







# **Contents**

All About Sealing and Insulation		
Helpful Resources from EnergyStar	5	
BPI's Insulation and Sealing Products	6	
CertainTeed	6	
DuPont STYROFOAM™ Brand Extruded Polystyrene Insulation	8	
Greenfiber Cellulose Insulation	9	
Poly-America Plastic Sheeting	10	
Adhesives, Caulk & Sealants	11	
Geocel	11	
OSI	11	
Preparing for Winter: BPI's Winterizing Checklist	13	
How Homeowners and Property Managers Can Get Ready for Winter Weather	13	
Keep Yourself and Your Home Safe This Winter	14	
About BPI	14	



# **All About Sealing and Insulation**

Insulating the interior and weatherizing the exterior of your home is a must for maintaining comfortability. You want to tighten the thermal envelope of your home to conserve energy and regulate the temperature. Some of the most important elements of this thermal envelope are the walls, attic and roof, windows, doors and caulking.

**Insulation** - Quality insulation minimizes heat loss or gain by providing a barrier between your living space and the outside temperatures. A well-insulated home effectively controls air flow and heat transfer and maintains a consistent and comfortable temperature without using a furnace or air conditioner constantly. This efficiency reduces your heating and cooling bills.

**Sealing** – A typical home can lose 25-40% of the energy used for heating and cooling through air leakage. Buildings can develop cracks and gaps that allow air to escape, increasing your utility bills. Use caulk and weatherstripping (for movable items such as windows and doors) to seal any gaps.

According to EnergyStar, a program run by the U.S. Environmental Protection Agency (EPA), "sealing air leaks around your home and adding insulation can help your home be more comfortable and energy efficient and provide up to a 10% savings on your annual energy bills."

EnergyStar recommends checking the attic, basement (or crawlspace), chimney, ducts, doors, roof, windows and walls for any gaps, as well as looking for the <u>following problem signs</u>:

- Drafty rooms
- Hot and cold rooms; uneven temperature between rooms
- High heating or cooling bills

# **Estimated Energy Savings from Improvements Made to Your Home**

The U.S. Department of Energy states that 49% of a home's energy bill is spent on heating and cooling. Utility bills can spike in the summer and winter due to poor insulation.

By investing in sealing and added insulation, the EPA estimates that the typical homeowner can save 15% on heating and cooling costs. In colder parts of the country (climate zones six and seven), the savings increase to 20%.

To estimate energy savings, the EPA assumed that a knowledgeable homeowner or contractor could cost-effectively:

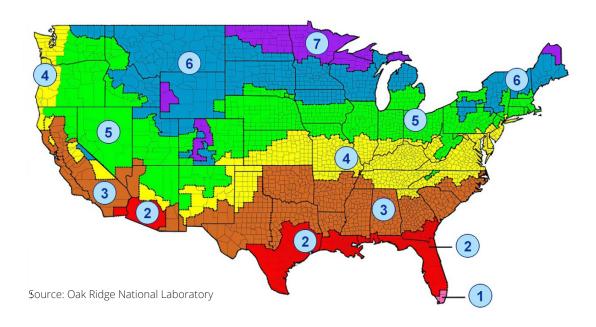
- Seal air leaks throughout the house, focusing on leaks to the attic space, through the foundation, and around windows and doors to achieve a 25% reduction in total air infiltration.
- Add insulation to improve R-values in attics, floors above unconditioned basements and crawlspaces, and basement walls to meet the <u>2015 International Energy Conservation Code</u> (IECC) insulation requirements.
- Estimated savings are higher in the North than the South due to geographic climate factors, regional construction styles and fuel type characteristics.

<u>CertainTeed notes this about meeting the 2012 IECC requirements</u>: With the more stringent new thermal resistance and airtightness requirements of the 2012 International Energy Conservation Code (IECC), energy-efficient exterior wall assemblies are now an even higher priority in North American new construction and retrofit projects.





# **Continental U.S. Climate Zone Map**



Listed below are the EPA estimated savings from home sealing and insulation for the northern U.S. climate zones, showing how an investment in home sealing and insulation can really pay off.

**Table 1: Estimated Savings from Home Sealing and Insulating** 

Location	Climate Zone	Estimated Annual Utility Billing Savings (%)	
North	CZ 8	Total House	16%
		Heating and cooling only	18%
	CZ 7	Total House	15%
		Heating and cooling only	19%
	CZ 6	Total House	14%
		Heating and cooling only	18%
	CZ 5	Total House	12%
		Heating and cooling only	16%
	CZ 4C	Total House	13%
		Heating and cooling only	20%
	CZ 4	Total House	12%
		Heating and cooling only	17%

Source: EnergyStar <a href="https://www.energystar.gov/campaign/seal\_insulate/methodology">https://www.energystar.gov/campaign/seal\_insulate/methodology</a>



# **Helpful Resources from EnergyStar**

EnergyStar has a library of resources for your home improvement projects. Whether you do it yourself or hire a licensed contractor to do the work, these are great places to start your research.

1. A Do-It-Yourself Guide to Sealing and Insulating

## 2. Sealing and Insulation Tips

- Recommended Home Insulation R-Values
- How to do an Attic Air Insulation Project
- Attic Air Sealing Project
- Basement & Crawlspace Air Sealing and Insulating Project
- Benefits of Duct Sealing
- Sealing Behind Window & Door Trim Project

## 3. Heating and Cooling Tips

- Tips on Heating & Cooling Efficiently
- Heating and Cooling Maintenance Checklist
- When is it time to replace your heating/cooling equipment
- 10 Tips for Hiring a Heating and Cooling Contractor



Once you understand the needs of your home, and the positive impacts that investing in your insulation and weatherization will provide, it is time to figure out where to get your products from.

BPI partners with a number of lumberyards throughout the Midwest to ensure you get the quality products you need as quickly as possible.

>> <u>Use our locator to find a qualified dealer</u> <u>near you</u>.





# **BPI's Insulation and Sealing Products**

BPI has distribution centers in five locations to help better serve your needs. This means our customers enjoy greater access to a wide variety of inventory, faster delivery and quicker turnaround times on the items they need. BPI's customers have come to expect stellar service and fully trained sales staff specialized in building materials.

BPI of South Dakota - Sioux Falls, SD

BPI of North Dakota - Fargo, ND

BPI of Iowa - Evansdale, IA

BPI of Wisconsin - Watertown, WI

BPI of Council Bluffs - Council Bluffs, IA



### CertainTeed

BPI carries the following products from CertainTeed, a subsidiary of Saint-Gobain and one of the world's largest and oldest building products companies.

# **CertainTeed Product Types**

- **Fiberglass Insulation** Delivers long-lasting energy efficiency and thermal performance for quiet and comfortable spaces.
- Batts & Rolls Easily insulate any part of the home, from the basement to the attic, with these pre-cut sheets of fiberglass insulation designed to manage temperature and acoustics.
- **Blown-in Insulation** Easily insulate hard-to-cover areas such as ceilings, floors and walls with this energy-efficient, loose-fill fiberglass insulation.
- Mold Prevention Creating healthier indoor environments with innovative moisture management and mold-inhibiting products.

- Air Tightness Meet growing air tightness requirements and successfully manage comfortable temperatures, moisture, sound and allergens by creating superior building envelopes.
- **Fire Performance** This comprehensive product line helps prepare you to meet fire safety codes and requirements for any new build, retrofit or remodel job, big or small.

#### **Brands:**

MemBrain™ Continuous Air Barrier & Smart Vapor Retarder is the industry's most advanced technology to create a better-performing home. This solution provides a continuous air barrier and advanced moisture management in a single product, helping achieve complete comfort. MemBrain™ remains tight in the winter when humidity in the cavity is low to prevent moisture from entering and increases permeability in the summer to let moisture escape, helping to keep the wall dry.



#### Where to Use MemBrain?

Codes in zones 4C and above require vapor retarders. However, MemBrain is ideal for any area where the home cools in the summer and heats up in the winter. MemBrain's versatility also allows it to be used in different areas of your home:

- Ceilings
- Crawl spaces
- Basements
- Bathrooms
- Laundry rooms
- Kitchens
- Exterior
- Walls

**InsulSafe SP** is a fiberglass blow-in insulation used in residential and commercial construction as a thermal and sound-absorbing insulation. It is designed for pneumatic installation in open (attic) and closed (sidewalls/floor) construction cavities. It may be used in retrofit applications.

**CertainTeed Sustainable Insulation®** brings you long-lasting comfort through thermal performance, reduced noise levels and exceeds California's strict Indoor Air Quality Requirements, all while saving 12 times as much energy in its first year as the energy used to produce it. Sustainable Insulation is easy

to handle, with a softer touch, without compromising its rigidity or recovery. Installers can also expect less itch, dust, odor and improved cutability. Plus, it will last the life of the building as it won't settle, accumulate moisture or lose its R-value over time.

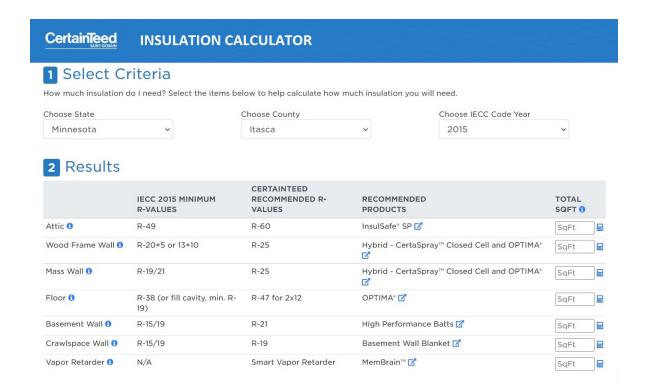
**High-Performance Fiberglass Building Insulation Batts** are used in walls and cathedral ceilings where maximum thermal performance is desired and only limited space is available. This is an easy, cost-effective method to help conserve energy in residential and commercial new construction, remodeling and re-insulation markets.

# >> <u>Click here to download CertainTeed brochures and</u> literature

#### **CertainTeed Insulation Calculator**

CertainTeed created this calculator to figure out how much of each insulation type you'll need for your home's location to save money on energy bills while improving comfort levels in the winter and summer.

R-Value measures thermal resistance, the ability of insulation to prevent heat from escaping or intruding through the walls and roof of your home. The higher the R-Value, the more effective the insulation will be, but your optimum R-Value depends on where you live. The colder the climate, the higher the R-Value.



>> Need CertainTeed insulation and sealing products? Find an authorized BPI dealer near you.

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# **DuPont STYROFOAM™ Brand Extruded Polystyrene Insulation**

DuPont STYROFOAM Brand Insulation is the original extruded polystyrene foam insulation. It's the first in a portfolio of products invented by Dow that continues to grow and evolve to meet the needs of the building and construction industry and its related markets. It can be used for the following:

- Agricultural building applications
- Residential above- and below-grade applications
- Commercial above- and below-grade applications
- New construction
- Reconstruction and retrofitting
- Transportation
- Refrigeration
- Walk-in coolers and refrigerated warehouses
- Garages and panels

### **Advantages:**

- Resists moisture infiltration and condensation
- Reduces heat loss or gain
- Available with ranges of compressive strength and longterm durability
- Excellent thermal performance
- Available in ranges of thicknesses, surface and edge treatments
- Easy to handle, cut and install
- Excellent freeze-thaw resistance

- Reusable in many applications
- Resists compressive creep and fatigue
- Lightweight

>> Click here to download DuPont STYROFOAM brochures and literature

#### **DuPont R-Value Steel Stud Calculator**

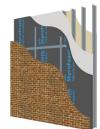
DuPont's wall calculator helps coordinate energy code thermal insulation and building code water vapor control compliance for a proposed steel frame wall assembly on a commercial or residential building.

Whether it's with the DuPont™ Thermax™ Wall System, DuPont™ Ultra Wall System or the DuPont™ Commercial Wall2 System, with Inverted Wall, WRB over foam or another assembly, you're covered.





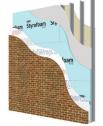
Thermax™ Wall System



Ultra Wall System



Commercial Wall2 System with Inverted Wall



WRB over foam

#### **Resources from DuPont:**

- How to Install Videos
- Integrating DuPont Building Envelope Solutions with DuPont Exterior Continuous Insulation
- Rigid Foam Insulation in Precast Sandwich Panel Applications Installation Guide
- Installation Procedures for Insulating and Air Sealing Interior Basement Walls

>> Looking for DuPont insulation products? Find an authorized BPI dealer near you.



### **Greenfiber Cellulose Insulation**

Greenfiber cellulose insulation outperforms other insulation, keeping homes cooler in the summer and warmer in the winter. And for those who want to minimize their impact on the environment, this is the answer. Greenfiber cellulose fiber insulation is made with up to 85% recycled material free from unhealthy substances like formaldehyde and asbestos. Plus, Greenfiber uses 1/5 of the energy to manufacture the insulation compared to competing products.

Greenfiber's INS541LD Blended Blow-In Insulation is ideal for attic blow-in installations. It creates a thermal blanket that fills gaps and voids to reduce air infiltration, keeping your home warm in the winter and cool in the summer.

This insulation can be applied over existing insulation or in new construction and provides superior reduction of noise transfer through floors and walls when densely packed into attics and sidewalls. It also meets U.S. Department of Energy's (DOE) recommendations for reducing energy costs.

This fire-resistant insulation is made with up to 85% recycled material that meets Class 1 Fire Rating to protect your home, giving you more time to evacuate in the event of a fire. Its low

dust, no-itch formula requires no cutting tools, allowing for simple installation in just three easy steps:

- 1. Assemble machine
- 2. Place machine on flat, dry surface
- 3. Point and blow-in

# <u>Estimate Blown-In Insulation Needs with the Greenfiber</u> Calculator

Before beginning any blown-in insulation project, be sure to do your research and budget for all necessary materials. Use the blown-in insulation calculator to determine the amount of insulation you'll need. Just enter the dimensions of your space, and you'll get an estimate of the materials needed to get the job done.

# >> <u>Click here to download Greenfiber brochures and literature</u>

Resources from Greenfiber:

- Video: How to Install
- <u>Video: How to Calculate R-Value</u>

>> Looking for Greenfiber insulation products? Find an authorized BPI dealer near you.







# **Poly-America Plastic Sheeting**

Poly-America produces several product lines, all within the polyethylene family, and is the world's largest producer of polyethylene sheeting, plastic drop cloths, waste bags and construction film in the U.S. Poly-America is also the most technologically advanced and largest recycler and compounder of polyethylene in the world.

Poly-America's Husky plastic sheeting is available in widths ranging from 1 foot up to 50 feet, and in thicknesses from 0.3 mil (0.0003 inches) up to 10 mil (0.01 inches).

Reinforced, flame retardant, and consumer sheeting rolls are also available. Paint protection comes in 9' x 12' and 10' x 20' consumer drop cloths as well as numerous other sheeting sizes. Lighter weight, high density painter's plastic also features super tape adhesion.

>> Click here to view BPI's Poly-America Products



# Adhesives, Caulk & Sealants

Never underestimate the importance of adhesives, caulks and sealants in construction and repair projects. Creating an airtight seal and preventing the passage of moisture, air and dust is the foundation of buildings that last. BPI carries Geocel roofing sealants and OSI adhesives, caulks and sealants.

### Geocel

**RP-400 Construction Plastic Wet-Dry Surface Roof Cement** - A single-component, asbestos-free, asphalt-based cement designed for many construction, roofing, manufacturing and industrial applications. RP-400 can be used on asphalt, steel, brick, wood, aluminum and other common building substrates.

**Pro Flex Tripolymer Sealant** - A single-component, high-performance elastomeric sealant for a wide variety of roofing, trim, architectural metal, underdeck systems, solar roof systems, manufacturing and general construction applications.



**Expanding Foam Sealant** - A single component, moisture-cure, polyurethane foam sealant with a (H) CFC-free propellant designed to fill gaps, cracks, crevices and to stop air infiltration around door and window frames and pipe penetrations. This product adheres to asphalt shingles, masonry, vinyl, wood, steel and other common building substrates.

# >> Click here to view and download Geocel product information

## OSI

**SF450 Heavy Duty Subfloor Adhesive** - A professional, heavy-duty grade adhesive developed for glued subfloor systems that can be used in most interior and exterior construction projects on the job or the production line.

**QUAD MAX Window, Door & Siding Sealant** - Designed for sealing around interior/exterior windows, doors and siding. With unmatched 5x stretch, 50% joint movement, proven wet surface application and a fast 24-hour cure, it bonds to a wide variety of materials without need for a primer.

**QUAD Window, Door & Siding Sealant** - An all-season formula and proven wet surface application have positioned it as the leading cold-weather construction sealant for exterior windows and door installations, fiber-cement and vinyl siding, PVC trim, roofing and gutters.







**QUAD Foam Window & Door Foam Sealant** - Used to insulate and seal around windows and door frames, keeping the elements out of your install and structure. It can also be used for jambs, mud sills, header joints, top plate penetrations, electrical and plumbing penetrations, and other areas where air infiltration or heat loss may occur.

**QUAD Invisible** - Offers all the great benefits of QUAD Max and QUAD in an invisible formula, ideal for sealing around exterior windows and doors, fiber-cement and vinyl siding, PVC trim, roofing and gutters.

**HM270 Construction Silicone Sealant** - Used for structural or conventional type glazing and curtainwall sealing involving glass, plastic or metal. Also good for sealing skylights, solar panels, ventilators, aluminum siding and windows, heating/air conditioning units, duct work, recreational vehicles and more.

**RF140 Roof & Flashing Sealant** - Used for bonding roof shingles, flashing and all general roof repairs, making minor repairs inside gutters and downspouts, and is excellent for fixing minor cracks in asphalt surfaces.

**SC175 Draft & Acoustical Sound Sealant** – Ideal for commercial and residential construction; exposed and unexposed applications at perimeter joints, floor and ceiling runners, cutouts in gypsum board, veneer plaster systems and other areas where a sound rating assembly is required.

**Flameseal Fire, Smoke & Draft Stop Sealant** - Used to service penetrations around pipes, vents, ducts, and joints in horizontal and vertical fire separations. Adheres to wood, gypsum board, concrete, steel, copper, cast iron and other common building materials.

**Loctite PL Premium Polyurethane Construction Adhesive** - A one component, polyurethane-based, moisture-curing adhesive. Provides superior adhesion to most common construction materials and can be used for interior or exterior projects. It is also waterproof, paintable and cures even in cold temperatures. Ideal for subfloor installations.

Loctite® PL 200 Projects Construction Adhesive - Premium grade adhesive for paneling, drywall and other light construction, inside or outside. The low VOC formulation meets stringent State and Federal VOC Regulations.

**Loctite® PL 300 Low VOC Foamboard Adhesive** 

 Premium grade formulation for bonding foamboard insulation to a variety of surfaces, interior or exterior. Compatible with all other foamboard insulation products and especially designed for bonding to a variety of construction materials, including wood, gypsum board, concrete and brick. Low VOC formulation meets stringent VOC Regulations.

**Loctite® PL 400 VOC Compliant Subfloor & Deck Adhesive** - Provides a powerful, permanent bond for all heavy-duty interior or exterior construction. Cold weather formula for easier extrusion and excellent adhesion in all weather conditions. Bonds dry, wet, frozen and treated lumber to most building materials

**Loctite® Polyseamseal 100% Silicone Sealant** - 100% silicone that creates a tough, watertight, mildew resistant seal. Fast-dry system that withstands water contact 2 hours after application and can withstand temperature extremes of -65°F to 300°F making it ideal for HVAC applications. Highly resistant to ultraviolet light and other environmental elements.

**Loctite® Painter's Caulk** - 100% acrylic-based caulk designed for interior applications. Seals out air, moisture, dirt and dust and accepts minimal joint movement. Can be painted over with oil or acrylic paints within 1 hour. Soap and water clean-up.

**Loctite® Polyseamseal All Purpose Adhesive Caulk** - Formulated for sealing most indoor projects in and around the house. Provides increased durability for a long lasting, flexible seal and is easy to apply and tool. The cured product is weather-resistant, mold and mildew resistant and paintable in 40 minutes.

**Loctite® Polyseamseal Acrylic Caulk with Silicone** - High quality acrylic caulk with added silicone to give extra durability and adhesion. The fast set formulation is paintable within 30 minutes and provides a flexible seal that locks out air, moisture, dirt, dust and insects.

>> Click here to view and download OSI product information

>> Need Geocel or OSI sealing products? Find an authorized BPI Dealer near you.



# **Preparing for Winter: BPI's Winterizing Checklist**

Once you crank up your home's heating system and start a fire in the fireplace, you're going to want to keep that warm air inside and frigid air out. To do this, make sure your home is properly insulated, your roof and HVAC system are in good condition, and any gaps or cracks in your home are sealed.

Here are winter-preparedness tips for homeowners and property managers from BPI, the Midwest's largest family-owned supplier of superior building materials.

# **How Homeowners and Property Managers Can Get Ready for Winter Weather**

Before temperatures begin to drop, review the following tips to ensure your home is equipped to withstand the winter season.

#### **Attics and Insulation**

According to estimates from the Environmental Protection Agency (EPA), homeowners who install insulation in their attics can save an average of 15% on heating and cooling costs and 11% on total energy costs.

Saving money is just one reason to insulate your attic, as failing to do so can leave your attic vulnerable to ice dams. Ice dams occur when heat from the attic melts the snow on the roof. Once the melted ice refreezes, it can push apart and damage the roof, leading to leaks inside the property.

To avoid ice dams and exorbitant energy bills, outfit your attic with pre-cut sheets of fiberglass insulation from CertainTeed.

#### **Roof Inspection**

While adding insulation to your attic can help protect your roof from melting and refreezing ice, another way to prepare your roofing system for the winter is to hire a professional contractor to inspect your roof. A professional will know what types of damage to look for to ensure you're protected from leaks.

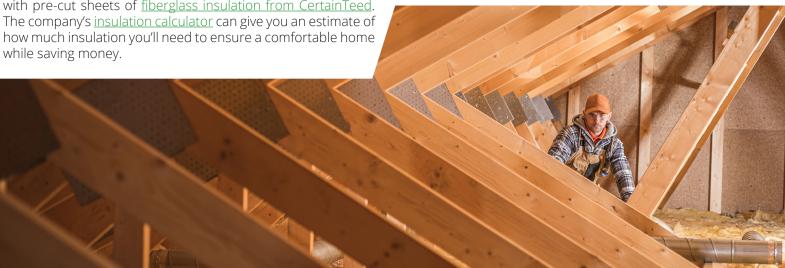
If the contractor spots vulnerable areas in your roofing, a product like the <a href="StormGuard">StormGuard</a>® self-sealing leak barrier can be used to prevent leaks caused by wind-driven rain, ice dams and backed-up gutters. As another safeguard against leaks, be sure to clean out accumulated debris from gutters and downspouts.

### Weatherstripping and Caulking

In addition to water leakage, you'll also want to take the necessary precautions to prevent air leakage during the winter months. To do so, you should:

- Fill holes and cracks in your home's structure with an acrylic-latex caulk or expanding foam sealant
- Replace worn sealing around exterior doors with a weather-sealing solution from Quanex
- Seal up drafty outlets with foam-rubber outlet gaskets
- Make sure fireplaces are sealed with airtight tempered
- Consult a contractor who can assess the seals around your chimney

While caulking your windows and other gaps in your home's structure can be effective at keeping the cold out, installing storm doors and windows — or replacing any that are leaking air — is the best way to fight the winter cold.



# BPI

### TRUSTED TEAM - TRUSTED NAME - TRUSTED RESULTS

### **Pipe Insulation**

Pipes are another component of your home that need insulation in the cooler months. To protect your pipes:

- Insulate them with foam-rubber sleeves or insulated wraps
- Install a smart water monitor to look for unusual spikes in water usage, as this may indicate a leak
- Turn off the water flowing to outside faucets

Winterizing your home's pipes will help prevent them from freezing and bursting, reducing your risk of costly water damage.

#### **Decking**

Before the change of seasons, power wash your deck and add sealant if needed. If you have the means, replace worn-out decking with <u>BPI's composite decking products</u>. Composite decking is durable enough to withstand intense weather conditions, while still being quick and easy to install. It can also resist mold, mildew and moisture damage.

#### **HVAC**

Up to this point, we've primarily focused on keeping the cold air out of your home. To help ensure cozy, warm air stays in your home:

- Have your furnace checked in the fall to ensure it's working optimally
- Make sure to change your furnace air filters consistently throughout the year

- Install a programmable thermostat to automatically start heating your home as you leave work for the day
- Set your fan blades to spin in a clockwise direction so the rising warm air can circulate throughout the rest of the home

# **Keep Yourself and Your Home Safe This Winter**

As you protect your home from the rainy, winter season, be sure to also take steps to protect yourself and your loved ones.

Make sure your smoke detector batteries are charged and install carbon-monoxide detectors. Also, consider having your fireplace cleaned by a professional. <u>Professional chimney sweeping</u> rids your fireplace of excess soot and debris, which can be a fire hazard. It can also uncover any issues you may have with your chimney cap so you can address them promptly.

To prepare for winter storms, think about investing in a <u>portable or home generator</u>. You can also follow our winter storm supply checklist to maintain comfort and safety throughout storm season.

>> Read how to winterize your home and download BPI's Winter Storm Supply Checklist



# **About BPI**

With over 50 years of experience in the building supply industry, Building Products, Inc. is the top supplier of building supplies to dealers throughout the Midwest. Our locations in Iowa, North Dakota, South Dakota and Wisconsin mean that dealers can count on us to supply lumber while minimizing costs and boosting profits.

We're passionate about serving our customers with excellence and integrity through teamwork and accountability.

<u>Contact us today</u> to learn more about how we can partner with you.