
RODENTS AND BEETLES LIKE TO NEST IN REGULAR INSULATION. WHAT ABOUT ASTRO-FOIL?

Rodents and other pests can't find a good home in ASTRO-FOIL as they do in mass insulations like fiberglass, cellulose, or foam boards. That fact helps keep varmints out of confinement structures, reducing feed loss and disease. Whether you raise poultry, pigs, or fish, ASTRO-FOIL will help you raise them healthier and faster.

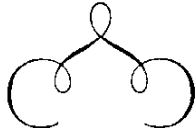
IS ASTRO-FOIL DIFFICULT TO INSTALL?

Not at all. There are no special clothing or mask requirements because ASTRO-FOIL can't hurt you. All you need are scissors, a sharp knife, measuring tape, and a stapler. Detailed installation instructions are available upon request.

THIS SOUNDS TOO GOOD TO BE TRUE. — DOES IT COST A LOT MORE THAN REGULAR MASS INSULATION?

No. In fact ASTRO-FOIL costs about the same as a 6" batt of fiberglass, and field tests and customer's experience indicate that ASTRO-FOIL does a much better overall job.

*NOTE: Astro Foil should never be stored on bare concrete nor left exposed to rain or snow while still in roll form.



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Common Questions and Answers ABOUT ASTRO-FOIL

HOW DOES ASTRO-FOIL WORK?

ASTRO-FOIL combines the insulating qualities of trapped air spaces with the superior heat reflecting capabilities of aluminum foil to create a material that prevents heat transfer in *all three* of the ways that it occurs.

There are three ways that heat goes to cold:

CONDUCTION is heat flow primarily through a material like a wall, ceiling, or roof. **CONVECTION** is heat movement that takes place when air is warmed and moves because of buoyant effects. **RADIATION** is the movement of heat rays across air spaces from one warm object to another cooler object. Since all objects and bodies give off radiant heat, it is important to deal with this heat mode if we want energy efficient buildings. The best way to stop radiant heat is to reflect it or reduce the amount that is given off. ASTRO-FOIL does just that by reducing the amount of radiation that occurs (because of its low emittance) and by reflecting thermal radiation from adjacent building components with its high reflectance. Additionally, the bubbles of trapped air between the aluminum surfaces provide a conductive barrier that helps give excellent R-values. Since ASTRO-FOIL is solid, hence impervious to convection and moisture, it is the perfect vapor and air infiltration barrier. ASTRO-FOIL is a complete insulation product.

WHAT IS THE "R" VALUE OF ASTRO-FOIL?

Since ASTRO-FOIL must be installed with air spaces in order for it to reflect heat, we state its R-value in terms of its installed "system" which includes the R-value of those surrounding air spaces. All reflective insulation have different R-values depending on the direction of the heat flow because the effects of convection in the airspaces vary with the direction of the heat flow. Therefore, ASTRO-FOIL's R-value is expressed as follows:

Down heat flow — R-15
Side heat flow — R-7.3
Up heat flow — R-5.4

These values are obtained by installing ASTRO-FOIL in a nominal 2" x 4" frame and testing in a hot box facility that is operated according to ASTM C-236. The R-values include the ASTRO-FOIL material and *the surrounding air spaces* within the cavity of the test frame. ASTRO-FOIL's ability to reflect heat, particularly in open applications is not fully measured by this test. It's this *extra* reflective capability that makes ASTRO-FOIL so special. For complete details regarding methodology of the testing, ask your local dealer or contractor for the manufacturer's Insulation Fact Sheet.

CAN YOU TELL ME PRECISELY THE THERMAL VALUE OF ASTRO-FOIL?

Currently there is no industry accepted standard for measuring the thermal performance of reflective insulations. The standard for R-Values, which is the industry standard for all types of insulation, does not accurately measure the heat reflecting abilities of exposed aluminum foil surfaces, nor the added thermal benefits of ASTRO-FOIL's vapor and wind barrier properties.

HOW DOES ASTRO-FOIL WORK TO KEEP BUILDINGS WARM IN WINTER AND COOL IN SUMMER?

ASTRO-FOIL, that is in the walls and ceiling of a building is like the aluminum foil when wrapped around a baked potato — in the winter it holds the heat in because of the foil's low emittance. In the summer, ASTRO-FOIL's aluminum surfaces reflect the heat before it can enter, keeping the inside cool and comfortable. The trapped air in the bubbles between the foil layers provides a barrier against conductive heat flow, and because ASTRO-FOIL is solid, it is a convection and moisture barrier.

WHY IS ASTRO-FOIL ESPECIALLY SUITED FOR INSULATING METAL BUILDINGS?

ASTRO-FOIL is light-weight, and very easy to install — so easy that in most cases labor cost will be as small as 50% of the cost of installing mass insulation.

Because ASTRO-FOIL is impervious to moisture once installed, builders don't have to worry about material damage due to rain or roof leaks. Rain or shine, ASTRO FOIL keeps right on working.

Metal buildings are particularly sensitive to temperature changes. ASTRO-FOIL's ability to reflect heat in both directions gives them an extra measure of comfort that regular mass insulation can't provide.

Since ASTRO-FOIL is so strong and light-weight, it can be easily retro-fitted to metal buildings by attaching it directly to the framing members. This eliminates the need for costly, time consuming construction of a grid to hold the insulation in place and added roof loads are not a problem.

WILL ASTRO-FOIL WORK IN MY HOME?

ASTRO-FOIL is an ideal insulating product for many home insulation projects. Use ASTRO-FOIL to insulate basement walls before paneling a new recreation room. Use it to warm up the floors by insulating the crawl spaces. Turn a garage into a year around work space by stapling ASTRO-FOIL over the framing studs of the walls and ceiling. Block the effects of summer's sun by applying ASTRO-FOIL to roof rafters. Wrap the water heater to reduce energy consumption. Stop pipes from sweating by wrapping them with ASTRO-FOIL. There are many ways ASTRO-FOIL can be used around the home to save energy and increase comfort — and it's clean, easy to install, and environmentally safe too!

DOES ASTRO-FOIL PROVIDE ANY SPECIAL BENEFITS FOR ANIMAL CONFINEMENT BUILDINGS?

Yes. Because ASTRO-FOIL is impervious to moisture, surfaces can be cleaned with high pressure sprayers. This makes disinfecting confinement building walls and ceilings a much easier task.

ASTRO-FOIL, when left exposed to the inside of buildings, gives an added benefit of comfort not experienced with other insulations. Livestock give off heat from their bodies which is reflected back to them by the ASTRO-FOIL surfaces. This reflected heat keeps them more comfortable at a lower ambient air temperature than they would be with standard wall and ceiling surfaces, thereby lowering energy costs. Also, exposed ASTRO-FOIL can cut lighting requirements by as much as 30%.

ASTRO-FOIL keeps confinement buildings cooler in the summer. With ASTRO-FOIL's ability to reflect the radiant heat from the sun, there is little or no heat buildup — inside temperatures should never get higher than outside air temperatures in buildings that are adequately ventilated.

In the winter, ASTRO-FOIL's reflective ability virtually eliminates temperature stratification inside a confinement structure. This stabilization of temperatures from floor to ceiling reduces convection drafts, providing an additional measure of comfort for livestock.
