EPS Molders Association

Newsline

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Photos courtesy of BuildingInsight

New York State

Launches Ground-Breaking Research

The New York State Energy Research and Development Authority (NYSERDA) is facilitating the use of innovative technologies to improve the State's energy, economic and environmental wellbeing. The State is investing more than $100 million over two years to help manufacturers control energy costs. As part of their High-Performance Residential Challenge initiative four insulating concrete form (ICF) and structural insulated panel (SIP) homes will be constructed to serve as research laboratories on sustainable building systems and models for energy efficient building in northern climates.

One of the homes — the Kraft Residence — features an expanded polystyrene (EPS) ICF foundation and first floor walls. Rich Kraft, a builder from Tupper Lake, NY, partnered with research engineers and NYSERDA and the Institute for Building Technology and Safety (IBTS) to construct a unique energy efficient ICF home. Kraft went toe to toe with the task of constructing a home that was responsive to his Adirondack mountain site and performed at optimal efficiency. He discovered he did not have to sacrifice custom design elements to achieve maximum energy efficiency.

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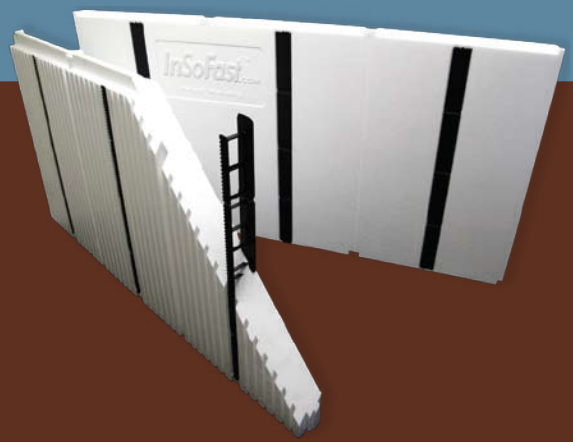


Innovative Finishing System

Redefines 'Fast & Efficient'

When President Obama identified insulation as 'sexy' at a press conference it raised awareness on simple ways homeowners can achieve substantial energy savings. The President called on Congress to provide new incentives for Americans to make energy-efficiency retrofit investments in their homes. With investments made under the American Recovery and Reinvestment Act, including state and local energy grants, the President said the administration is on pace to upgrade the homes of half a million Americans by 2011.

One area of the home notorious for poor insulation is the basement. Traditional masonry basements, whether they're poured concrete, concrete blocks or stone, have very little insulating value and account for a substantial amount of heat loss, in some cases estimated at up to 20%. The heat from a home can quickly escape through the basement and its immediate connection to the ground. This connection leads not only to the cold air associated with a basement environment but a higher moisture content can make a basement unpleasant.

An innovative new foam application, InSoFast, quickly improves a home's insulation value and comfort. InSoFast Panels are an Energy Star® Rated System and qualify for a 30% Federal Energy Tax credit/rebate up to $1,500 for the homeowner. They are considered "Eligible Building Envelope Components" under the American Recovery and Reinvestment Act.

The system is made of expanded polystyrene (EPS) foam panels that are designed to insulate below-grade basements and concrete slabs beneath a flooring system to create a floating insulated base for carpet, wood or laminate flooring. The panels can also be used to insulate above-grade exterior concrete walls. Easy to install, the panels reduce labor costs while increasing energy efficiency, which can result in tangible savings for homeowners.

Each interlocking panel is 2'x4'x2" and has vertical channels for water drainage and horizontal channels to accommodate electrical wiring. The wiring chases also provide the necessary separation from the drywall face to protect the wiring as required by electrical codes.

The tongue-and-groove edges of each panel interlock allowing installers to assemble whole wall sections flat on the floor, tilt them into place and adhere them with foam-board adhesive. Paperless drywall is then attached directly to integrated fastening strips; there's no need to frame a stud wall. The result is a total wall assembly insulated to R-11.

While the system relies on fairly plumb and flat foundation walls, bulges and uneven spots can be accommodated by carving out the back of the panels or by filling voids with spray foam after the panels are erected.

This panel system is a Class III vapor retarder. InSoFast Panels are fast and easy to install. The tongue-and-groove edge design provides a secure connection between panels making it a great solution for improved energy efficiency. Visit www.insofast.com for more details ■

EPSMA Producing EPS Geofoam Civil Engineering Manual

Photo courtesy of Paul Arch, NOVA Chemicals, Inc.

The EPS Molders Association has contracted with Dr. Timothy D. Stark, PhD., P.E., to develop an EPS geofoam civil engineering manual. Dr. Stark has extensive geotechnical engineering experience, is a professor in the Department of Civil and Environmental Engineering at the University of Illinois, and has extensive project work experience with geofoam. The new manual will serve as a resource for engineering and building professionals seeking information on geofoam applications. It will address design loads, buoyancy and mitigation solutions, external & internal stability, construction considerations, design details and construction & installation costs.

The anticipated release date for the geofoam manual is December 2010. The project was specially funded by numerous EPSMA member companies.

EPSMA is working to facilitate discussions that would result in an alignment of the data references used to specify EPS geofoam. In the past there has been confusion over ASTM D6817, Standard Specification for Rigid Cellular Polystyrene Geofoam, and TRB National Cooperative Highway Research Program (NCHRP) Report 529: Guideline and Recommended Standard for Geofoam Applications in Highway Embankments, which includes a design guideline and recommended standard for geofoam applications in the design and construction of highway embankments. EPSMA is developing a white paper which details the history and development of ASTM D6817 and clarifies the density and elastic stress data. ■

Geofoam Resources

University Transportation Centers (UTC)
http://utc.dot.gov/

American Assn. of State Hwy. & Transp. Officials (AASHTO)
www.transportation.org

Federal Highway Administration (FHWA)
www.fhwa.dot.gov/bridge/index.htm

FHWA Geotechnical Engineering Page
www.fhwa.dot.gov/engineering/geotech/index.cfm

Transportation Research Board (TRB)
www.trb.org/default.asp

Nat'l Cooperative Hwy. Research Program (NCHRP)
www.trb.org/crp/about/divd.asp

Geosynthetic Research Institute (GRI)
www.geosynthetic-institute.org

Geofoam Manual Funding Members

AFM Corporation
www.afmcorporation.com

Atlas EPS, A Div of Atlas Roofing
www.atlaseps.com

BASF Corporation
www.basf.com

Beaver Plastics
www.beaverplastics.com

Cellofoam North America
www.cellofoam.com

Drew Foam Companies
www.drewfoam.com

Flint Hills Resources, LLC
www.fhr.com

Georgia Foam, Inc.
www.gafoam.com

Houston Foam Plastics
www.houstonfoam.com

Insulation Corporation of America
www.insulationcorp.com

Insulfoam
www.insulfoam.com

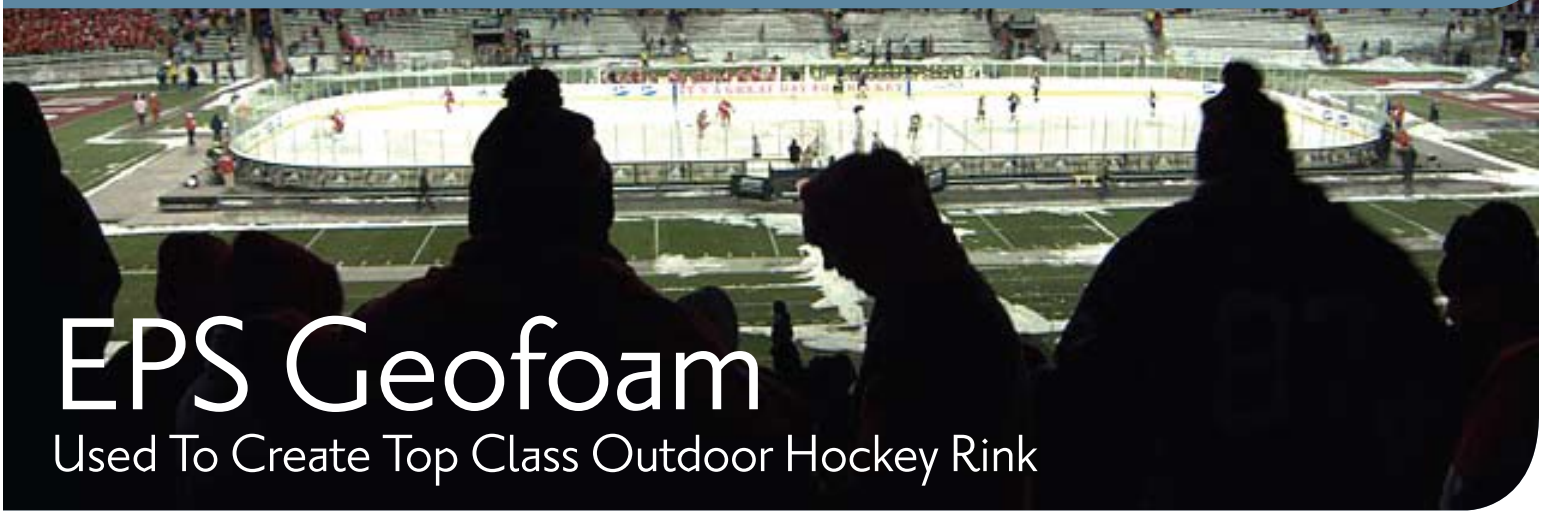
Mansonville Plastics Ltd.
www.mansonvilleplastics.com

NOVA Chemicals
www.novachem.com

OPCO, Inc.
www.opcodirect.com

Plasti-Fab Ltd.
www.plasti-fab.com

Versa Tech, Inc.
www.versatechinc.net



EPS Geofoam

Used To Create Top Class Outdoor Hockey Rink

The University of Wisconsin recently constructed a new outdoor ice rink to host the Camp Randall Hockey Classic. The players, refs and over 55,000 fans didn't know the fast action on the ice was made possible by expanded polystyrene (EPS) geofoam. While frequently used for highway embankments and fill for roadbeds over unstable ground, structural support for an ice rink may be a first for EPS geofoam.

The University had the rink created on the Badger football field. Ice Rinks Events, a company that stages special events ice rinks, was in charge of turning the turf into a NHL-sized, 200-foot long by 85-feet wide rink. The "ice rink team" also included SGA Production Staging, Inc., a company that often works with Ice Rink Events and has been involved in staging for four Super Bowls, and Plymouth Foam, an EPS manufacturing company in Plymouth, Wisconsin.

Construction on the rink began January 25 and the rink was ready for test use by February 1. The foam base decking used to create the surface for the ice was installed during the first two days followed by the installation of the rink matting, ice and boards.

Jim Nugent, a manufacturer's representative for Plymouth Foam, was contacted by Patrick Selstram from Ice Rink Events. Selstram and Nugent discussed the possibility of using EPS geofoam as a platform for placing the ice surface for a UW outdoor hockey game. Plymouth Foam's expanded polystyrene (EPS) would provide the rink base.

"The design challenge was to provide a level surface for the construction of the ice rink on a football field that sloped in four directions at about a ¼" per foot," said Nugent. At the Camp Randall Stadium the field is crowned with the highest point of the field near the "W" at midfield and the playing surface drops off toward the sidelines and goal lines.

Another design challenge was creating a level surface that could handle the weight of a 10,000 pound ice resurfacing machine.

The "team" immediately saw the advantages of EPS with its design flexibility and the capability to use a mixture of tapered panels to level the field and provide a sound platform with minimal deflection.

The rink ice began with a base layer that reached the top of the mats, then about an eighth of an inch of sand was added to cover the ice to provide some stability and insurance against cracks in the playing surface. Another half inch of ice or so was added on top of that, before the paint layer was added with the lines and logos. One more layer of ice on top of the paint completed the rink. Cooling pipes were run under the ice to keep things cold in case of warm weather or to serve as a heat exchange in case the weather got too cold. The exchange keeps the ice at the proper temperature to prevent chipping.

Photos courtesy of Plymouth Foam

On the UW Athletics Department website, there is a photo gallery showing day-by-day construction of the rink. Go to www.uwbadgers.com/sports/w-hockey/spec-rel/020110aab.html

Plymouth Foam supplied a combination of 40 and 60 psi EPS geofoam to SGA Staging Services. SGA's expertise helped determine the types of EPS that would be required to adequately support the weight of the Zamboni. Three truckloads of EPS foam were needed for the job. The rink has a base layer of T&G OSB subflooring, a layer of 40 psi EPS sloped to reverse the slope of the field, a 2" layer of 60 psi EPS and a final top layer of the T&G subflooring.

According to Nugent, "to our knowledge, this is the first time EPS has been used in this type of application."

However, to the athletes who played in the Classic, it was just a rink ready for a good game ■

Salt Lake City Light Rail Expands With Geofoam

In the nation's second-largest application ever of its kind, approximately 2,131,256 cubic feet of expanded polystyrene geofoam blocks expedited an expansion of Salt Lake City's Transit Express (TRAX) light-rail system.

Geofoam has an established track record worldwide as a cost-effective engineering solution for difficult embankment stability and foundation settlement applications. It was selected in place of soil to save time and money constructing the embankment, which is up to 40 feet high in some areas. The Utah Transit Authority (UTA) will save at least $20 million and eight months of construction time by avoiding soil settlement issues.

The density of geofoam being used on the project will withstand over a thousand pounds per square foot. Each block weighs approximately 150 pounds, allowing easy movement and installation around the job site. The blocks were stacked up to a height of 40 feet, capped with a concrete slab, road base, pavement and then the light-rail tracks. Geofoam's lightweight will allow UTA to build bridges over already existing utility lines without having to dig them up.

The project, which spans 5.1 miles and will cost $250 million, began in February 2009. UTA used geofoam in seven locations in the West Valley line, which could open as early as 2013. The UTA light-rail project is second only to I-15 construction 10 years ago. A recent study on that project shows the geofoam is performing well.

THE CUTTING EDGE

The EPS Molders Association represents more than 50 U.S. and Canadian manufacturers of building insulation products – and almost just as many applications. Expanded polystyrene (EPS) is used in a variety of building projects from the foundation up. To bring you the latest in EPS product development, testing and building code issues, *EPS Newsline* is a great source, helping you to envision how EPS may fit into your next project. Insulation materials have long been recognized for their energy efficiency. After all, that's their primary function. But with volatile energy costs, products that provide savings and sustainability have gained increased attention. EPS insulation significantly improves the energy efficiencies of any building project, either as an integral part of a structure or as a minor building component. Two articles in this issue highlight how EPS' versatility and efficiency make it a perfect choice for an innovative ICF research home and an easy solution to insulate basement walls. Other EPS solutions highlighted in this issue include an innovative hockey rink constructed of EPS geofoam and resources on how to recycle EPS building and construction products. To find out more about the use and performance of EPS applications visit our website at www.epsmolders.org.

Betsy Steiner
Executive Director

Recycling EPS Roofing Insulation

Offers Environmental and Cost-Savings Benefits

Construction material waste has come under greater scrutiny as states get more aggressive about recycling goals. According to the U.S. Environmental Protection Agency, recycling construction and demolition (C&D) materials conserves landfill space, reduces the environmental impact of producing new materials, creates jobs and can reduce overall building project expenses through avoided disposal costs.

Builders and contractors are being asked to recycle materials rather than landfill construction debris but often find it difficult to find recyclers. One company, Nationwide Foam, Inc. of Framingham, Massachusetts, offers foam insulation removal and recycling services throughout North America. The company collects foam insulation boards (EPS, XEPS, ISO and composite) as well as membranes (EPDM, TPO, PVC) from tear-off flat roof industrial jobsites. Last year Nationwide Foam recycled over two million pounds of foam insulation.

In April 2009 the Denver Public School system partnered with Nationwide to recycle materials from 11 scheduled school re-roofing projects. It's estimated that over 20 tons of EPDM and foam insulation will be recycled.

Recycling the foam board at the construction site can contribute to U.S. Green Building Council LEED points. Builders seeking LEED certification can earn Materials & Resources points for recycling nonhazardous C&D debris. The builder must develop and implement a construction waste management plan that identifies the materials to be diverted from disposal.

Since LEED works throughout the building lifecycle, including significant retrofit, a waste reduction area to consider is recycling EPS insulation from roofing repair or replacement. Building owners, architects and contractors can earn extra LEED credits by recycling insulation from jobsites.

Nationwide Foam's Green Disposal Alternative is easy to implement at a job site. After removing the roof, the rolled membrane is stacked on pallets, the foam sheets are piled in manageable stacks and both are placed on a trailer provided by Nationwide Foam. When the trailers are almost full, a member of Nationwide's logistics team swap them out, leaving no down time. To ensure customer satisfaction, Nationwide Foam sends a Field Representative to each job site to perform a basic inspection of the material and to confirm that the foam removal and loading is proceeding smoothly.

Nationwide Foam offers foam removal and recycling services in all 50 states and Canada. Their service is available daily to meet any job site schedule or contractor requirements. They remove, transport and recycle the foam insulation.

Nationwide Foam's recycling program saves money and helps builders meet their environmental goals. When planning a roof repair or replacement project contact Nationwide Foam at www.nationwidefoam.com or 888-820-2760 ■

New York State
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The design team worked with Kraft to optimize the home design with a focus on the building envelope. In addition to ICFs the home will feature an EPS structural insulating panel (SIP) roof. SIPs provides an airtight roof with high R-Value that reduce heat loss and prevent moisture related issues that commonly arise in wood frame roof systems with cavity insulation. The high performance roof also contributes to a comfortable and even temperature inside the home, both day and night, especially in the warm summer months.

Expanded polystyrene offers unique benefits over traditional building materials. EPS is an efficient insulating technology that is resistant to mold, mildew and rot due to its high water resistance. Because expanded polystyrene ICF homes are so efficient, HVAC systems are typically downsized up to 50% from what would be required in a conventionally constructed home of the same size. There is also less wear and tear on the HVAC systems installed in ICF homes because they cycle on and off less frequently. And, ICFs reduce sound penetrating through a wall by over 80% when compared to wood-frame construction. A typical wood framed home has an STC rating of 33; ICF homes consistently achieve STC ratings of 55 and higher.

When completed, the Kraft house will be approximately 1,700 square feet, with three bedrooms, a walk-in basement and first floor. The researchers estimate the Kraft's' annual heating fuel costs will be less than their electricity costs for appliances and lighting. Initial estimate suggest it will cost $200 per year in propane to heat water and run the radiant system in the house. Impressive for a home located in an area where Heating Degree Days approach 9,500 and temperatures dip to 30-40 degrees below zero in the winter. Eventually, Kraft plans to include solar panels on the roof.

An EPS SIP roof panel is hoisted in place to join the ICF wall section.

Chris Fennell of BuildingInsight is serving as an engineer with IBTS. He is working on the Kraft house and other ICF projects around New York; each very different:

- A "zero-energy" Habitat for Humanity home in Westchester County that will produce as much power as it requires.
- An "urban infill" ICF home by Ithaca Neighborhood Housing Services that will be built on a vacant lot by the non-profit Neighborhood Housing Services.
- A test home for a planned 41-lot energy-smart housing development in Newburgh, NY.
- A 2,000 square foot house in Yonkers, New York modeled after five SIP research homes built at Oak Ridge National Laboratories. The home will be built in a low income neighborhood by the Yonkers chapter of Habitat for Humanity who regularly specify ICFs in their homes.

Kraft's house was planned so engineers from the Institute for Building Technology and NYSERDA can monitor heating, cooling and energy costs for one year. NYSERDA will host workshops on construction techniques for each of the four lab houses. For more information on the Kraft House and other New York state energy initiatives visit NYSERDA at http://www.nyserda.org/default.asp ■

Photos courtsey of BuildingInsight

EPS Member Companies

ADLAM Films, Inc
AFM Corporation
Alamo Foam, A Div. of Houston Foam Plastics
Arvron, Inc.
Atlas EPS, A Div. of Atlas Roofing
BASF Corporation
Beaver Plastics Ltd.
Cellofoam North America, Inc.
Comel S.N.C.
Concrete Block Insulating Systems, Inc.
Createc Corporation
DiversiFoam Products
Drew Foam Companies, Inc.
EFP Corporation
Epsilon Holdings, LLC
Flint Hills Resources, LP
FMI-EPS, LLC
Georgia Foam, Inc.
Groupe Isolofoam
HIRSCH USA Inc.
Hotwire Direct
Houston Foam Plastics
Insulation Corporation of America
Insulation Technology, Inc.
Insulfoam LLC
Kurtz North America
Lanxess Corporation
Le Groupe LegerLite, Inc.
Loyal Group/Foam Products NA, LLC
Mansonville Plastics(BC)Ltd./First Choice Mfg.
Mid-Atlantic Foam
Nexkemia Petrochemicals, Inc.
Northwest Foam Products, Inc.
NOVA Chemicals, Inc.
NUDURA Corporation
OPCO, Inc.
Plasti-Fab Ltd.
Plymouth Foam Inc.
Polar Industries, Inc.
Powerfoam Insulation, Div. of MetlSpan LLC
Produits Pour Toiture Fransyl Limite
Progressive Foam Technologies, Inc.
Promass SRL
ProWall Building Products
Quad-Lock Building Systems Ltd.
Reward Wall Systems, Inc.
StyroChem International
Superior Metal Products Company, Inc.
Tri-State Foam Products, Inc.
Truefoam Limited
Versa-Tech, Inc.

Join CarbonFree® Partner Program to Reduce Carbon Footprint

Today's consumers are actively seeking companies that have clear and transparent environmental initiatives and are addressing global warming. Carbonfund.org's Carbon*Free*® Partner Program allows businesses of any size to calculate and address their carbon footprint, reduce what they can, and offset what they can't.

Carbonfund.org, a 501(c)(3) nonprofit, is the leading climate change solutions organization in the country. They have worked with over 1,800 small and large businesses, including Dell, Staples, Virgin America, Hyundai and Discovery, to address their carbon footprint, further develop their green programs and help promote these accomplishments to the public.

The EPS Molders Association (EPSMA) joined the Carbon*Free* Program in August 2009. As a Small Business Partner, EPSMA is offsetting 35 metric tons of carbon dioxide emissions – the equivalent of the carbon sequestered annually by eight acres of pine forest. The offset for EPSMA is based on the national average of offices with 1-5 employees and the carbon footprint of the facility including energy costs, shipping, staff travel, conferences and events, employee commuting and more.

The Carbon*Free*® Partner Program lets companies offset their carbon footprint by supporting high quality third-party verified carbon offset projects. This helps increase customer satisfaction, brand loyalty and drive sales. A study by Havas Media showed that 79 percent of consumers want to buy from companies who are actively reducing their impact on the environment, while 35 percent say they would pay more for green goods.

A company may choose the type of project to support, tailored to its business or customer interests. Carbonfund.org supports third-party validated renewable energy, energy efficiency and reforestation projects that reduce carbon dioxide emissions and the threat of climate change.

All Carbonfund.org offset projects meet essential criteria for carbon offsets - reductions must be surplus to regulation, beyond what would have happened in the absence of the project, be permanent and verifiable. All offset projects are verified by an independent third party to meet the highest certification standards.

PARTNER
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Carbonfund.org helps promote Carbon*Free* Partners by providing marketing and public relations support. A partnership with Carbonfund.org, a nationally recognized environmental program, helps add value and will enhance other environmentally responsible measures your business is taking.

The Carbon*Free* Partner Program enables all businesses to have a clear and transparent environmental program that gives customers the environmentally responsible business practices they are demanding while increasing profits, loyalty, and customer satisfaction. Donations are reasonably competitive and are based on company size.

To learn more about the Carbon*Free* Partners Program or sign up to offset your business, call 240-247-0630 or go to www.Carbonfund.org.

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