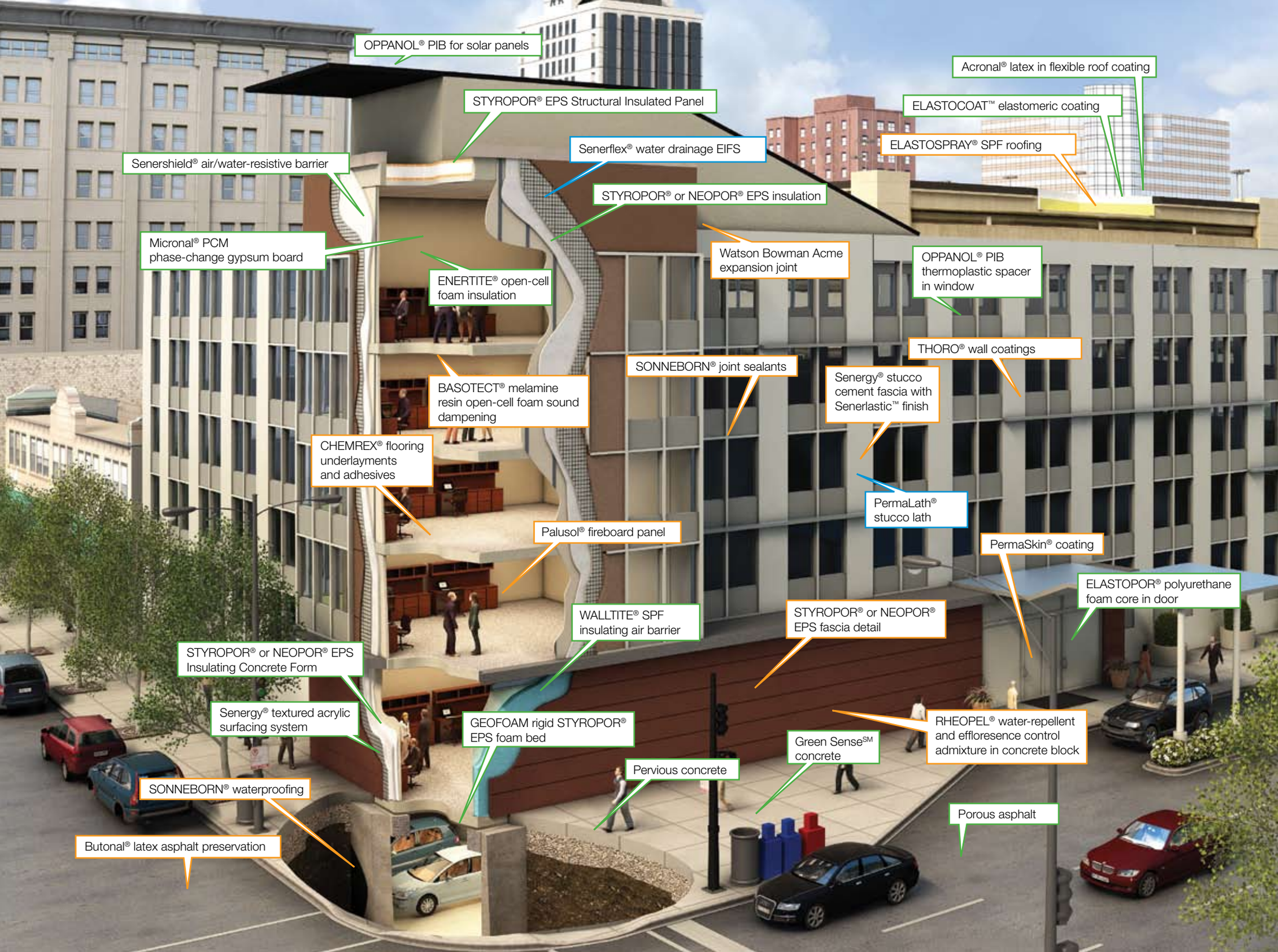
Our offer extends throughout the building enclosure from roof to foundation. In wall systems and insulation. Sealants and adhesives. Concrete and asphalt. In bridges and pavement. In windows and doors. HVAC and plumbing. Interior. Exterior. Cladding. Landscaping. Electronics. Whether new construction, retrofit or historical restoration, BASF chemistry makes a significant contribution to improved performance.

Improved energy efficiency means lower operating costs, accelerated return on investment and lower environmental impact. Increased durability means a lower cost of ownership due to reduced maintenance needs, resistance to natural disasters and safer, healthier places to live, work and learn. Speed of construction enables increased productivity, lower labor requirements, easier staging, faster occupancy and income generation, rapid repairs and reduced call-backs.

For more than half a century, our construction solutions and chemical ingredients have helped architects, engineers, designers, contractors, owners, builders and original equipment manufacturers make construction projects better with material choices that are proven to make a tangible difference to the performance of construction projects throughout their entire lifecycle.

Why? Because sustainability loves chemistry. Chemistry between elements in the lab that combine to create high-performance materials. Chemistry between systems on the job site that combine to create high-performance structures. Chemistry between stakeholders on the design team that come together to set and exceed performance goals for their construction projects.

Through innovation, education and collaboration. At BASF, we create chemistry.


OPPANOL® PIB for solar panels
STYROPOR® EPS Structural Insulated Panel
Senershield® air/water-resistive barrier
Senerflex® water drainage EIFS
STYROPOR® or NEOPOR® EPS insulation
Micronal® PCM phase-change gypsum board
ENERTITE® open-cell foam insulation
Watson Bowman Acme expansion joint
Acronal® latex in flexible roof coating
ELASTOCOAT™ elastomeric coating
ELASTOSPRAY® SPF roofing
OPPANOL® PIB thermoplastic spacer in window
THORO® wall coatings
SONNEBORN® joint sealants
BASOTECT® melamine resin open-cell foam sound dampening
Senergy® stucco cement fascia with Senerlastic™ finish
CHEMREX® flooring underlayments and adhesives
PermaLath® stucco lath
Palusol® fireboard panel
PermaSkin® coating
ELASTOPOR® polyurethane foam core in door
WALLTITE® SPF insulating air barrier
STYROPOR® or NEOPOR® EPS fascia detail
STYROPOR® or NEOPOR® EPS Insulating Concrete Form
Senergy® textured acrylic surfacing system
GEOFOAM rigid STYROPOR® EPS foam bed
RHEOPEL® water-repellent and effloresence control admixture in concrete block
Green Sense℠ concrete
Pervious concrete
SONNEBORN® waterproofing
Porous asphalt
Butonal® latex asphalt preservation

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THE CHEMISTRY OF SUSTAINABLE COMMERCIAL BUILDINGS

Commercial buildings play a vital role in our economy. They are where we work, where we shop and, often, where we play. Yet the 4.8 million existing commercial buildings in the United States are responsible for more than 20 percent of the nation's total energy consumption and 17 percent of annual greenhouse gas (GHG) emissions in America.

BASF chemistry helps create building enclosures that enable commercial buildings to use less and offer more.

Energy efficiency is maximized with insulation materials for roofs, walls and foundations that allow you to meet or substantially exceed Code with R-values as high as R-50 or more. Air barrier technologies keep conditioned air inside the structure. Warm-edge window systems and glazing are sealed tight with thermoplastic spacers. Adhesives and sealants help contribute to airtight construction.

Elastomeric coatings for all roof types, roofing membranes and vegetative roofing systems help lower rooftop temperatures and reduce urban heat island effect. Solar panels with polyisobutylene adhesives and sealants provide renewable energy.

Indoors, gypsum wall board with phase-change material helps keep interior temperatures consistent and energy bills low. HVAC systems are quiet and safe thanks to melamine resin open-cell foam insulation technology that combines sound absorption and safe fire behavior. Fireboard panels featuring hydrated sodium silicate react to heat in the event of a fire to create compression-resistant, non-combustible, heat sealing foam that fills joints and gaps to prevent the spread of fire and smoke.

Office and area partitions made with melamine resin open-cell foam insulation combine sound transfer control, design freedom and quick assembly and installation.

Durability comes from the ground up with concrete for every application. Liquid admixtures help strengthen and enhance the durability of concrete beams, foundations, slabs, walls, and columns, and provide efflorescence control and water repellency. Specially formulated admixture systems can reduce carbon footprint by incorporating significantly more fly ash than traditional concrete mixtures. Pervious concrete and porous asphalt improve drainage and reduce or eliminate the need for storm water storage.

Liquid-applied membranes and cementitious coatings prevent moisture penetration throughout the building. Wall systems featuring EIFS fascia materials require little maintenance and allow for façade restoration with minimal disruption to occupants.

Insulating concrete forms (ICFs) and structural insulated panels (SIPs) offer increased structural strength, while expansion joint systems can withstand everything from small movements to seismic events.

ICFs and SIPs arrive at the jobsite ready to install, and assemble quickly for increased productivity and reduced labor requirements. Concrete formulated with BASF admixtures is more durable and can be placed and finished at a much faster rate than untreated concrete.

Liquid- and spray-applied coatings for roofs, walls and foundations go on faster than sheet membrane products. EPS fascia detail, as well as fade- and crack-resistant textured acrylic surfacing provide a decorative touch with faster installation and increased durability.

Spray-applied polyurethane foam roofing systems can be applied directly to the existing substrate in most retrofit applications without tear-off, providing one of the fastest re-roofing installation options available and diverting tons of waste from landfill.

LEGEND

ENERGY EFFICIENCY

DURABILITY

SPEED OF CONSTRUCTION

THE CHEMISTRY OF

SUSTAINABLE EDUCATIONAL BUILDINGS

Schools are a focal point for our communities. Learning happens best in environments that are healthy, safe and comfortable. BASF chemistry helps schools achieve this while also meeting mandates—and budgets.

Spend money on educating students, not energy bills, with BASF insulation technologies and air barrier materials that include standard and graphite-enhanced expandable polystyrene (EPS), closed-cell spray-applied polyurethane foam (SPF) and open-cell polyurethane foam. Used in every part of the building enclosure, these systems offer unparalleled energy saving performance.

Keep unconditioned air out of the classroom by using window systems sealed with polyisobutylene thermoplastic spacers and sealants. Improve thermal comfort with phase-change gypsum board. Reflect heat away from the roof with coatings for interior and exterior sides of the roof deck. Acoustic panels, suspended baffles and metal ceiling panels made with melamine resin open-cell foam technology provide quiet study space with optimal sound insulation.

Kids can be tough on materials, but schools need to be built to last. Durable, low-maintenance flooring systems for hallways, restrooms, kitchens and gymnasiums feature BASF chemistry. Integrally colored concrete floors enhance aesthetic appeal and are more durable. Indoor and outdoor sports surfaces help reduce the risk of sport-related injury and stand up to heavy use. Doors last longer and offer excellent insulation with protective coatings and polyurethane cores.

Indoor air quality (IAQ) is improved with products that emit little or no volatile organic compounds (VOCs).

Fireboard panels and fire barrier doors featuring hydrated sodium silicate help prevent the spread of fire and smoke. HVAC systems are quiet and safe thanks to melamine resin open-cell foam insulation technology that combines sound absorption and safe fire behavior.

Water repellents and waterproofing membranes help prevent moisture damage, efflorescence and spalling on the exterior. Stucco cement fascia and protective coatings keep the school looking good for years and years.

Concrete plays a key role in school construction and BASF admixtures play a key role in concrete. From ready-mix to precast, pervious to decorative—beams, foundations, slabs, walls, columns and pavements can be made stronger and last longer, with a reduced impact on the environment.

Schools often serve as evacuation centers when disaster strikes. Polyurethane foam roofing systems provide industry-leading wind uplift and severe hail resistance. Closed-cell insulation materials are approved by FEMA for flood resistance. Structural insulated panels (SIPs) and insulating concrete forms (ICFs) add structural strength, while expansion joint systems can withstand seismic events. Exterior insulated finishing systems (EIFS) are proven to withstand windborne debris. Thermoplastic spacers for insulated windows can accommodate building movements, including stress from wind and earthquakes, while maintaining sealant integrity and insulating performance.

Labor is expensive. BASF chemistry helps make construction materials that install faster with less dependence on highly skilled labor. For example, concrete that can be easily placed in a wider range of climates.

Spray-applied and liquid coatings and membranes that make detailing simpler.

LEGEND

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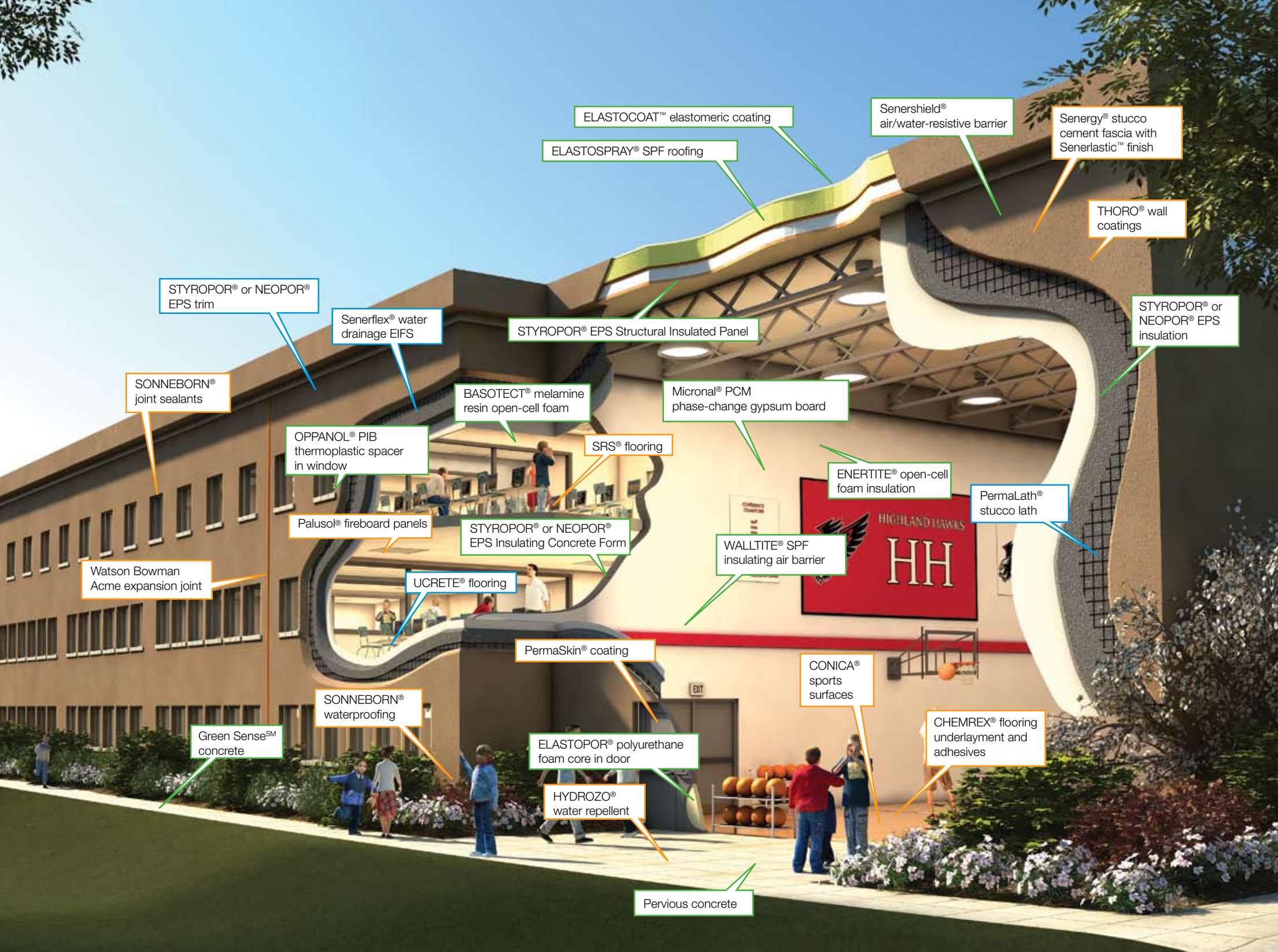
ELASTOCOAT™ elastomeric coating
ELASTOSPRAY® SPF roofing
Senershield® air/water-resistive barrier
Senergy® stucco cement fascia with Senerlastic™ finish
THORO® wall coatings
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Senerflex® water drainage EIFS
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SONNEBORN® joint sealants
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ENERTITE® open-cell foam insulation
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WALLTITE® SPF insulating air barrier
Watson Bowman Acme expansion joint
UCRETE® flooring
PermaSkin® coating
CONICA® sports surfaces
SONNEBORN® waterproofing
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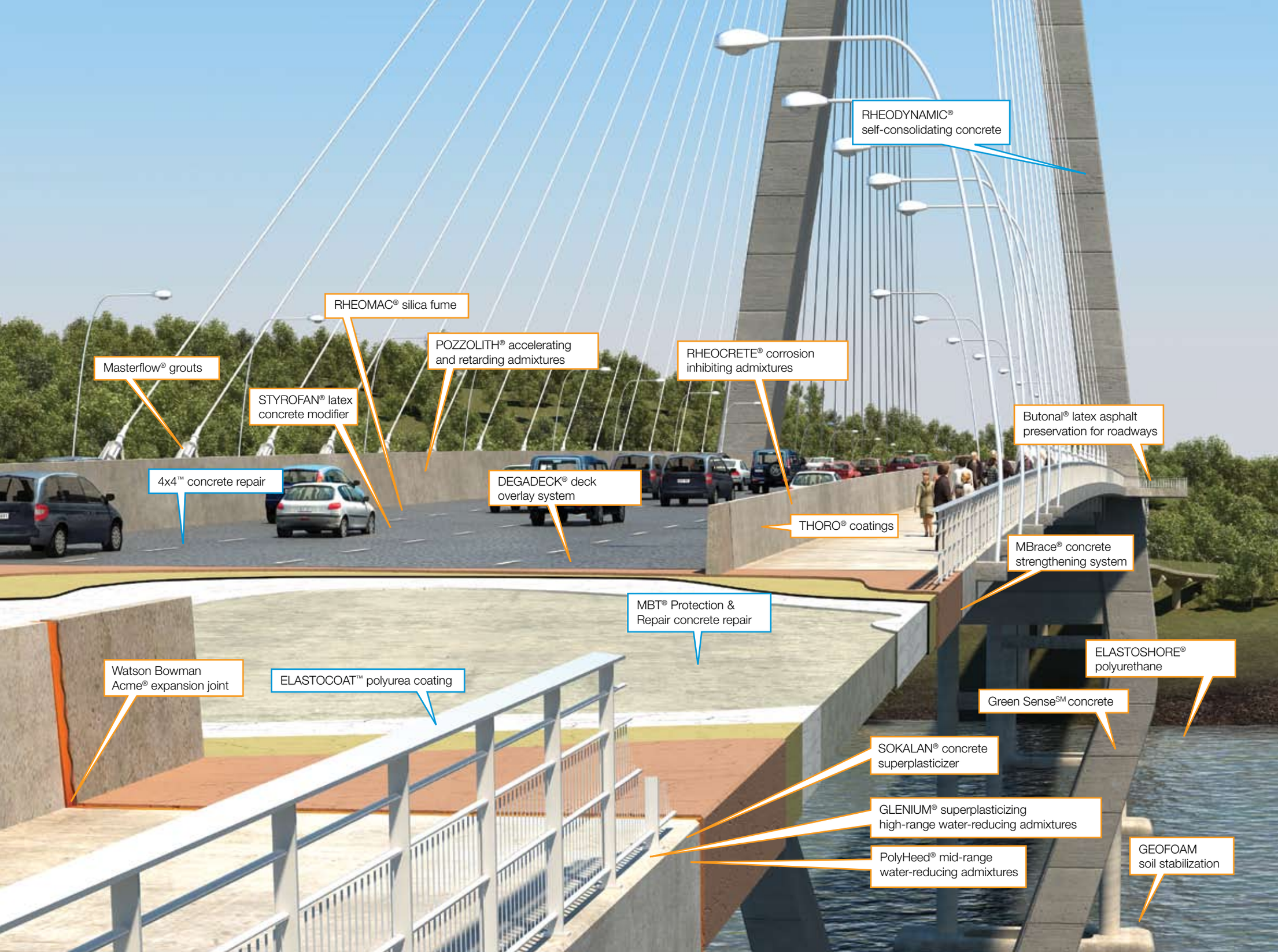
ELASTOPOR® polyurethane foam core in door
CHEMREX® flooring underlayment and adhesives
HYDROZO® water repellent
Pervious concrete


RHEODYNAMIC® self-consolidating concrete
RHEOMAC® silica fume
POZZOLITH® accelerating and retarding admixtures
RHEOCRETE® corrosion inhibiting admixtures
Masterflow® grouts
STYROFAN® latex concrete modifier
Butonal® latex asphalt preservation for roadways
4x4™ concrete repair
DEGADECK® deck overlay system
THORO® coatings
MBrace® concrete strengthening system
MBT® Protection & Repair concrete repair
ELASTOSHORE® polyurethane
Watson Bowman Acme® expansion joint
ELASTOCOAT™ polyurea coating
Green Sense℠ concrete
SOKALAN® concrete superplasticizer
GLENIUM® superplasticizing high-range water-reducing admixtures
PolyHeed® mid-range water-reducing admixtures
GEOFOAM soil stabilization

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THE CHEMISTRY OF SUSTAINABLE INFRASTRUCTURE

Infrastructure, including roads, bridges and tunnels, is integral to the economic vitality of modern society. Transportation alone contributes $950 billion to America's Gross Domestic Product each year.

Drivers, pedestrians and cyclists want to reach their destination without hassles from lengthy construction and repair activities. BASF chemistry helps you build infrastructure faster, that lasts longer.

Infrastructure depends on concrete.

Admixtures include corrosion inhibitors, accelerators, retarders, silica fume, normal-, mid- and high-range water reducers or superplasticizers and air entrainers. Specially formulated additives help significantly increase fly ash use to reduce the carbon footprint of concrete.

Accelerating and retarding admixtures control setting time and allow year round concrete construction.

Self-consolidating concrete can flow into place, filling formwork and encapsulating even the most congested reinforcement, all with minimal to no mechanical vibration, and without compromising durability, cohesiveness or strength.

Latex-modified concrete overlays create strong, flexible bridge deck surfaces that last for decades. This technology reduces water needs, creates higher flexural strength with tremendous adhesion, lessens formation of voids and cracks during curing and greatly reduces rebar corrosion by slowing penetration of road salts.

VOC-compliant coating systems seal out water, increase durability and provide a non-skid surface for bridges and decks.

Asphalt pavement preservation technologies create roads that last longer, improve safety and motorist satisfaction—and also save taxpayer dollars. Latex asphalt preservation increases the strength and resiliency of asphalt roads, pathways and parking areas, even at extreme temperatures.

Expansion joints absorb stress and provide flexibility for safety and durability. BASF offerings include solutions for the world's largest bridge structures that require state-of-the-art large movement or seismically designed joint systems. They can be installed quickly so roadways can be opened to traffic sooner.

Pervious pavement systems for roads allow water to absorb, divert it from the city treatment plants and enhance safety by reducing spray mist onto windshields from cars following one another. To quickly return aging or damaged infrastructure to optimal condition, solutions include 4 x 4 concrete systems for rapid road repair, specialty mortars, cement-based and epoxy grouts, corrosion protection, underlayments, crack repair and bonding, as well as surface repair products.

BASF strengthening systems use high-quality carbon fibers, E-glass fibers, and aramid fibers, as well as epoxy resins.

BASF also offers products that improve durability and speed of construction for tank and pipe, water treatment, manway repair, on-shore and off-shore marine and flotation, sub-sea pipe strakes and other civil engineering projects. Polyurethane formulations for off-shore pipe insulation and flotation are 100 percent mercury free and provide excellent temperature and hydrolysis resistance with very low water absorption even at depths of 9,627 feet—the deepest sub-sea insulated flowline installed in the world to date.

LEGEND

DURABILITY

SPEED OF CONSTRUCTION

THE CHEMISTRY OF

SUSTAINABLE RESIDENTIAL BUILDINGS

Everyone should have a great place to live. Somewhere safe, comfortable and healthy that's also affordable to own and occupy. BASF chemistry is helping to make housing more sustainable whether it's a newly constructed net-zero energy home or a weatherization retrofit project.

America's 128 million existing homes are responsible for almost 20 percent of the nation's total energy consumption and 1,270 megatons of emissions each year. In 2009, the average American homeowner paid around $2,200 in energy bills according to Energy Star®.

Solar panels featuring polyisobutylene adhesives and sealants convert light to electricity. BASF standard and graphite-enhanced expandable polystyrene (EPS), as well as open- and closed-cell spray-applied polyurethane foam (SPF) materials offer industry-leading insulation and air migration control for foundations, walls and attics—all of which can help increase efficiency and cut energy bills.

Vegetative roofing systems using polyisobutylene and reflective coatings for roofs—as well as radiant barrier coatings for interior surfaces of roof decks—reduce solar gain. Polyurethane cores raise the thermal performance of exterior and garage doors, while polyisobutylene thermal spacers and sealants make windows a contributor to greater energy efficiency.

Phase-change gypsum board regulates indoor temperatures, keeping occupants comfortable and reducing HVAC system load.

Insulating concrete forms (ICFs) and structural insulated panels (SIPs) incorporating BASF chemistry offer superior structural strength and accelerated speed of construction. Spray-applied polyurethane foam insulation offers increased rack and shear resistance and supports advanced framing techniques for reduced labor requirements and faster construction.

Concrete admixtures, water repellents and waterproofing membranes help prevent moisture damage, mold, efflorescence and spalling, while termiticides prevent pest infestations. Pervious concrete and porous asphalt used in hardscaping permit water to pass through easily to reduce runoff and prevent pooling.

Make curb appeal last for decades with EIFS, stucco cement fascia, architectural colored concrete, textured acrylic surfacing and EPS fascia detail. Vinyl siding that looks good for many years. Composite and vinyl decking and fencing materials that last longer with almost no maintenance.

BASF chemistry also contributes to HVAC, plumbing and electronic components, underlays for carpet, adhesives for subflooring, laminate and ceramic flooring, moldings and decorative trim, acoustic panels, UV finishes for wood trim and furnishings, door handles, wardrobes, balustrades and paints—all with a longer life expectancy with lower maintenance, better indoor air quality, increased safety and greater aesthetics with a wide range of colors.

LEGEND

ENERGY EFFICIENCY

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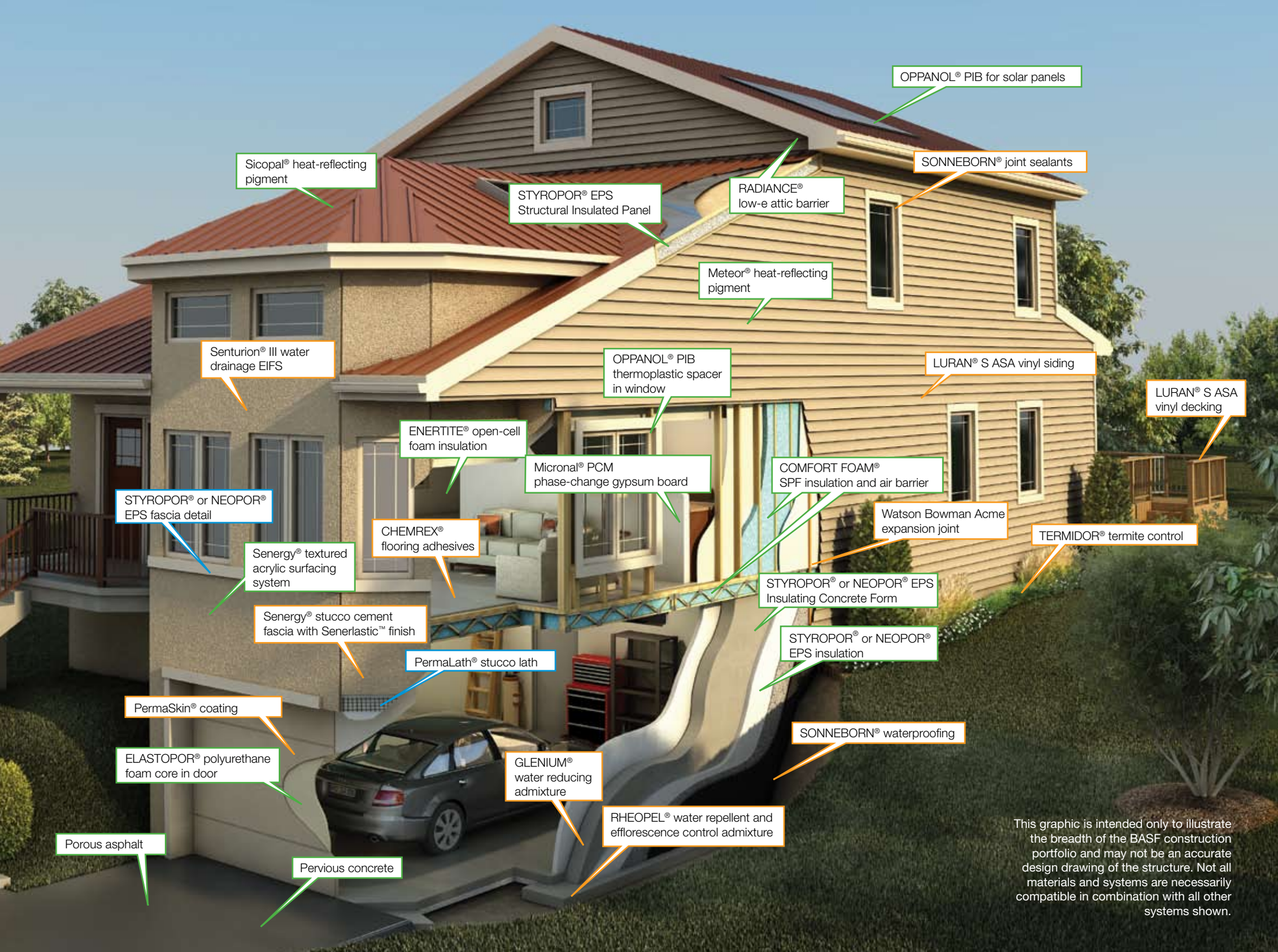

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THE CHEMISTRY OF

EMERGING TECHNOLOGIES

Chemistry allows scientists to engineer products at the molecular level. To optimize them for specific sustainable performance attributes. Superior insulation properties. Extreme durability. Reduced waste. Faster installation. Improved air quality. Lower environmental impact. These are the performance characteristics offered by construction materials that have been developed by chemists.

BASF invested $1.8 billion (1.35 billion Euros) in R&D in 2008. 70 major and strategic research and development sites around the world. 8,900 employees. All to answer questions. Create new technologies. Provide customers with competitive advantages.

BASF is at the forefront of new product research and development in the construction industry. Our scientists work on game-changing emerging technologies. Technologies that could radically improve building energy efficiency. Technologies that could bring renewable energy systems closer to widespread reality.

Next generation nanofoam insulating materials can reduce heat conduction to less than half, marking a radical improvement to building energy efficiency. Molecules in these systems leave no gaps unfilled. They are engineered to create materials with performance details on such a fine scale they are measured in nanometers. In perspective, if a meter is the planet Earth, a nanometer is a tennis ball.

Polycarbonate skylights and curtain walls using silica-based nanofoam insulation improve the insulating value of these units by as much as five times, without the need for a vacuum seal.

Transform current standard plastic insulations into nanofoams. EPS and polyurethane nanofoams eclipse thermal performance levels. Heighten durability. Use less material to get better results. All thanks to chemistry.

Imagine renewable energy systems that are truly renewable in every sense. Solar cells based on organic semi-conductor materials.

Transform passive systems into active, energy producing systems. Pentacene, polyfluorenes, and PCBM (phenyl-C61-butyric acid methyl ester) replace traditional silicon materials to offer thinner, more flexible solar panels that can be incorporated into windows, exterior wall cladding and roofing materials. And unlike silicon-based solar cells, organic photovoltaics can be mass produced, making the adoption of renewable energy more affordable, more quickly.

Create coatings that absorb less solar radiation and change the face of energy efficiency in warmer climates. Heat management pigments reduce air conditioning needs and electrical demand. Shrink building carbon footprint. Combat urban heat island effect.

Transparent Near Infrared (NIR) reflective pigments can be formulated to reflect up to 45 percent of solar radiation. NIR black pigments have solar reflectance of as much as 30 percent to decrease building surface temperatures by up to 68 degrees Fahrenheit (20 degrees Centigrade).

Vacuum insulated panels (VIPs) provide an insulating value three to seven times greater than equivalent thickness of other foam board, bead, batt and blanket insulation materials. How? Core panels of polystyrene, polyurethane or silica/carbon enclosed in a vacuum sealed metallic or Mylar-foil™ envelope.

With significant energy saving properties and fast, easy installation abilities, VIPs can enhance building enclosure retrofits—especially for interior walls and under the roof deck.

The BASF Near-Zero Energy Home

Structural Insulated Panels (SIPs)

The Atlantis Hotel Casino

PermaLath® stucco lath

WALLTITE® insulating air barrier

SquashBbusters fitness center

Pervious concrete

Lester B. Pearson International Airport

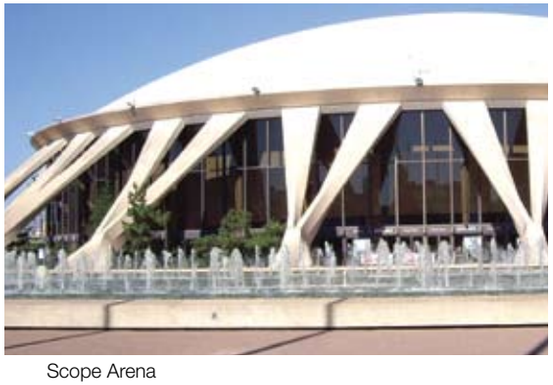
The Pepper Viner High-Performance Home

ELASTOCOAT™ reflective roof coating

ReVISION Vegas High-Performance Retrofit

ENERTITE® open-cell foam insulation

BASF protective coating



Scope Arena

The East Parkside Community Rejuvenation Project

Insulating Concrete Forms (ICFs)

ANALYSIS BEATS GREENWASH

Scientific measurement is the only way to accurately document the true impact of construction products over the entire lifecycle. Proof of performance—in the lab and in the field—identifies best-in-class technologies. Systems that rise to the challenges we face and provide the solutions we need.

To address rising energy costs, construction projects must achieve new levels of efficiency. They need to be strong to withstand the damaging effects of severe weather. From production through disposal, construction products must have a minimal impact on the environment.

Projects need to realize ROI. Faster. At a greater rate of return. Achieve other practical benefits such as durability, affordability, speed to build and ease of maintenance. These are the challenges that BASF solutions meet head on.

We know that our customers cannot manage what we do not measure. That's why we develop award-winning tools that help benchmark the impact of products and systems on the triple bottom line of ecology, economy and society.

The third-party validated Eco-Efficiency Analysis was developed to harmonize ecology and economy. Enable scientifically accurate comparisons of similar products or processes. Assess the lifecycle of a product or manufacturing process from the "cradle to the grave" in five categories:

- Resource utilization
- Energy consumption
- Emissions to air, water and soil
- Toxicity potential
- Misuse and risk potential

BASF has had its Eco-Efficiency methodology validated against the NSF International P352 protocol for Validation and Verification of Eco-efficiency analyses. The BASF Eco-Efficiency Analysis process has won three major awards of interest to the building and construction industry: the Design for Sustainability Award (Society of Plastics Engineers), the Presidential Green Chemistry Challenge Award (U.S. Environmental Protection Agency), and the Best Sustainable Practice Award in the Sustainable Research, Development, Construction Process and Demonstration (Sustainable Buildings Industry Council). More information on this science-based tool can be found at www.basf.com/sustainability

The BASF Total Cost of Ownership (TCO) analysis evaluates the cost of using one product and compares it to alternative products. Costs include raw materials, labor, manufacturing, energy, waste, capital and environmental health and safety (EHS) programs.

TCO analysis often brings out the less obvious ownership costs that might otherwise be overlooked in making purchasing decisions or budget plans. Often one product may have a higher initial purchase price, but its total cost of ownership is lower due to reduced waste, reduced energy consumption or lower maintenance costs.

BASF also measures performance in the field. The LEED® Platinum rated BASF Near-Zero Energy Home in Paterson, N.J., is a demonstration of innovative BASF technologies that provide durability, affordability, energy-efficiency and ecological benefits in new housing. The BASF Construction Chemicals – Building Systems headquarters recently received a LEED® Silver rating. Performance data from these projects—and others—are collected, analyzed and shared.

We work with our customers to track real-world results. Energy data. Product life expectancies. Severe weather performance. Ease and speed of installation.

We learn what works. We fix what doesn't. We use science and third-party validation of the data to back up our promises. We offer proof.

SUSTAINABILITY LOVES CHEMISTRY

Sustainability achieves balance between economy, ecology and society. It happens when we look at the short-, mid- and long-term horizons and take a holistic approach. It's about changing the way we think and the way we act.

Chemistry is the catalyst of a great idea. The formula that leads to increased knowledge. The collaboration between people that builds success.

WE CREATE CHEMISTRY THROUGH INNOVATION

Our market-driven research, product development, refinement and enhancement have created a portfolio that features best-in-class technologies and systems. Our people are the best in the industry.

Each construction project is unique. What works in one situation may not be the best option for the next. The BASF construction product portfolio features a selection of solutions that can meet or exceed project performance goals. From a myriad of ingredients for product manufacturers through to complete end-use systems tailored for specific climatic conditions.

WE CREATE CHEMISTRY THROUGH EDUCATION

BASF is committed to technology transfer throughout the North American construction market.

Our Better Home, Better Planet initiative helps homebuilders big and small learn about the systems, technologies and best-practices that go into building a net-zero energy home—and helps them plan, build and promote their first attempt.

Our BASF Online Campus for High-Performance Construction offers design professionals access to registered continuing education courses 24 hours a day, seven days a week. Our newly formed Center for Building Expertise is designed to be a resource to help design professionals, building owners and facility managers improve the performance of their buildings. The goal? Accelerate the technical and financial feasibility of net-zero energy commercial and educational buildings

Our NEED™ (Neighborhood Energy Efficiency Drive) program even educates BASF employees across the United States about ways they can improve the energy efficiencies of their own homes.

WE CREATE CHEMISTRY THROUGH COLLABORATION

Every successful construction project needs a team. One that sets goals. Designs dreams. And then comes together to meet those goals and make those dreams a reality.

BASF on-staff LEED® Accredited Professionals offer guidance to design teams and building owners. Product specialists help specifiers select systems that meet performance criteria, Code and budget. Technical application field staff help contractors achieve the best-possible installation—safely and efficiently. Market development specialists help manufacturers create new products with higher performance levels and higher margins.

Other companies just make products.
At BASF, we create chemistry.

GLOBAL MISSION

Sustainability is more than a buzz word at BASF, it's a core belief. With sustainability as part of our global strategic guidelines, we're committed to constant improvements in safety, protection of health and environmental conservation. That's why we created the role of Global Climate Protection Officer.

Embrace sustainable development as a global core strategic guideline. View the balance of social responsibility, environmental stewardship and profitable business growth as a precondition to long-term success.

Around the world and here at home, the construction product portfolio is recognized as increasingly important to BASF's own sustainability goals, as well as to the business success of its customers.

BASF is committed to climate protection. The groundbreaking 3:1 Carbon Balance report released in 2008 compares the greenhouse gas emissions created during the manufacture of BASF products with the emissions savings realized by their use. Believed to be the first report of its kind in industry, the results, confirmed by the Öko-Institut in Freiburg (Germany), show that BASF products—including insulation materials and other construction solutions—can save three times more greenhouse gas emissions than the entire amount caused by the production and disposal of all BASF products.

The analysis, based on 2006 production, focuses on BASF's chemical business and takes into account emissions from sourcing raw materials, production, product use and 'worst case scenario' disposal.

We're proud to say that BASF insulation products help improve building energy efficiency to such an extent that their use saves 140 m tons of GHG emissions each year—more than compensating for the company's entire annual carbon footprint from operations.

In the North American construction market, BASF is proud to be an official partner of the Federal Alliance for Safe Homes Inc. – FLASH®, one of the most respected disaster preparedness organizations in the nation. Each year we join the U.S. Department of Energy (DOE) to honor homebuilders for their exceptional achievements in high-performance building through the Builders Challenge Awards.

We are a preferred supplier of the Clinton Climate Initiative, working to reduce greenhouse gas emissions by providing sustainable solutions to cities around the world.

BASF is an ENERGY STAR® partner, member of the Sustainable Buildings Industry Council (SBIC), Alliance to Save Energy, U.S. Green Building Council (USGBC) and founding sponsor member of Efficiency First – America's Home Performance Workforce. Our product and market development professionals also lend their time and expertise to countless construction industry associations throughout North America.

CREDENTIALS FOR LEADERSHIP

It often surprises people, even those in the building industry, to learn how much chemistry goes into construction. According to the American Chemistry Council (ACC), $14.8 billion worth of chemical ingredients were used for construction in 2007.

Whether a commercial, educational, infrastructure or residential project—new construction or retrofit—BASF's innovative solutions and team of technical experts provide proven and trusted competitive advantages in durability, energy efficiency and speed across nearly all construction systems.

BASF is a global leader in sustainability and corporate social responsibility, committed to constant improvements in safety, protection of health and environmental conservation.

In both 2008 and 2009, BASF was ranked first among companies in the materials sector on the Carbon Disclosure Leadership Index. BASF is included in the Innovest Global 100 list, as well as the FTSE4Good Index and Storebrand SRI Funds. 2009 marked the ninth consecutive year BASF has been included in the Dow Jones Sustainability World Index (DJSI World) rankings. BASF also earned the top rating of 100 percent in both the 2009 and 2010 Corporate Equality Index (CEI) results, an annual survey administered by the Human Rights Campaign (HRC) Foundation.

In 2010, BASF became the first chemical company to become a member of The Sustainability Consortium, an independent organization of diverse global participants that work collaboratively to build a scientific foundation that drives innovation to improve consumer product sustainability. The company joins other retailers and consumer product manufacturers that have become members of the Consortium and its product lifecycle mission, including social and environmental considerations.

For several years, including in 2010, BASF has been ranked the top company in the chemical industry in *Fortune* magazine's World's Most Admired Companies list.

Already a supplier to the majority of leading building product manufacturers, BASF will not only continue to develop sustainable building materials, it will lead innovation in the industry. We will continue to work with industry stakeholders—from builders and designers to governments to building material manufacturers—to develop more solutions that help make construction projects more energy efficient, durable and faster to build.

Because we create chemistry.

www.basf.us/construction

BASF - The Chemical Company

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