



plymouth foam

Protect Your Investment



SAV+R
FOUNDATION INSULATION

Starts With Protecting Your Foundation

A Better Way With SAV+R™

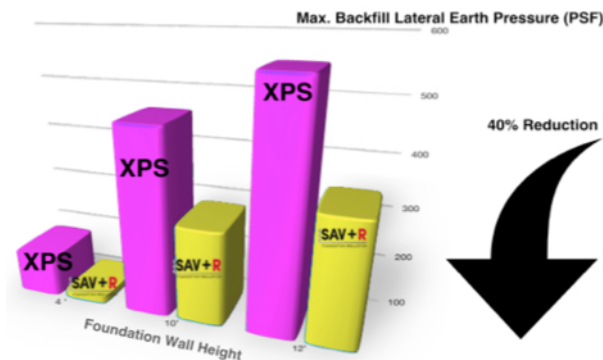


Foundation issues have long plagued the construction industry. Foundation cracks from heaving and stress loads have increased even more with additional R-value requirements. The consequences of foundation issues cost building and home owners billions of dollars every year. Owners can experience bulging foundation walls, moisture leaking, structural issues, mold, strange odors, cracks in drywall, window and doors not opening/closing

properly and even pest invasions. Through years of study and research, Plymouth Foam has developed a new product that can help reduce foundation issues before they start - SAV+R™.

SAV+R™ Foundation Protection

SAV+R™ has been designed and engineered to help foundations have less issues and last longer. This innovative product has the ability through the integrated Stress Reducers to reduce lateral load by as much as 40%. Heavy lateral loads pushing on the foundation walls is the biggest reason foundations fail.



Through lab and field research, it was discovered that today's most common construction was actually increasing foundation issues. This common construction assembly is XPS (extruded polystyrene) 250 material being installed to the foundation walls. XPS 250 adds R-value to the wall but when lateral movement occurred, the product is too stiff and the loads are transferred right to the wall.

SAV+R™ Foundation actually absorbs the movement instead of transferring it.



Figure A SAV+R installed on a foundation wall

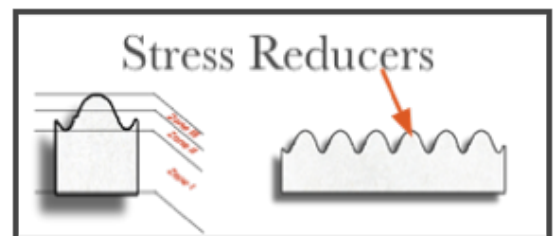


Figure B illustrates the integrated SAV+R

- Zone of Stain I - Elastic
- Zone of Stain II - Compressive Creep
- Zone of Stain III - Strain Hardening

A Better Way With SAV+R™

SAV+R Foundation with RID Technology by Plymouth Foam is one of most innovative construction products on the market today. Not only does it help protect your foundation it provides stable R-value to the structure reducing utility costs. How does it work? - RID Technology.

RID Technology™

Reduce

Reduce Lateral Pressures by up to 40% using SAV+R Foundation. When lateral pressure pushes on the SAV+R foundation board, the integrated Stress Reducers can “absorb” this pressure and help save your foundation from failure. SAV+R has been designed to handle 5 types of pressure:

1. reduces backfilling pressures
2. reduces compacting pressures
3. reduces clay or soil swell pressures
4. reduces frost heave pressures



Insulate

SAV+R uses Engineered EPS which provides a stable R-value for the life of the foundation. SAV+R is available with R-values of 5, 10 or 15. SAV+R Engineered EPS:

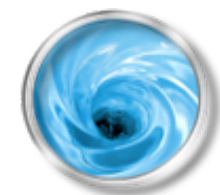
1. does not leach harmful chemical into soil
2. has very low moisture absorption
3. not affected by freeze-thaw cycles
4. 100% recyclable
5. contains no ozone depleting chemicals



Drain

Water leaking into foundation walls via hydrostatic pressure can cause serious issues. SAV+R incorporates Easy Flow Drainage Pathways™ (EFDP) to move water quickly to the foundation drains. EFDP can help:

1. reduce insulation moisture absorption
2. reduce hydrostatic pressure
3. reduce frost heave
4. accelerate drying
5. add longevity to the waterproofing



SAV+R Physical Properties

Physical Properties	ASTM Test Method	F0519	F1015	F1515
Active Lateral Pressure (pcf ERP)*	NT	30-40	30-40	30-40
Thermal Resistance R-Value @75° F	C177 - C518	R-5**	R-10**	R-15**
Thermal Resistance R-Value @40° F	C177 - C518	R-5.4**	R-11	R-16.3**
Bouyance Force (LB/ft ³)	D6817	61.5	61.5	61.5
Oxygen Index (Min Vol %)	D6817	24.0	24.0	24.0
Dimensional Stability (Max %)	D2126	2.0	2.0	2.0
Water Vapor Transmission (perm in)	E96	2-3.5	2-5.0	2-5.0
Water Absorption (% by volume)	C272	3.0	4.0	4.0
Flame Spread	E84	5.0	15.0	15.0
Smoke Development	E84	105-190	95-125	95-125

* 1) "At Rest" Lateral Earth Pressure Coefficient (K_a) = $1 - \sin(\phi)$

** Total Board R-Value

2) "Active" Lateral Earth Pressure Coefficient (K_a) = $\tan^2(45 - \phi/2)$

Board Thickness 1.4", 2.8", 4.3"

Lateral Earth Pressure = Density (γ) • Backfill Depth • Lateral Earth Pressure Coefficient



Engineered Expanded Polystyrene (EPS) rigid insulation is the most cost effective foundation, below grade, below slab insulation. Engineered EPS is lightweight, durable and very versatile. DuraSpec Insulation can be formulated to provide a wide range of engineering properties for most projects needs.

Advantages of Plymouth Foam High Quality EPS

Plymouth Foam incorporates high quality, high speed manufacturing technology for its expanded polystyrene building products. Along with our highly refined manufacturing capabilities comes our drive for precision and dedication to high quality products.

- **Long-Term Stable R-Value** - DuraSpec R-Value stays consistent providing a huge financial benefit for years.
- **Moisture Resistance** - DuraSpec EPS is closed cell and in-field studies has been shown to absorb less moisture than previous considered.
- **Moisture Management** - DuraSpec EPS has the ability to rapidly release absorbed moisture.
- **Non-Leaching** - DuraSpec EPS does not leach or release any harmful chemical into the soil or ground water.
- **100% Recyclable** - DuraSpec EPS has the huge advantage of being recycled over and over into various products.
- **Cost Effective** - DuraSpec EPS has been shown to be the most cost effective rigid insulation in cost per R-value board foot.
- **Lifetime R-Value Limited Warranty** - DuraSpec EPS is so confident in its product, we offers the industries best warranty.
- **Made in Wisconsin** - DuraSpec EPS is proud to say that we are manufactured in Wisconsin providing jobs for the local economy.

Always consult with the local building inspector for current codes.

Plymouth Foam and its Associates assume no obligation or liability for the information in this document. Call Plymouth Foam's Technical Department for up to date information.

SAV+R™ is a patent pending product and is protected by the United States Department of Commerce and all regulations.

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SAV+R Installation Guidelines

The intent of this document is to provide guidance on the installation of Plymouth Foam's SAV+R™ Engineered Expanded Polystyrene (EPS) products in residential and commercial construction.

I. General

- Optimum performance of Plymouth Foam's SAV+R™ Engineered EPS products is dependent on 1) selection of the correct product for the assembly or application into/on which it is to be placed and 2) following these installation instructions.
- Care should be used to protect and store product. All boards should be in good condition before installation.
- It is recommended that any masonry irregularities or jagged surfaces on the foundation wall or slab be removed prior to installation. Foundation walls should be protected from moisture leakage and dampness prior to installation of SAV+R™. Code approved drainage systems should be installed. Ensure foundation drainage meets local codes.

II. SAV+R Foundation Product Specification

- Molded and Shaped Engineered Polystyrene Foam Foundation Insulation
 - SAV+R F0519- R-Value of board R5 at 75°F, R5.4 at 40°F
 - SAV+R F1015- R-Value of board R10 at 75°F, R11 at 40°F
 - SAV+R F1515- R-Value of board R15 at 75°F, R16.3 at 40°F
 - RID Technology™
 - Incorporated Stress Reducers™
 - ASTM C578 R-Value
 - Easy Flow Drainage Pathways™ (EFDP)

III. Foundation Wall – Exterior

- Prior to backfilling, install SAV+R™ to the exterior, from top of footing to the full height of the foundation wall. Trim insulation where necessary, yet keep a proper fit.
- Adhere or fasten SAV+R™ with Easy Flow Pathways positioned vertically with edges tightly butted and vertical joints staggered. Joints and openings may be sealed with foam joint tape.
- Adhere SAV+R™ with construction adhesive compatible with polystyrene at the peak of the Stress Reducers. Mechanically fastening boards should be done with care as to not over drive the fastener. Fastener should be installed only through the Stress Reducer.

IV. Caution and Care

- Extreme care should be taken when backfilling and compacting SAV+R™.
- SAV+R™ is a polystyrene and should be covered and protected from UV light long-term.
- Any deformation of the application surface can result in a weakening of the attachment points and / or cracking of the insulation.
- There should be no voids or gaps in the insulation itself, around any objects that penetrate the insulation or at the interface.
- SAV+R™ Insulation is not structural product.
- Check with your local building inspectors for all codes that could affect this product.



plymouth foam

1800 Sunset Dr.
Plymouth, WI 53073

800-669-1176
920-889-0021

www.gplymouthfoam.com