



EXPAND

Your Business

Expand Your Business With Spray Foam Insulation



With rising energy costs and the growing demand to make new buildings more energy-efficient, many contractors are thinking about adding foam insulation to their product offering. This guide provides you with the information you will need to make the right choices for your business.

Why should I add foam insulation to my service offering?



Continued growth is projected

- The spray polyurethane foam (SPF) market has grown 30 to 40 percent every year since 2002 (according to the Spray Polyurethane Foam Alliance)
- The U.S. Department of Energy's Builders Challenge calls for the U.S. homebuilding industry to build 220,000 high-performance, energy-efficient homes by 2012
- An NAHB (National Association of Home Builders) study reports that 51 percent of consumers are willing to pay up to \$11,000 more for energy efficiency if energy costs are reduced by \$1,000 annually
- Spray foam insulation will be in 40 percent of new homes by 2010 – this growth will be driven by increased energy costs and a more educated consumer base (University of Ohio study)
- Residential insulation spray foam is expected to grow at a rate of 30 to 40 percent annually as consumers embrace the insulation value and resulting energy savings (Center for the Polyurethanes Industry market survey)

Growing demand

Energy costs aren't going down any time soon. As heating and cooling costs continue to climb, consumers are realizing that foam insulation is a smart way to save money on energy bills.

Faster installation and less labor

Whether it's wall cavities, basement or block walls, or roofing applications, spray foam insulation fits in any contour and adheres to a variety of substrates. With its fast, one-step installation, contractors can speed production and save labor costs as well.



Consumers like foam insulation

Energy savings is just one reason why consumers like spray foam insulation. SPF offers many other advantages as well:

- It blocks out noise from outdoor environments
- No dust, pollen, allergens, pollutants or mold spores can get inside the home
- Prevents bugs and mice from entering
- Applying SPF closed-cell wall foam reinforces stud walls and increases racking strength three to four times according to NAHB tests conducted May 25, 1992 and Nov. 18, 1996.

Facts about SPF

What is Spray Polyurethane Foam?

SPF is a spray-applied insulating foam plastic that is formed by spraying two components – isocyanate and a resin – to form a rigid, fully adhered, insulating material. Typical spray foam insulation applications use a ratio of 1:1 – one part isocyanate (ISO) and one part resin (polyol).

What's the difference between open-cell and closed-cell foams?

Open-cell foam:

- Soft and spongy with a light open texture
- The cells of foam are broken and air fills the "open" spaces, making the foam softer than closed-cell foam
- Density is 1/2 to 3/4 of a pound per cubic foot (pcf)
- Excellent sound absorption qualities

Closed-cell foam:

- Hard and rigid with a dense texture
- The cells of foam are closed and compact, making the foam harder than open-cell foam
- Density is two to three pounds pcf
- Offers added strength to the structure
- Higher R value
- Moisture-resistant

SPF offers the highest R-value per inch*

Insulation Material	Nominal R-value per inch
Spray Polyurethane Foam (2 pcf)	6.0
Spray Polyurethane Foam (1/2 pcf)	3.5
Glass Fiber	3.2
Expanded Polystyrene	4.0
Extruded Polystyrene	5.0
Cellulose	3.7

*Source: Spray Polyurethane Foam Alliance

Equipment You Will Need to Get Started

Here is a list of equipment you will need to start spraying foam – plus some information that will help you select the right equipment for your business



Proportioners

At the heart of your foam insulation business is the proportioner. This machine heats and pressurizes isocyanate (often called “A” material) and resin (“B”) materials at recommended material manufacturer

ratios to create a chemical reaction, creating foam. Proportioners come in a variety of pump styles and outputs depending on volumes required for specific applications.

What's the difference between air-driven, electric and hydraulic proportioners?

Air-driven

- Entry level
- Utilize air-driven pumps to create pressure and flow to spray polyurethane materials
- Typically used in in-plant and low-output applications

Electric

- The most popular proportioning systems for residential and commercial foam insulation
- Utilize electric-driven pumps to create pressure and flow to spray polyurethane materials
- High value for great performance
- For mid- to high-output applications

Hydraulic

- Top of the line system for high-production professionals
- Utilize electric motors to power a hydraulic pump to create pressure and flow to spray polyurethane materials
- Highest value for the greatest performance
- Provides superior, uninterrupted performance
- Used by contractors who value industry leading accuracy and control from their spray equipment
- For high-output applications

Applicators/spray guns

The applicator (also called a spray gun) is used to apply the foam onto the wall or into the wall cavity. The applicator is important, because this is where the isocyanate and resin materials meet and react. Proper mixing is critical to ensure that the material

properties are established and maintained over the life of the building. When choosing an applicator, it is important to choose a spray gun that is easy to maintain, easy to spray and applies material according to manufacturer's recommendations.



What's the difference between an air purge gun and a mechanical purge gun?

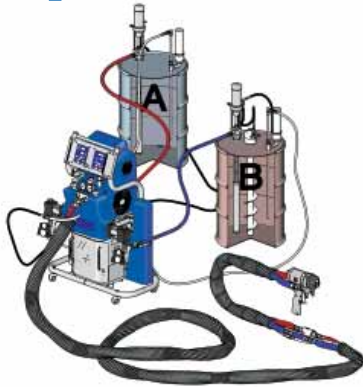
Air purge guns

- The most commonly used guns in the residential foam market
- Use a blast of compressed air to keep the mixing chamber clean. (The mixing chamber is the area where the ISO and resin materials meet and mix. The mixing chamber needs to stay as clean as possible to maintain good material properties and a consistent spray pattern.)
- Contain fewer parts than mechanical purge guns
- Easier to spray and maintain than mechanical purge guns

Mechanical purge guns

- Use a steel rod to physically push any residual polyurethane material out of the mix chamber to keep it clean
- Contain more parts than air purge guns
- Require more maintenance than air purge guns
- Offers widest range of flow rates

Equipment Needs *continued*



Feed Systems

How do the A and B materials get from the barrels to my equipment?

The incoming feed system supplies the ISO and resin components from bulk containers to your proportioner. Once the materials are heated and

pressurized, the outgoing feed system delivers properly proportioned materials to your spray gun applicator through heated hoses.

Incoming feed system

Typical spray foam applications use stick or diaphragm pumps to supply bulk materials to the proportioner. The type and size of supply pump depends on the type of material you are spraying. Material manufacturers will recommend a type of pump needed to supply their material.

Outgoing feed system

Heated hoses are used during the spray foam process to maintain material temperatures between the proportioner and the spray gun applicator. Heated hose lengths can be up to 400 feet (122 meters) long, therefore, it is necessary to keep the material heated as it travels through the hose temperatures out to the spray gun. Maintaining temperatures helps to ensure proper mix and ratios at the point of application.

Power

Power requirements for your equipment

The spray foam equipment needed for your specific application will dictate your power needs. Electrical power is required to run motors that drive pumps and support the auxiliary equipment needed to spray foam insulation.

No matter what your power requirements are, it is very important to make sure that consistent power is supplied to your equipment. Power fluctuations or an under supply of electricity increases wear and could damage spray equipment in the long run.



Pole power

Pole power is power that is supplied through existing electrical panels located at the job site. Pole power is an adequate method to supply power to your mobile spray rig, but requires the presence of a professional electrician to make sure wiring is done correctly and safely, and to ensure there is an adequate supply of power to support your equipment.

Generator

Power from generators is a consistent and proven way to provide power to your spray foam equipment. Diesel generators are commonly used to supply the needed electrical power to equipment and are widely used in the industry today. When specifying generator size, it is important to make sure you consider the overall power requirements of your rig.

Power take-off

Power take off (PTO) generators utilize the truck engine to supply power to your spray equipment. When specifying PTO generator size, it is important to consider the overall power requirements of your rig and to make sure the PTO system does not void any engine warranties offered through the vehicle's manufacturer.



Air supply

You will also need a supply of air for the following:

- Material pumps may be air-driven
- Material supply pumps use air motors to move materials from bulk containers into proportioners

- Applicators (spray guns) use a blast of air to keep the mixing chamber free of formed material
- Supplied breathing air systems are also used to maintain a safe working environment for the contractor

Air compressors

Several types of air compressors are available: reciprocating air compressors, which produce compressed air utilizing a piston driven cylinder, and screw compressors, which produce compressed air using two intertwined cylinders.

Both types of compressors work well within the spray foam industry. When specifying a source of compressed air, you need to consider requirements for air flow (CFM) and pressure (PSI). It is important to choose a compressor that will provide sufficient airflow at the required pressure for your mobile spray rig.

Equipment Needs *continued*



Spray Rigs

In order to successfully install foam insulation, you need to control the ambient air temperature surrounding the ISO and resin materials.

A spray rig is essentially a mobile plant that helps control temperatures surrounding the A and B materials. So in cold weather, it's easier to get materials up to spray temperatures. In warm weather, air conditioning helps prevent material

overheating and expanding drums, and keeps humidity at acceptable levels. In short, by storing materials at temperatures closer to material manufacturers' recommendations, you have better control of the reaction between A and B materials, which leads to better material yields.

The two most common mobile spray rig configurations are trailers and box trucks.

Spray rig – trailer or box truck?

Trailers

Trailers are usually chosen by contractors who have an existing truck capable of towing a trailer or by contractors who have the flexibility to leave their trailer at job sites. Trailers are used by contractors who operate in remote locations or in residential / commercial locations that are more wide open. Standard configurations include 16-foot entry level, 20-foot tag along and 28-foot gooseneck trailers.

The 16-foot trailer:

- Reduces capital cost required to enter the spray foam market
- Supports lower output equipment, gas-operated generators and compressors

The 20-foot tag along trailer:

- Is configured with higher output equipment, diesel generators and compressors
- Provides more capacity to carry more material to the job site than entry-level trailers
- Holds two sets of A and B material (four barrels)

The 28-foot gooseneck trailer:

- Is configured with higher output equipment, diesel generators and compressors
- Provides more capacity to carry more material to the job site than entry-level trailers
- Holds three sets of A and B material (six barrels)
- Easier to maneuver

Spray rig box trucks

Contractors who operate in urban areas and tend to return to a fixed shop location usually choose box trucks because they are more compact and do not require a separate vehicle to tow spray foam equipment to the job site. Common sizes are 20- and 24-foot box trucks. Both of these sizes are capable of supporting all types of spray foam equipment and the equipment needed to run them.



Workbenches

It's a good idea to have an adequate work surface for daily equipment maintenance and other job preparations.

Other spray rig components

Air conditioning and ceramic heaters

Roof top AC units are used in warm weather climates to control the internal temperature of the rig. This helps maintain optimal ambient conditions as recommended by polyurethane

material manufacturers. Likewise, space heaters are used to provide heat in cold weather climates to maintain ambient conditions.

Hose hangers

Hose hangers provide convenient storage when hose is not being used.

Frequently Asked Questions

What is the initial investment?

On average, a typical spray rig – completely outfitted with equipment – costs from \$70,000 to \$100,000.

What does it take to make a return on my investment?

To generate a satisfactory return on your investment, the general rule of thumb is to spray three houses per week or use one set of chemical per day, five days a week.

Are there finance options available?

Graco's network of distributors will work with you to set up a financing package.

What about staff training on proper use of the equipment?

You and your staff can receive factory-authorized equipment training through Graco's extensive distributor network. The SPFA also offers courses for contractors. Visit www.sprayfoam.org for details.

Get started today

We hope this brochure has answered many of your questions as you explore the opportunities of the spray foam insulation market. If you have more questions,

or if you're ready to add spray foam insulation to your business, please contact Graco's Tony Gargano at 612-623-6087 or email agargano@graco.com.



Your Possibilities



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