Cold Storage Building Solutions

Keep your building cool. Increase energy efficiency. Reduce utility costs

The Problem

Buildings represent 72 percent of energy consumption in the United States and put a major strain on natural resources, according to the United States Green Building Council (USGBC)[1]. To reduce this economic and environmental burden, cold storage building owners and designers must look for high thermal resistance value (R-value) insulations that reduce heat transfer both in and out of the building envelope. Cold storage buildings are notorious for heavy energy consumption with expansive carbon footprints due to low operating temperatures that range from -20 degrees Fahrenheit to 65 degrees Fahrenheit. A cold storage building must limit heat gain by the interior space and contents – achieved by specifying higher R-values for the building envelope through proper and effective insulation. Effective insulation must be durable; have a stable and predictable R-value; maintain resistance to moisture; and resist the external stresses of temperature extremes during warm and cool months. Poor insulation with low R-values can cause cold storage buildings to absorb more heat – increasing the load on the refrigeration equipment, reducing energy efficiency, and causing energy bills to skyrocket.

1

High performing buildings need high performing roofs

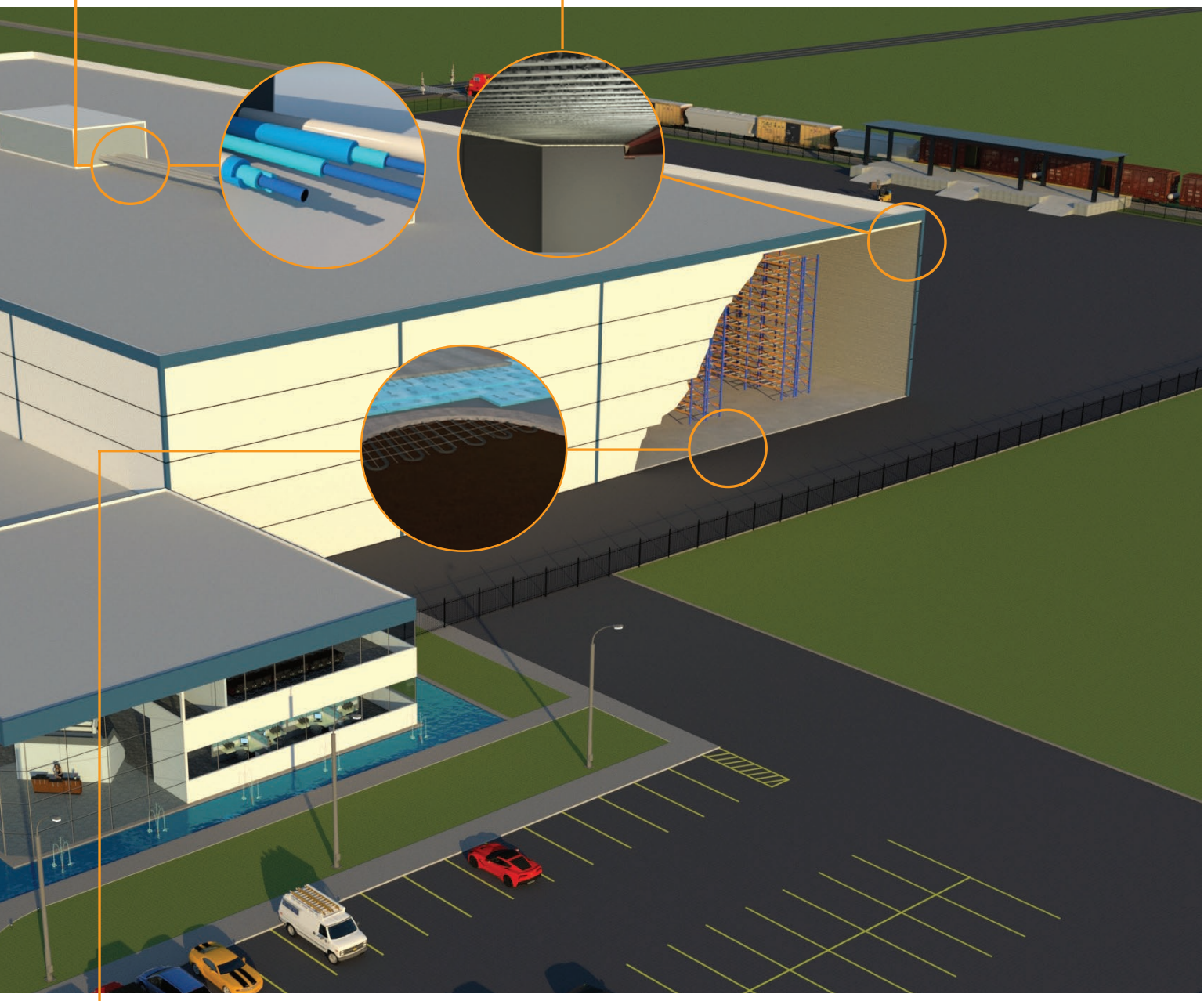
Cold storage buildings are under extreme thermal conditions so ensuring you have the right roof assembly is critical. Conventional roof insulations are not optimum for Cold Storage buildings because of the temperature extremes they are subjected to. You need a roof designed for these extremes using insulation with a thermal warranty and low moisture absorption under a variety of mean temperatures. The solution in this space is DuPont™ Styrofoam™ Brand Deckmate™ and Deckmate™ Plus FA Extruded Polystyrene Foam Insulation.

2 Poorly insulated pipes canaccumulate moisture and rust

Properly insulating your refrigeration/cooling pipes is critical and Styrofoam™ is the industry leader and long-term solution of choice in this space. Styrofoam™ Brand pipe insulation is a closed-cell thermoplastic which is void free and offers properties allowing fabrication for your specific pipe insulation needs.

3 Air infiltration can account for a significant energy cost in a cold storage building

Unwanted air infiltration through gaps and cracks causes a significant amount of energy loss in a building. Additionally, this vapor drive can condense in cold storage structures, creating damaging ice build-up and serious contamination issues. DuPont™ Froth-Pak™ Foam Insulation products can help remedy these issues.



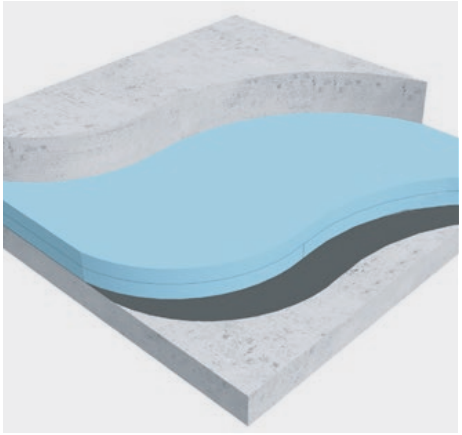
4 As building heights increase, so does the need for greater compressive strength insulation

Due to the overall cost and scarcity of land current cold storage buildings are expanding vertically, in some cases as high as 75-80 feet. As a result of these market changes it has created an increasing need for greater compressive strength and higher performing insulation in these foundations. Stress from racking assemblies and stored contents can place tremendous point loads on a very concentrated space. The solution to address this need is Styrofoam™ Brand Freezermate™ Extruded Polystyrene (XPS) foam insulation or Styrofoam™ Brand Highload 40, 60, and 100 (psi) foam insulation.

How DuPont Products Help Your Cold Storage Building

Increase energy efficiency

DuPont™ Styrofoam™ Brand Insulation and Froth-Pak™ Foam Insulation products can increase the performance and efficiency so Cold Storage buildings stay consistently cold and predictably efficient. By choosing DuPont™ Styrofoam™ Brand Insulation, a building owner is selecting the proven market leader for over 70 years.



Provide high compression capabilities

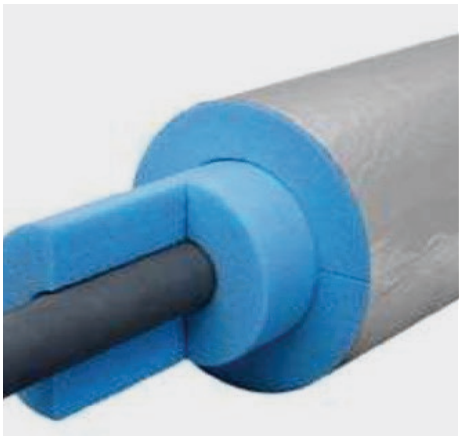
DuPont™ Styrofoam™ Brand Freezermate™ Extruded Polystyrene (XPS) Foam Insulation", Highload 40, 60 and 100 XPS Foam Insulation and Deckmate™ XPS Foam Insulation all provide excellent compressive strengths to provide support while maintaining outstanding R-value retention and long-term durability.

Improve air sealing

Cold storage buildings with higher levels of air infiltration and vapor drive issues will suffer higher energy bills, debilitating ice buildup and potential health, safety and wellness issues due to the adoption of the Food and Modernization Act.

Enhance thermal protection

The DuPont™ Styrofoam™ Brand Insulation and Foam Insulation products mentioned here help improve R-values.



Maximize moisture protection

Water and vapor condensation can lead to freezing and ice formation within an improperly sealed cold storage building. This can lead to the growth of bacteria, mold and contribute towards the overall contamination of the site. The DuPont™ Styrofoam™ Brand Insulation and Foam Insulation products mentioned here provide moisture protection that creates long-standing benefits for LT buildings.

Strengthen sustainability

The DuPont™ Styrofoam™ Brand Insulation and Foam Insulation products mentioned here are made with sustainability in mind. In addition to helping to reduce your building's carbon footprint through increased energy efficiency, DuPont products also are highly durable, reducing the amount of materials needed to replace and rebuild buildings. Likewise, DuPont™ Styrofoam™ Brand Freezermate™ Insulation and Highload 40, 60 and 100 Insulation supports environmental advancement as it is hydrochlorofluorocarbon (HCFC) free with zero ozone-depletion potential. Additionally, DuPont™ Styrofoam™ Brand insulation products contain an average of 20% pre-consumer recycled content.

Styrofoam™ Brand Freezermate™ & Highload 40, 60 and 100 Foam Insulation is a series of subfloor thermal insulation products designed to support cold storage and low temp (LT) applications through exceptional freeze-thaw and moisture resistance properties. Because the rigid foam insulation board resiwsts even the most severe forms of moisture penetration in freezer and cooler construction, it offers long-term R-values superior to other types of thermal insulation.

Advantages:
- High resistance to water and water vapor
- Excellent freeze-thaw resistance
- Superior compressive strength
- Long-term durability
- Great long-term R-value: Thermal Resistance, per inch, at 75-degree Fahrenheit mean temperature for Styrofoam™ Brand Freezermate™, Highload 40, 60 and 100: 5.0 R-value

Styrofoam™ Brand Deckmate™ Extruded Polystyrene (XPS) Foam Insulation is designed for use in fully adhered or mechanically attached low slope commercial and specialty roof applications. Available in flat and tapered board stock.

Advantages:
- Market-leading insulating characteristics
- High resistance to water and water vapor
- Excellent freeze-thaw resistance
- Superb compressive strength
- Long-term durability
- Great long-term R-value: Thermal Resistance per one-inch nominal board thickness, 24x96 board size: 5.0 value

DuPont™ Styrofoam™ Brand Extruded Polystyrene (XPS) Pipe Insulation Billet (PIB) is a closed-cell thermoplastic, void free foam insulation billet designed for use in mechanical applications. Examples include: cold pipe, vessel and duct applications, and is commonly installed on industrial refrigeration pipe applications and cold storage piping. It is suitable for cryogenic, light cryogenic, cold, chilled, ambient, and mild hot pipe application categories.

Advantages:
- Seamless billets
- Low friability
- Excellent moisture resistance
- Low permeability
- Great long-term R-value
- Custom fabricated for your job.
- Long term high performance.

DuPont™ Froth-Pak™ Foam Insulation is a two-component, quick-cure polyurethane foam that comes as a sealant or a Class A fire-rated (flame-spread of 25 or less) insulation. Both quickly expand to fill cavities, penetrations and cracks greater than two inches and less than four inches wide.

Advantages:
- Works to seal floor seams, fluted roof decks and wall-to-roof intersections as well.
- Reduces air and moisture infiltration, helping to prevent ice buildup and potential bacterial contamination.
- Reduces temperature fluctuations
- Protects structural durability
- Increases energy efficiency of the building
- Provides a high level of insulating R-value on initial application (6.6 per inch Class A) and retains R-value of 6.1 (R-value per inch; aged 180 days at 75 degrees Fahrenheit), even when foam ages (Froth-Pak™ Foam Insulation only)

You're Backed by Building Science Experts

Our team of skilled professionals is here to help you outperform.

With DuPont Performance Building Solutions as your partner and product provider, you'll receive an elite level of customer service and technical support — combined with industry-leading research and product development — to help you build a better building and a bigger business.

Support

Our extensive in-the-field sales force consults with your team to ensure your offering the best solutions to your customers, provides training and support for your teams, and works to generate demand for your business.

Design & Application

We provide technical support to help you with any installation or application questions.

Solutions

We build and nurture strong industry partnerships to deliver easy-to-install and effective solutions.

Innovation

Our R&D specialists are constantly creating new and enhanced systems and applications to help you stay aheadof codes.

When you use products from DuPont Performance Building Solutions, your business is associated with a name that is at the forefront of building science and performance. You'll begin every project knowing your materials come from the global leader in building science solutions.

“More than ever, sustainability is at stake… we live in a world of constant and profound transformation, so [we] have to radically rethink the way we build.”

– Jean Nouvel, Award-Winning Architect

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