

Guide to Selecting Wall Insulation Systems



Blow-in-
DIAMETER
INSULATION
CONTRACTORS ASSOCIATION



In recent years there has been a growing interest and acceptance in the use of various blown systems to insulate sidewalls in new construction. Although the use of standard fiber glass batts still predominates, the stated advantages of the various insulation blown systems are causing builders, architects and even homeowners to ask for more information on these systems in spite of the added cost over traditional batt insulation.

The interest in these systems comes from the belief that they will provide a better job with superior thermal, acoustic and air infiltration protection. But are the claims by proponents of these systems valid? This brochure will examine each system and offer information that will allow you to properly compare them. ▲



IMPROVED PERFORMANCE.

In a perfect world or in a controlled laboratory, all insulation systems when properly installed will perform similarly, especially when compared to high-density batts. Unfortunately, houses aren't insulated in a perfect world. Many insulation installers are paid for speed, not accuracy. And, since turnover is high, experience is low.

The opposite is true with blown insulation systems. The crews tend to be better trained and more professional; they take pride in their work. And they are paid to perform better. Plus the systems themselves result in a better job with fewer, if any, voids and gaps. The bottom line is that the builder has a better chance of getting a properly insulated house and the homeowner a better chance of



getting a home that is more energy efficient, comfortable and quiet. ▲

CHOOSING A SYSTEM.

Once the decision has been made to have a better insulated home, the next decision is which system is best for you. Currently, in addition to batt applications, there are several systems in common use. Some of them are proprietary. They include the Blow-In-Blanket® System (BIBS), wet spray cellulose, UltraFit, foam, and dry blown cellulose. Since there are considerable differences among this group, let's first examine them individually. ▲

BLOW-IN-BLANKET SYSTEM.

BIBS® was developed by Ark-Seal International over 15 years ago and was the pioneer blow-in-the-wall insulation system. It also has the widest acceptance and is supported by more independent testing than any other system.

BIBS is licensed by Ark-Seal to independent contractors on a territory-exclusive basis. The contractors then purchase their machines, nozzles, adhesive and netting from Ark-Seal and undergo extensive training prior to becoming a licensed BIBS applicator. The contractors must be re-certified every two years to assure quality control.

The BIBS contractor must only use approved insulation products. Currently there are two: InsulSafe III® from CertainTeed and Climate Pro® from Johns Manville. Both are fiber glass. The use of any other insulation product, fiber glass or cellulose, is unacceptable as a BIBS application. With BIBS, the loose-fill insulation is mixed with a fine adhesive mist and



installed behind netting using a special nozzle. The moisture content is low and the product barely feels damp to the touch. Therefore, BIBS can be drywalled without a construction delay. In addition to sidewalls, BIBS can also be used in vaulted or cathedral ceilings, under floors, crawlspaces and for attic applications. No settling has been found in any BIBS application. Nor has any mold or mildew problem ever been reported.

BIBS can be installed with a two-man crew, one on the hose and one at the blowing machine in the truck. This crew must first install the netting. Some contractors use a three-man crew with the third doing the netting. And some contractors, who have been successful with BIBS, have elected to use a separate crew to net.

BIBS offers outstanding thermal performance. You can achieve up to an R-15 in 2x4 construction and up to an R-23 in 2x6. R-values vary slightly depending on the density of application. But the main reason BIBS performs so well is that it eliminates voids and gaps.

BIBS is supported by extensive independent testing. Copies of such test data are available from Ark-Seal or the Blow-In-Blanket Contractors Association (BIBCA).

BIBS contractors have formed an organization called the Blow-In-Blanket Contractors Association. This group was established to jointly market BIBS, exchange product and system enhancement ideas and to assure that this system maintains a quality level unsurpassed in the industry. BIBCA has also developed a Certified Installer Training Program.

This program certifies its members which is then followed by third-party testing to assure the highest level of professional installation in the industry.

Recently, CertainTeed introduced a new product called OPTIMA™. This is a special fiber glass insulation designed to be installed behind a special fabric in closed cavities. No adhesive is needed. OPTIMA is approved for use in BIBS. ▲

WET SPRAY CELLULOSE.

This is the leading cellulose system and no one company controls this system. There are no clear industry standards for application.

With wet spray cellulose, the insulation and water, and occasionally adhesive, are mixed at the moment of application. One company supplies a product with dry adhesive included with the cellulose. The mixture is sprayed in the wall cavities and the excess material scraped off. This excess is then swept-up and can be reused in attic open-blow applications or re-used in sidewalls.

The primary performance concern about wet spray cellulose is its high water content. Up to 50% water content is common during application which leads to three potential problems. First, the drywalling must wait until the insulation mixture has sufficiently dried. This may take two weeks or longer in damp weather. Again, industry guidelines are lacking. To facilitate drying, some cellulose suppliers recommend that the interior vapor retarder be omitted, even though this is in violation of most national, state and local codes. Their reasoning is that you can then





drywall without delay or concern over moisture problems. The long-term risk of this practice is open to debate.

Moisture problems are not uncommon in wet spray cellulose applications. These range from corrosion (caused by water reacting to certain fire-retardant chemicals), mold and mildew. These latter two have been known to lead to health problems for the occupants, particularly respiratory and allergy problems.

Another concern is whether the fire-retardant chemicals will lose their effectiveness once the wet spray cellulose dries out. Some testing has shown that this leaching could cause a fire risk. Again, no test data is available on this system and moisture's effect on fire retardancy.

Wet spray cellulose equipment and the product itself is usually less expensive than with BIBS. Usually, a three-man crew is used with the third man doing the cleanup work.▲



ULTRAFIT.

This system was recently developed and is marketed by Guardian Fiberglass, a manufacturer of fiber glass insulation products. It differs from BIBS in several ways.

First, the adhesive is included in dry form mixed with the fiber glass. It is activated with a fine spray of water during application. Here, like BIBS, less water is used than with wet spray cellulose.

UltraFit is, in fact, a spray system as netting is not used. The insulation adheres to the wall cavities in layers until the cavities are over-filled. Then this excess material, about 20%, is shaved off using a power scrubber. The scrap is then vacuumed up and



returned to the machine hopper where it is recycled.

This latter point causes some concern as it raises the issue of quality control. Little is known about controlling moisture if the scrap is continuously added to the virgin mixture. Also, does this have any impact on performance.

Finally, the density of the installation and, therefore the R-value, is controlled by the distance from the nozzle to the wall cavity. This could lead to inconsistency and lack of quality control.

No testing has been made public on UltraFit but recent field observations show consistent failure of this system resulting in gaps at the tops of some cavities. Stories about the product falling out of the cavities prior to drywalling have been reported. This problem can't occur with BIBS as the netting ensures that the insulation will stay in place. ▲

FOAM.

Foam insulation systems are not new. Several were introduced nearly 20 years ago to take advantage of the strong reinsulation market generated by the energy crisis. But product problems such as shrinkage and odor caused most manufacturers to withdraw from the market. Recently, a new system, Icynene, has been gaining a lot of publicity. It is a polyisocyanate that, when sprayed into a cavity, expands in seconds to 100 times its liquid volume and cures in 20 seconds. The excess material must then be sawed away and removed from the jobsite.

The system requires an installer to wear coveralls and a full-protective mask with fresh, outside air. Little



testing has been done on this system to validate performance claims. It is not, however, a vapor retarder itself so a separate vapor retarder is required. All this adds to the premium cost of this system. Also, it is not clear what must be done with the foam product removed with the jobsite as local dumps may not accept this material.

Shrinkage and product degradation from UV light raise questions that also need to be addressed. Also, claims about elimination of air infiltration would lead one to believe that sealing and caulking are not needed which, of course, is not the case. ▲

DRY BLOWN CELLULOSE.

There is one dry-blown cellulose system on the market, ParPac. Little has been heard recently about this system due to reports about severe settling problems with some initial installations. When installed at a 3.0 pound density, apparently settling does not occur. However, this density has caused drywall problems, such as popping, even when screws were used. Also, dry cellulose is far dustier than other systems.

And, again, quality control is questioned. ▲

CONCLUSION.

When it comes to reliability, manufacturer support, quality control and years of experience, it's easy to see why BIBS is called the premier insulating system. Use the information in this brochure to make your own decision. The choice is yours! ▲

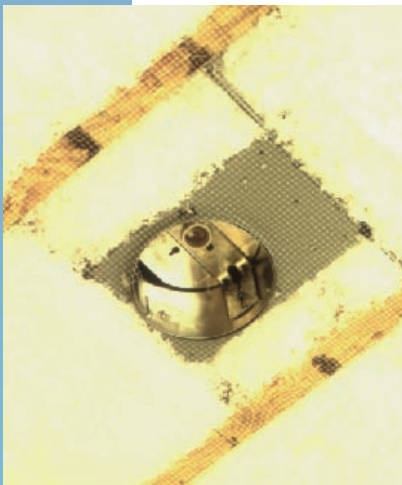
USING A PROFESSIONAL.

No matter what insulation product or system you select, it is important to remember that the performance of the insulation is directly affected by the installation. The best product will not perform as specified if not properly installed. That's why you should always use a trained professional insulation contractor. A company whose sole business is insulation. Whose employees have the skills and ability to do the job right. This is not a profession for part-timers. ▲

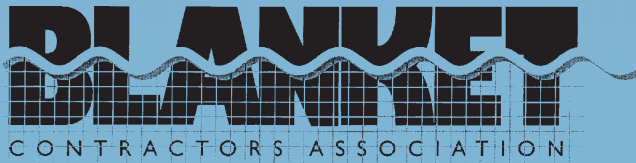
BIBCA

The Blow-In-Blanket Contractors Association was established in 1989 by a group of insulation contractors committed to quality and BIBS. It is a forum to exchange ideas and develop the materials and training necessary to make BIBS the preferred insulation system.

A Code of Ethics for members of BIBCA has been adopted to promote and maintain the highest standards of service in the insulation industry and conduct among its members. Adherence to these standards is required for membership in the Association and serves to assure public confidence in the integrity and service of the Blow-In-Blanket Contractors Association and the building industry. Copies of the Code of Ethics may be obtained by contacting your nearest BIBS Certified Installer, BIBCA or Ark-Seal International (800-525-8992). ▲



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- Blow-In-Blanket® System (BIBS) is a registered trademark of Ark-Seal International, Inc.
- Optima™ is a trademark of CertainTeed Corporation
- InsulSafe III® is a registered trademark of CertainTeed Corporation
- UltraFit™ is a trademark of Guardian Fiberglass
- Climate Pro® is a registered trademark of Johns Manville