

Siplast Roofs **An Investment for the Future**

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WHO SAYS YOU CAN'T AFFORD A SIPLAST ROOF?

Some building owners and specifiers who know about Siplast and would like to have a Siplast roof are under the impression that they can't afford one. They've heard that a Siplast roof can cost more than some of the alternative roof systems on an installed cost basis. They're not sure it's worth it. Actually, in many cases, Siplast roofs are quite competitive and, in some instances, even less expensive than alternative systems.

Unfortunately, many building owners find it difficult to determine the value of a roof system when faced with having to choose between different systems or manufacturers. They tend to think that all roof systems and manufacturers are basically the same. So they wind up making a decision about one of the most important components of their building based upon whichever system is cheapest to install. They fail to consider that first costs are not necessarily final costs. They tend to overlook many considerations that can ultimately affect the performance and life expectancy of their new roof and, therefore, the value of their roofing investment.

Chances are, your roof protects some pretty valuable and important assets. Whether your roof is protecting critical manufacturing operations, sensitive computer or electronic equipment, a hospital full of patients, a classroom full of students, or an inventory of products, your choice of roof system carries major implications for both the short and long term. You'll want to get the most for every dollar you spend. It's a big investment.

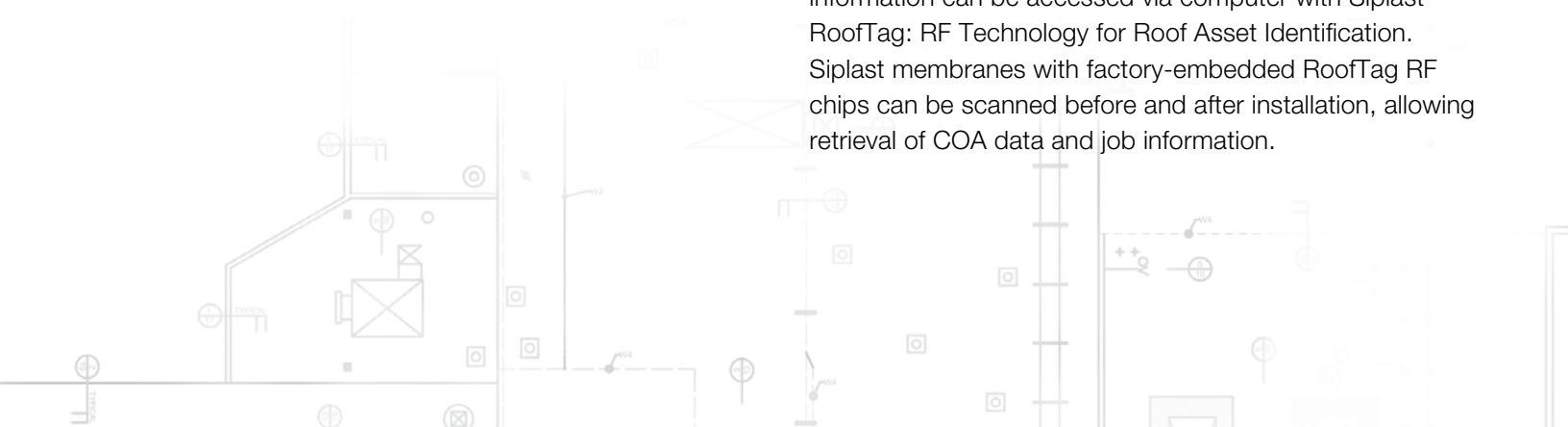
WHAT IS THE ANTICIPATED TERM OF MY INVESTMENT?

As with any investment, the ultimate value of your roof will be determined in the large part by the investment term. In this case, the term is the realistic anticipated life of the new roof system. The best way to determine how long a roof system is likely to last is to consider the documented

performance of the system in similar applications and environments to your own. Too often, roofing guarantees and warranties are considered by owners to be a reliable indication of the lifespan they can reasonably anticipate from a roof system. Nothing could be more misleading. Guarantees and warranties do not ensure performance, they offer assurance of repair under very specific and limited conditions. A warranty can't begin to solve all the problems created by a bad roof.

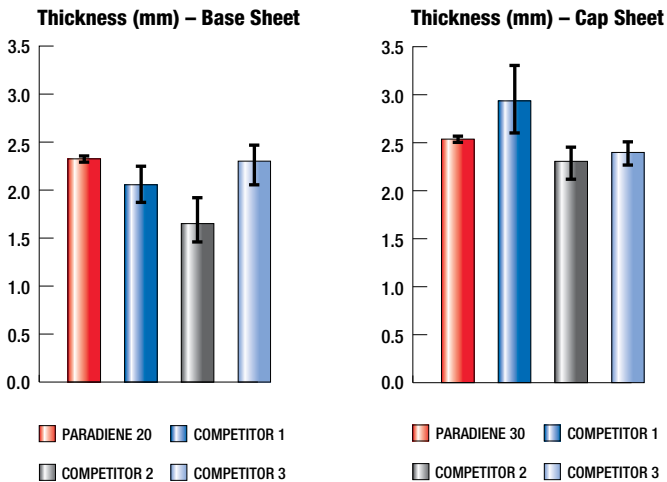
Siplast stands alone when it comes to SBS-modified bitumen roof system performance. The Siplast story of uncompromising quality and commitment to our customers begins over half a century ago with an innovation that would change the commercial roofing and waterproofing industry. In the late 1960s, Siplast Research and Development, working in conjunction with Shell Chemical of Europe, developed SBS (styrene-butadiene-styrene) modified bitumens. We found that by properly modifying asphalt with SBS, we could produce a highly durable elastomeric blend with exceptional elongation/recovery properties over a wide range of temperatures. In the years since, our history of performance success has allowed Siplast to complete various tests on the aging characteristics of both its own and competitive SBS-modified bitumen systems. These test results clearly indicate that Siplast roof systems can reasonably be expected to outperform competitive "look-alike" systems by several years.

The remarkably consistent quality of Siplast's products provides an extra measure of comfort to Siplast's owner customers. Siplast is the only roofing manufacturer in the United States that can generate a Certificate of Analysis (COA) for all roll roofing material shipped from its manufacturing facility to the jobsite. The COA provides information on the physical and mechanical performance properties of each Siplast production run, as well as the specific production standards for each property tested. The COA is the building owner's assurance that every roll of Siplast material shipped to the job meets or exceeds Siplast's high standards. Additionally, Certificate of Analysis information can be accessed via computer with Siplast RoofTag: RF Technology for Roof Asset Identification. Siplast membranes with factory-embedded RoofTag RF chips can be scanned before and after installation, allowing retrieval of COA data and job information.



The following graphs compare Siplast Paradiene 20 and Paradiene 30 FR with three competitors' products marketed as "or equals" to Siplast. All are fiberglass reinforced, SBS-modified bitumen sheets. Tests were performed before and after heat conditioning according to ASTM D 5147; three months at 158°F (70°C). A minimum of seven samples were tested over a period of seven years. The color bars represent the average value, and the light black line found in the center of each bar represents plus-or-minus one statistical standard deviation. The shorter the standard deviation line, the more consistent the product's properties from year to year. If no line appears in the bar graph, the standard deviation is zero.

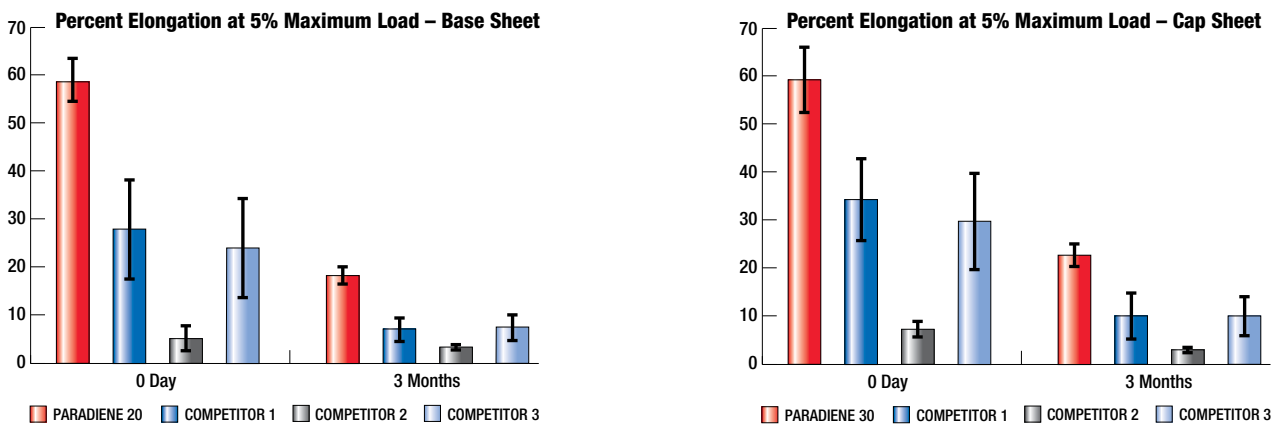
THICKNESS – ASTM D 5147



In general, if blend quality is good, performance properties of SBS-modified bitumen membranes are related to the thickness of the blend in the product. While total thickness is important, it is the thickness of the blend, not the thickness of the reinforcing mat or surfacing, that counts. Further, no thickness will make up for a poor quality blend.

As shown here, the thickness of the cap sheets is measured at the selvage. Granules play no role in the waterproofing capability of the modified bitumen. The inclusion of granule or slate surfacing would add 15-40 mils to the product's thickness.

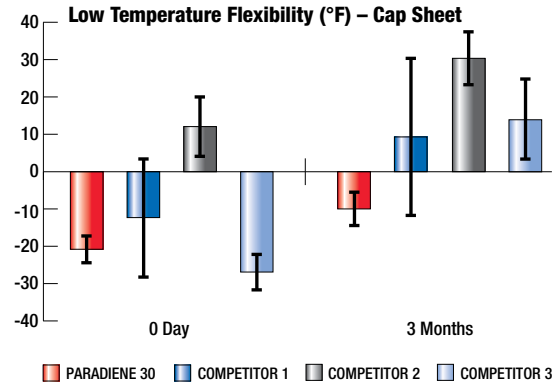
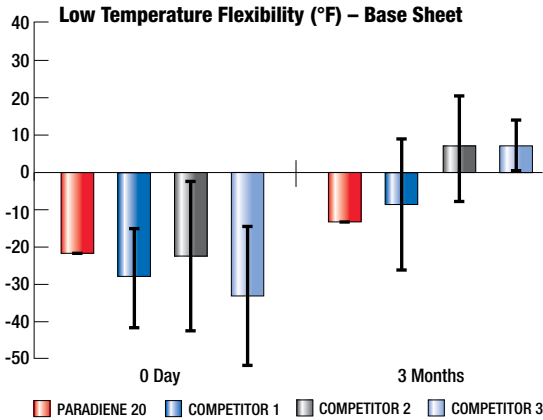
ULTIMATE ELONGATION – ASTM D 5147



Ultimate elongation is a definitive measure of the elongation of the SBS blend, not the elongation of the glass reinforcement. As the graphs show, some materials have elongation values no better than those of the reinforcing material. Ultimate elongation is directly related to the integrity of the SBS-modified bitumen.

As such, ultimate elongation is the clearest mechanical measure of aging and performance of the elastomeric asphalt/polymer modified blend.

LOW TEMPERATURE FLEXIBILITY – ASTM D 5147



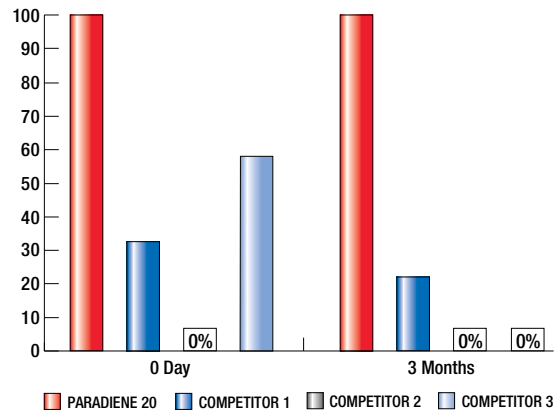
This test is a good indication of flexibility, but results must be compared carefully. They depend not only on blend quality (including filler percentage), but also on type of polymer, mat thickness, placement of the mat within the sheet, and specimen thickness. Some polymers perform well when new, but degrade

very quickly. Two sheets of different thicknesses, manufactured with the same blend, will not pass at the same temperature. The thicker sheet will fail first because the stress applied when bending around the test mandrel will be greater.

CYCLIC JOINT DISPLACEMENT (FATIGUE) – ASTM D 5849 (Percent Passing)

The cyclic fatigue test is performed by securing the assembled membrane to wooden supports with epoxy resin. The supports come together, simulating a crack or joint in insulation panels. New samples are subjected to 500 cycles of elongating and compressing the membrane at 14°F (-10°C). Aged samples are subjected to 200 cycles.

This simulation of a working joint under cold conditions shows that membranes with good cold blend flexibility, high tensile strength, or heavy weight do not necessarily work under simulated roof conditions.



WHAT COSTS SHOULD I CONSIDER THAT I MIGHT TEND TO OVERLOOK?

Up-front costs are easily identified and quantified. Typically, they include material and installation costs for insulation, roof membrane, and accessory items. If replacing or re-covering an existing roof, there are the added costs of removal or preparation of the old roof. Guarantee or warranty fees are also easily determined.

WHAT ABOUT ROUTINE MAINTENANCE COSTS?

Another cost that can be difficult to quantify accurately is maintenance cost. All roofs require maintenance on an ongoing

basis and the type of roof you select can substantially affect how much you will have to spend on maintenance. For example, mechanical damage resulting from routine traffic and maintenance of rooftop mounted equipment can be extremely difficult to locate and repair on a roof that is covered with gravel, rock, or other aggregate. Locating pinhole-sized leaks in the seams of a single-ply roof can be equally frustrating and time consuming.

Siplast roof systems are available with factory-applied surfacings that make routine maintenance just that... routine. Damage to the membrane is easily identified and temporary repairs can be made by your own maintenance staff with materials that are readily available. Siplast's multi-ply systems offer the additional leak protection

inherent with multiple layer application. Siplast also takes time to educate your maintenance staff on the proper procedures for making temporary roof repairs and arranging for permanent repairs to be made, in the event that repairs are necessary. Taking these facts into consideration, you can reasonably expect lower routine maintenance costs from a Siplast roof.

WHAT ABOUT LOST OPPORTUNITY COSTS?

Lost opportunity costs are the costs of lost revenue and/or profit. If you are unable to conduct your business in a normal manner or, in the case of a new building, if you are unable to make productive use of your facility because your building is not watertight, you incur lost opportunity costs.

Siplast roof systems are designed to minimize or eliminate lost opportunity costs. By “phasing” the application of Siplast membrane materials, your building can be “in the dry” faster than is possible with most competing systems, allowing you to make the most of your productive capacity. Major property owners will attest to the savings they have realized by taking advantage of this important Siplast capability.

AND INCONVENIENCE COSTS?

When you have to take time to deal with unanticipated problems related to your roof, you incur inconvenience costs. Even if your roofing contractor and manufacturer are still in business, these costs can be considerable. Of course, you will have to spend some time resolving the issue of whether your problem is covered by the terms of the warranty. And the problem will still have to be fixed. What will your customers think? Will they take their business elsewhere? How will your students be affected? Will class schedules be disrupted? Then there's the matter of the time required to deal with your insurance company about any damages that may have resulted from leaks. There really is no limit to how much inconvenience costs can impact total costs when you have to deal with roof problems.

With Siplast, inconvenience can be minimized. In the unlikely event that you have a problem with a Siplast roof, you can be confident that Siplast will address it. And because Siplast sells its products only to well-established, financially sound, and well-trained contractors (representing about 2% of the nation's

total number of commercial and industrial roofing contractors), you can be sure that your contractor is a professional, and not a fly-by-night operator.

When you select a Siplast roof, your chances of incurring significant inconvenience costs are further reduced because of the personal attention that Siplast gives to every order it receives. The Siplast Technical Department, which is separate from the sales organization, reviews the design and specifications for each project before an order is accepted and material shipped. This extra step helps ensure that the right products and details are used, enhancing the prospects of obtaining a successfully performing roof. Many other roofing manufacturers sell their products through open distribution and have little control over the final application of their products. The Siplast Field Technical organization is available for periodic inspections during installation to help ensure that every Siplast roof is applied according to specifications.

Siplast does all the extra things it takes to be more than just another supplier of roofing materials. Siplast works to minimize the likelihood of your having to deal with the costs of inconvenience.

ARE THERE OTHER CONSIDERATIONS?

Most owners expect a lot from a roof. They trust that their roof system will serve them well over many years in spite of such destructive forces as normal building movement, maintenance traffic, environmental contaminants, extreme temperature changes, wind, hail, rain, snow, and the continuous attack of ultraviolet rays from the sun.

All things considered, it's easy to understand how a roof simply breaks down over a period of years. But that process can be delayed under the right circumstances.

Siplast has designed its products and construction detail requirements to obtain the maximum effective performance life out of its roofs. By requiring the use of conservative design details and additional reinforcing plies, Siplast has made sure that those areas of the roof that are subject to the most stress are, in fact, the strongest parts of the roof system. Compare the detail requirements of a Siplast roof with those of other roofing manufacturers and you'll see why Siplast roofs may cost a little more up-front, but wind up performing better over the long haul.


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WHAT IS THE BOTTOM LINE?

As is the case with any investment decision, it's the bottom line that counts. It doesn't matter how much you save up front if, in the final analysis, it costs you more to operate and maintain your investment over its useful life. The small premium you may pay for a longer-lasting Siplast roof can wind up saving you a bundle.

Before you make the decision to go with an option that may be slightly less expensive up front, consider the value of everything you get with Siplast:

- The expertise of the acknowledged technological and manufacturing leader in the SBS-modified bitumen industry.
- The performance history of the company with more experience with SBS-modified bitumen roofing than anyone else.
- A range of specialized products engineered for use in critical areas where most roof failures occur, such as flashings and roof penetrations.
- The thorough review of specifications and details for your job before shipment, to be sure that the correct materials and details are used.
- A trained, evaluated, and limited network of contractors to apply your roof, to help ensure that you get the best roof possible.

- A thorough inspection of your roofing project upon completion to help ensure that all guarantee requirements have been met.
- Prompt and professional customer service and technical assistance before, during, and after the sale.
- A written guarantee covering full replacement costs for material and labor to repair the roofing membrane.

When it's all said and done, that slight premium you may pay for a Siplast roof is a small price for everything that you'll be getting. How many extra months of service does it take to justify a small premium? And how do you put a price on peace of mind?

Who says you can't afford to specify a Siplast roof?

You can't afford not to!



www.siplast.com

For information on Siplast Roofing and Waterproofing Systems, scan our QR code.