We are pleased to present this inaugural issue of *EPS Newsline* which has been expanded to cover all EPS market segments, including packaging, building insulation, safety devices and innovative applications.

In early 2012 the EPS Molders Association (EPSMA) and the Alliance of Foam Packaging Recyclers (AFPR), two separate organizations previously representing distinct EPS market segments, consolidated their resources to create one single organization that represents the entire industry.

The combined strength and experience of EPSMA and AFPR has created an organization well attuned to serve the broader EPS industry, which is comprised of companies with a wide range of product solutions. EPS product information is more streamlined and accessible for EPS end users. The new EPS-IA website, [www.epsindustry.org](http://www.epsindustry.org), serves as the go-to source for EPS information and provides resources for everyone from architects to packaging engineers and recycling professionals. The organization will continue to dedicate resources to specific interest areas but now has the ability to address important industry-wide issues in a more cohesive manner.

The EPS Industry Alliance has employed an entirely new governance model to provide maximum effectiveness and flexibility in support of key EPS industry initiatives. The Board of Directors, chaired by Bob Butkus of Atlas EPS, draws its strength from a wide representation of members throughout the EPS supply chain and is better aligned with today’s marketplace trends.

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**EPS-IA Establishes Sustainability Committee**

A new EPS Sustainability Committee has been created to oversee key environmental programs such as life cycle analysis, energy efficient manufacturing technologies, green building and recycling. The Committee also supports our members’ efforts to be responsible stewards of the environment by producing better performing products. The Committee is composed of eight members representing the EPS industry at large and is chaired by Jarrett Russell of BASF Corporation.
Basement problems are a frequent source of claims made under new home warranty programs. A survey of new home warranty programs in Canada showed that the combined action of water and soil on basements was responsible for 85% of basement failures in new homes. In the case of major basement failures repairs are time consuming and expensive - not only does the foundation need to be repaired but the various elements to protect it from future damage need to be installed.

Protecting the exterior of basement foundations is not a new concept; the practice has been applied for over four decades. But with the addition of advanced insulation products, such as EPS, increased thermal and moisture performance benefits can be achieved for the life of a home. Exterior insulation serves multiple purposes within the basement envelope system; heat-loss control and ground-water management are the primary roles exterior insulation must play. Heat-loss control is dependent on many factors, including how well the basement wall system prevents moisture intrusion. The diversion of ground water away from the basement is the principal means of controlling the quantity of water that the below-grade wall has to handle.

Research studies, such as the one conducted by the National Research Council Canada’s (NRC) Institute for Research in Construction (IRC) have shed light on the real-world performance of below grade insulation systems. The IRC study, Performance of Thermal Insulation on the Exterior of Basement Walls, continuously monitored the thermal performance of 13 different basement insulation systems, including EPS, throughout two heating seasons. The study also provided insight on how these systems manage water.

The measured performance of EPS Type 1 and EPS Type 2, which were side by side on the exterior of one basement wall, shows both boards sustained thermal performance.
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Two edge finishing techniques of Can/ULC S701 Type II EPS were assessed – straight edge (butt joints) and ship-lap edges. The two types were placed side by side to see if any performance differences could be detected. The study found both types of EPS insulation delivered sustained thermal performance over two full heating seasons. EPS maintained a stable R-value throughout the first year and performed just as well, or even better, in the second year. In looking at moisture management, EPS kept water out of the basement wall system even during major rain storms and winter thaws, when the effects of water movement were recorded at the outer face of the insulation specimens. The EPS test boards were able to manage water movement at their outer face in contact with the soil. There was no evidence of water reaching the concrete wall, indicating that EPS exterior basement insulation provides protection from water ingress.

Tightly installed butt joints and ship-lap edges were used to prevent the ingress of water between adjacent insulation boards. Both techniques were found to be effective in preventing water from reaching the back of the insulation and concrete wall. Installation details and the fit between the insulation panel joints and corners are critical in ensuring an effective first line of defense for water management.

EPS insulation is unique in that it is the only rigid closed cell foam plastic that contains only air within its cellular structure – this translates into a stable, long-term R-value. In addition to regulating the temperature year-round and reducing energy costs, EPS insulation increases the comfort and livability of a home’s basement. Exterior insulation promotes warming of the basement wall to avoid seasonal condensation issues and assures less risk of mold than interior-only insulation.
Concrete Block Insulating Systems Inc. (CBIS), a leading Massachusetts EPS manufacturer, is soaking up the sun and using it to power their EPS operations. Serving as a premier model of how EPS manufacturers are embracing sustainability, CBIS has partnered with Soltas Energy’s commercial operation of its 373 kW solar power plant in West Brookfield, Massachusetts. Soltas Energy will sell the reliable, clean solar electricity to CBIS. This endeavor is the first of nine currently underway in the state.

Jeffrey A. Nickerson, President of CBIS said, “Our company custom molds expanded polystyrene (EPS) products. EPS is an engineered material that provides smart solutions and durable, efficient results. It can be molded or cut into any design with the added benefit of being thermally efficient, lightweight, fully recyclable, cost-effective and is a responsible choice for the environment. We have been manufacturing energy saving solutions for over 35 years, and now with the inclusion of solar electricity to power our entire facility, we are helping offset nearly 500,000 pounds of CO2. We are providing energy saving products by means of an environmentally friendly method. CBIS is truly a green company.”

Nickerson said, “CBIS also took advantage of the National Grid’s Energy Efficient Lighting Retrofit program this year, which will save us an additional 85,000 kWh every year. The payback for our investment in this lighting program will be 6 months.”

Nickerson went on to say, “Our manufacturing segment is highly competitive. With escalating feedstock costs and the rising prices to manufacture our products, we embrace any opportunity to reduce our operating overhead. Since our company is focused on energy efficient building products we have a heightened awareness of the benefits of solar power, and that coupled with the economics we receive from working with Soltas Energy make this a great deal for us. We look forward to the benefits of clean renewable energy for many years to come.”

The installation uses 1,495 CNPV high power 250Wp polycrystalline modules and provides the majority of the electricity needs of the CBIS factory. The DC electricity generated by the solar power station is converted to AC electricity by one high efficiency SGI 300KW inverter manufactured by Lawrence Massachusetts based Solectria Renewables.

Richard Chase, regional manager of Soltas energy said, “It is exciting to be a part of the rapidly growing solar industry in Massachusetts, and this solar power plant in West Brookfield is the first of our substantial roll out in the Commonwealth. We are looking forward to a long and mutually successful relationship with CBIS and are happy to share the excellent economics generated from our PV system with such a quality member of the business community in the greater Worcester area.”

Andrew Barron Worden, CEO of Soltas Energy said, “We are glad to not only bring clean solar energy to benefit CBIS and Massachusetts but also to help employ more Massachusetts citizens. Soltas Energy utilized labor entirely from the Commonwealth for the installation.”
The EPS Industry Alliance presented the Roberts Service Award for excellence in the expanded polystyrene industry to Jeff Nickerson of Concrete Block Insulating Systems (CBIS). Nickerson was presented with the award at this year’s EPS EXPO by past Board of Directors president Pat Culpepper of Progressive Foam Technologies.

Mr. Nickerson has been part of the EPS industry since 1982 when he joined the family owned Concrete Block Insulating Systems after serving with the U.S. Marine Corps. He became VP of Operations in 1990, and then President in 2002. Nickerson’s professional success can be attributed to his tireless work ethic, which is demonstrated by his hands-on approach to everything that happens at CBIS. He has made contributions to Extreme Makeover Home Edition and This Old House.

The Roberts Service Award was established in 2005 in honor of Scott and Vance Roberts of Plymouth Foam. Both Scott and Vance Roberts played key leadership roles and were dedicated volunteers in the industry’s national trade association serving in numerous capacities. Since then the award has been presented annually in recognition of outstanding volunteer service and exceptional contributions made by individuals on behalf of the EPS industry.
Industrial Concrete Casting & EPS – A Perfect Fit

The versatility of EPS – along with its superior performance properties – allows it to be used for a variety of different applications. From floating docks to bicycle helmets, EPS is ideal for specialty market applications that require a strong, lightweight material that can be easily fabricated into different size and shape components.

For precision industrial concrete casting EPS suits a range of application demands. Whether used for manholes or industrial pipes or as concrete void fillers for poured-in-place and pre-cast concrete systems, EPS helps reduce material requirements and overall weight. Commonly used EPS concrete casting molds are convenient and efficient to handle. Typically, wax or a removable film is applied to facilitate the removal of the EPS cast and make the de-molding process quick and residue free. Any foam residue is collected and recycled back into the mold process.

The production of monolithic manhole structures with various channels and junctions is a perfect example of how EPS casting streamlines the production process. The product can be designed and manufactured in one fluid process, eliminating additional labor costs previously experienced in manufacturing manhole structures. Manhole configuration software creates a three-dimensional drawing for the channels, junctions and complete manhole base. The EPS is customized according to the software drawing and a controlled three-dimensional saw utilizes curved cutting wires to sculpt the required channels and junctions to their exact diameters and add the required curvature. This ensures that all parts are matched to meet the proper gradient required. The saw is equipped with a small screen displaying the relevant parts and work steps, which serves as an additional means of quality verification. The finished EPS channel negative with fixed junctions is inserted in a manhole concreting machine and filled with concrete. Once set the negative EPS mold is removed and recycled.

EPS concrete molds are typically cut from a single piece of foam to create a smooth and clean surface with a seamless appearance. This smooth surface can be especially important for applications such as sewer pipes. With the advent of computer-aided cutting equipment designers can achieve custom patterns or surface texturing. From small, simple shapes to large complex designs, concrete cast in EPS can add value to a construction project. This technology and EPS’ flexible design capabilities enables the production of a diverse range of sizes, gradients and angles.

In most instances a lighter product can simplify installation and reduce production time. In built-in applications added long-term energy performance is also achieved as EPS is an excellent insulator and, depending on the application, can also reduce noise transmission.

Photos courtesy of Schlüsselbauer Technology GmbH&CoKG
Nutrisystem and its EPS packaging supplier, Foam Fabricators, Inc., have partnered to create a unique re-use/recycling initiative that is helping those in need. Customers on the Nutrisystem diet plan can now recycle the large EPS coolers used to ship their food programs. EPS is recognized as the shipping container of choice for fresh and frozen food because of its performance and environmental advantages. Its light weight reduces shipping and fuel transportation costs while its insulating properties protect perishables during transit, ensuring careful handling and fresh delivery. Each cooler contains an insert which instructs customers to call or email Foam Fabricators for recycling assistance. For customers who are not located near an EPS drop off recycling location, Foam Fabricators refers them to local community “helping agencies” including food banks, fire stations, meals on wheels, blood banks, animal shelters, churches or similar organizations for re-use. These agencies are grateful for the coolers as they are large, durable and clean. Many mail stores also accept the coolers for re-use.

Omaha Steaks is another company that is doing its part to help consumers recycle EPS. As part of their ongoing commitment to meet the highest standards in food safety, Omaha Steaks has engineered their custom reusable/recyclable polystyrene coolers to act as mini-freezers which guarantees the enclosed products remain completely frozen in transit. Omaha Steaks has a dedicated EPS recycling webpage and toll-free Recycle Hotline, 800-228-9872. They welcome re-use ideas from their customers which are also posted on their recycling webpage.

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Life Cycle Analysis Can Provide Valuable Insight

A life cycle inventory commissioned by the Oregon Department of Environmental Quality (DEQ), with assistance from the U.S. EPA, Packaging Options for Shipping Soft Goods in E-Commerce & Catalog Sales, illustrates a vital and often ignored environmental caveat: recyclability and recycled content are not always good predictors of environmental burdens. The study, conducted by Franklin Associates, Ltd., takes a close look at 26 different packaging options to better understand environmental and natural resource impacts. Polystyrene loosefill and molded pulp loosefill were among the void fill materials analyzed. The report concludes that just because a packaging material is easy for consumers to recycle or contains high post-consumer content doesn’t guarantee that it has lower environmental burdens. The study also determined that a box shipped with polystyrene loose fill requires less energy over its life cycle and stresses that high post-consumer recycled content should not be the primary driver for selecting a packaging material.

New packaging materials – especially those that are biodegradable and biobased – get a tremendous amount of attention from the media and in conference venues. But when it turns out they don’t work, mum’s the word. Selective fact finding will slow down any progress to achieve sustainability. For example, source reduction was once the sustainable packaging directive du jour. We have now learned that source reduction can result in increased product...
damage and waste and is not always a viable – or even wise – sustainable packaging strategy. Cherry picking environmental strengths and weaknesses, such as curb side recycling or renewable resources, is not valuable when assessing the big picture. Only in-depth knowledge of a material's total footprint can result in truly sustainable choices.

“Recyclability and recycled content are not always good predictors of environmental burdens.”
~ Oregon Department of Environmental Quality

Sustainable Packaging Placebo
New packaging materials are emerging with dazzling environmental claims that appeal to the general public's misconceptions – green, biobased, biodegradable and compostable. Such claims should not be accepted at face value and must be objectively evaluated in terms of real life relevancy. Biobased packaging is often viewed as a sustainable alternative to plastic packaging with emphasis on the value associated with renewable resources and biodegradability; however, they are almost never a one-size-fits-all solution.

One product seemingly taking the sustainability market by storm is EcoCradle, a packaging material grown – in plastic trays – by bonding agricultural waste with mushroom filament roots. This fledgling product, which was developed and promoted with government grants, prizes and support from various agencies, is being heralded as the new hope for sustainable packaging. But Steelcase, a global leader in the office furniture industry that once hailed EcoCradle as part of its sustainable packaging initiative, is no longer using the product. What went wrong?

Did it fail to provide adequate protection? Was it not able keep pace with production needs? As quoted in the October 2012 issue of Packaging World, computer giant Dell points out that EcoCradle's production is not at scale and further does not have price parity with other packaging materials.

When it comes to performance EcoCradle may have a long way to go. In one example, informal test comparisons show temperature sensitive shipping containers made with EcoCradle fail to provide adequate thermal protection.

Moving Forward to Efficiency
For manufacturers the sustainability investment has increased rather than decreased during the economic downturn as companies pay greater attention to the effective use of resources. Manufacturers are using less material and have concentrated on creating efficient processing for the production, distribution and disposal of their products. Rather than focusing solely on their products, the intention is to think of ways to make the entire business and supply chain more sustainable. These challenging behind the scenes actions are resulting in measurable positive environmental impacts.

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A new report by PricewaterhouseCoopers (PwC) entitled Sustainable Packaging: Myth or Reality reveals that leading retailers, packaging manufacturers and consumer groups unanimously agree the term ‘sustainable packaging’ is no longer relevant and should be phased out. Instead, a more balanced view of ‘efficient packaging’ is emerging. This concept takes into account efficiencies that can be made during the entire life cycle of the product, including solutions that produce the minimum amount of waste, protect the product and maximize transportation efficiency. In short, the focus should be on ensuring packaging delivers sustainability throughout the entire supply chain.

PwC published a 2010 study which looked at the growing interest in sustainable packaging based on a series of interviews with four key stakeholder groups: retailers, consumer goods companies, packaging producers and government and trade bodies. Fast forward two years and PwC says that there is more creativity and collaboration happening – industry is now taking an active role in the debate, emphasizing that packaging is only a part of the wider sustainability story.

The packaging industry has increased its communication efforts, particularly in explaining to the public why and how packaging is used, the contribution that it makes to a sustainable society and how consumers can play their part in the life cycle. As part of the new PwC study, Jane Bickerstaffe, executive director of the U.K.’s The Industry Council for Packaging and the Environment (INCPEN), says “Companies have shifted their attention from addressing just one issue or a selection of issues on one topic to a more holistic approach incorporating economic, environmental and social considerations.”

Stakeholders agreed efficient packaging should converge around the following three themes:

• Environmentally – saves more resources than it uses.
• Economically – reduces costs of distribution and merchandising.
• Socially – meets consumer’s expectations by providing product protection, safety, handling and information.

According to another PwC report, Sustainable Packaging: Threat or Opportunity?, negative public perceptions of ‘wasteful packaging’ have driven the sustainability debate. Yet most consumers are ill-equipped to make informed judgments about the merits and drawbacks of different forms of packaging – most have a limited understanding of the comparative importance with other sustainability issues, such as food waste and energy consumption. Consumers are only interested in packaging once its lifecycle has ended and need to understand it isn’t all about recycling. Packaging constitutes a small portion of landfill waste. Access to recycling varies widely for different types of packaging; no single type of packaging is accepted in every recycling program. Despite the large consumer demand for more sustainable packaging they usually lose interest when it comes at a higher cost and many recyclable materials are not actually recycled because people don’t bother to recycle. Globally, buying patterns have shifted and consumers are far less willing to pay a premium for ‘greener’ products than they were before the economic downturn.

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For the general public, the term sustainability has become a hook on which to hang flawed thinking. One could argue that packaging has been a scapegoat in a tremendously unsustainable society. Yet, ironically, packaging has always been inherently sustainable. If a packaging material doesn’t protect the product and perform all the other functions expected of it, it is completely ‘unsustainable’ because the product and packaging both go to waste. The materials, energy and waste invested in products are ten times more than that used to make packaging. Packaging typically has a net positive environmental impact.

The packaging industry is looking beyond sustainable packaging to the evolution of efficient packaging solutions that will drive innovation, awareness and real progress. No single type of packaging has a monopoly on environmental virtues. Whether degradable or compostable; derived from renewable or non-renewable sources; easy or difficult to recycle is of secondary importance to its role in making supply chains work efficiently at all levels. Packaging’s most important role is to deliver products safely to market, which is critical to achieving a net positive environmental impact.
Anyone familiar with EPS knows well that its unique properties make it an ideal product for green building. As environmental consciousness increases, EPS’s role in energy conservation likewise becomes more understood; but many people are unaware of the many ways EPS is part of the green movement. One of which is the most definitively green of all: horticulture. Seedling trays, soil amendments, and wintering cones made from EPS are valuable tools for encouraging plant growth.

Seedling trays made from EPS protect plants during their most vulnerable growth period. The trays consist of a number of individual cups filled with soil. Seeds are then planted and allowed to grow in to young sprouts called plugs, which can then be transplanted. The insulating property of EPS insures that the roots of the plugs survive extreme temperatures, providing a controlled environment in which the plant can be cultivated to reach its maximum potential. EPS seedling trays are especially useful for transporting living plugs. The EPS protects the plants from extreme fluctuations in temperature that can occur in transit, as well as impact resistance. The natural white color of EPS reflects sunlight, which can then be absorbed by the plant and promote growth. For amateur horticulturalists, many types of EPS packaging can be reused to function as seedling trays, providing a cheap and environmentally friendly end-use for consumers.

As a soil amendment, EPS provides a media to the soil that helps facilitate air circulation to the roots as well as even moisture distribution and water drainage. The insulating properties of EPS also help regulate soil temperature, protecting the plant from potentially harmful heat and cold. As an inert material, EPS does not require replenishing as it does not degrade in soil, and doesn’t foster disease or insect infestation. The low density of EPS decreases the overall density of the soil, allowing the roots to distribute themselves more evenly, as well as reducing the cost of transportation. While EPS lacks the water retention properties of other soil additives such as perlite, it is cheaper, and a study by Oklahoma State University concluded that when appropriate ratios of EPS to peat are used there was no significant difference in plant growth when compared to alternative materials.

As helpful as EPS is in protecting plant roots from temperature changes, the plant itself remains exposed to the elements and climate. Many gardeners favor plants, such as rose bushes, that do not fare well in freezing temperatures, resulting in the death of the plant and a loss of investment. The freezing death of household and garden plants can be prevented with the use of EPS wintering cones. Designed to insulate vulnerable plants during winter months, wintering cones completely surround the exposed portion of the plant with EPS, protecting it from snow, frost, and freezing winds. Tropical plants, a favorite amongst gardeners, become a viable option in climates that usually could not support them thanks to wintering cones.

EPS improves our lives every day in ways that often go unnoticed. Innovative uses of EPS continue to be developed, and its use in horticulture is no exception. The next time you’re in the produce section of your local supermarket, or admiring your neighbor’s garden, remember that EPS helps make it all possible.
EPS Industry Alliance Collaborates with Gypsum Association

The EPS Industry Alliance continues to work with the Gypsum Association (GA) on issues of common interest. A product of that collaboration appears in the recently released 20th Edition of the Gypsum Association’s Fire Resistance Design Manual. Specifically, GA File No. WP 8164 describes a construction detail for 1 Hour Fire Protection assembly comprised of a structural insulated panel of expanded polystyrene and oriented strand board. The detail describes fire protection for both interior and exterior faces of the wall assembly and will be useful in answering design questions of builders and code officials.

Additional projects with the GA include the development of construction details for attachment of gypsum board to insulating concrete forms and specific guidance on placement of expansion joints in extended run gypsum board sheathing over ICFs such as encountered in commercial construction. It is expected that securing these references to ICF construction in the Gypsum Association design manuals will be one of the first tasks to be delivered by EPS-IA’s ICF Work Group.

The GA Fire Design Manual is not only useful as a stand-alone resource, but is also cited as an authority by many code and regulatory documents. It is specifically incorporated by reference in the IBC, IRC, NFPA, the Standard Building Code, the Uniform Building Code, The State of New York Uniform Fire Prevention and Building Code and the cities of Chicago, New York and Los Angeles. ICC-ES Evaluation Report ESR-1338 currently references the 19th edition as a compliance path for Chapter 7 of the IBC fire resistance. It is anticipated by the Gypsum Association that upon renewal of that report in February, an update to the 20th edition will be included providing another authoritative resource to secure approval and answer design questions.

Continued collaboration with groups such as the Gypsum Association will promote opportunities for EPS and educate contractors, developers and code officials in the proper application of EPS products.