

THE SMART BARRIER SYSTEM

AGRICULTURAL APPLICATIONS

R-Value 38/50



Radiant Barrier USA
Innovating Reflective Technology

AgriBarrier™ Ceiling Material Reduces Heat Stress and Saves Energy in Animal Confinement Buildings

Many people in the poultry, pork and dairy industries are recognizing a growing problem – the heat in their pole barns is impacting the health and weight gain of their poultry and hogs. Dairy farmers are experiencing decreased milk production. This is an increasing epidemic commonly known as the “black-globe effect.” Combatting this problem can become very expensive. Poly-Protech produces a lower-cost, highly effective insulation alternative to combat the issues farmers face with controlling temperatures.

Polyshield AgriBarrier™ is a product designed for agriculture use in confinement barns. It is a money-saving insulation alternative for the agriculture industry. It is composed of aluminum and polyethylene to form a superior product that is unique in the agriculture market.

Studies done at the University of Iowa show that with the elimination of the “black-globe effect” using reflective metalized film insulation (AgriBarrier), many improvements are immediately apparent. For poultry, broiler houses experienced a much-improved feed conversion. Other independent studies show that by reducing heat, pork producers saw a decrease of animal mortality rates and improved feed conversion. The only notable change made was the addition of reflective metal building insulation. So, with the same amount of feed, animals are experiencing better weight gain and overall health.

AgriBarrier insulation works by reflecting 95% of heat radiation back to its source. It is easy to install and provides superior energy savings, reducing indoor temperatures in summer by up to 60 degrees. AgriBarrier's reflective properties also help buildings conserve heat in winter. Due to increased energy efficiency, AgriBarrier can help save up to 50% on cooling and heating bills. AgriBarrier can be easily combined with traditional insulation and used to improve the effectiveness of the insulating materials.



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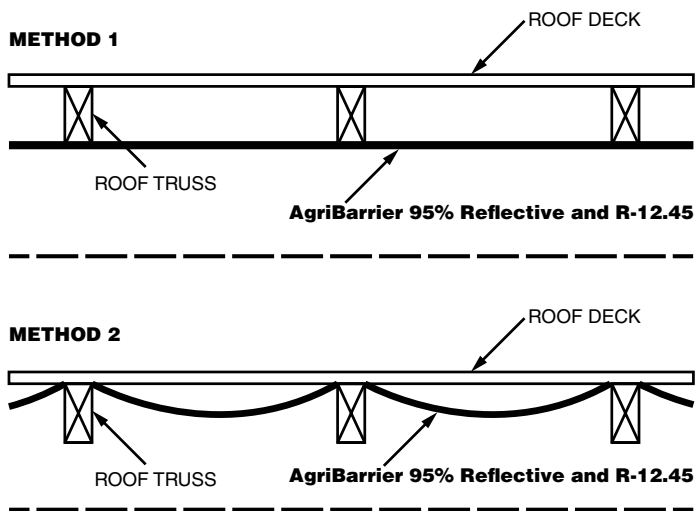
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AgriBarrier Insulation Benefits

- Strong materials prevent tearing
- UV and corrosion resistant
- Easy and fast to install
- Less expensive than other insulations
- Performance advantage over Tri-Ply ceiling material
- Available in perforated or solid
- Improves performance of other forms of insulation when combined with traditional insulation. The DOE has shown a 50% improvement using AgriBarrier with traditional insulation.
- Prevents drastic temperature changes during power failures
- Acts as a vapor barrier
- Resistant to pests

Recommended Install for Installing AgriBarrier™ In the Attic Envelope of an Animal Confinement Barn



AgriBarrier PolyShield R-12.45 "ROOF SYSTEM"

is a proven Condensation Blanket, a Vapor Barrier, Moisture Barrier and a Radiant Barrier. Applying a Condensation blanket protects the metal roof in an Animal Confinement Barn from corrosion and Ice Damming. Applying the Radiant Barrier prevents up to 93% of heat transfer into building during summer months and up to 75% of the heat transfer from leaving the building during the winter months.

Topside Insulation Repair

To assist growers, we are sharing our information on "Topside Insulation Repair." This repair seals up leaky drop ceilings from the top side of the insulation while improving the existing insulation's thermal performance.

The US DOE has done many studies on Radiant Barriers and has shown a 50% reduction of heat transfer during the summer months in building envelopes when incorporating radiant barrier insulation. Our research on actual poultry farms found a suitable, economical solution to repair old, tired, collapsed insulation in poultry houses. The data we collected are from Pilgrim's Pride and Tyson growers.

The winter reports show a savings of 20% to 30% on propane.

The "Easy and Inexpensive Topside Insulation Repair" method is very inexpensive. For example, an average 20,000 sq. ft. poultry house can cost around \$2,400.00 worth of material and takes three men twelve hours to install.

With Radiant Barrier insulation, the farmer just rolls out our AgriBarrier on top of the existing insulation in between the trusses. Since our material is 48" wide, it fits nicely in between the trusses.

This install method is an easy do-it-yourself system or the grower can use one of our experienced installers.

Please forward this information to those you see may need this information.

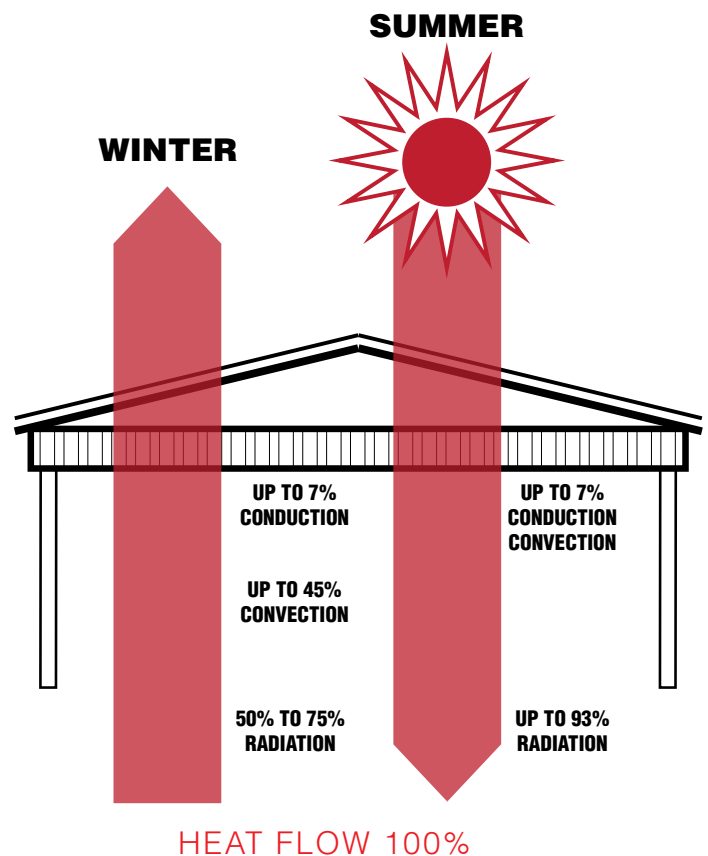
Recommended Products: Polyshield AgriBarrier
Materials Needed: Utility knife, flashlight, scissors and tape measure. Protective Headgear is recommended: Roofing nails often protrude through the roof decking creating a potential hazard.

Please read and follow all the steps below to insure proper installation.

General Instructions: AgriBarrier is to be laid on top of existing insulation, like a blanket, from wall plate to wall plate, end to end, so that the entire attic floor is covered with Radiant Barrier.

*It is extremely important to only use Perforated Radiant Barrier in this type of application.

1. Check all visible wiring for frayed, cracked or missing wire insulation before beginning. Repair all such defects. Exposed "live" wires can cause injury to installers when they contact them with the aluminum radiant barrier. Contact an electrician for safe correction of electrical problems.
2. Check for moisture problems, (condensation or water spots on the underside of roof, wet insulation.) and correct.
3. Determine the level of existing insulation. If you have areas that your insulation has settled to the point that you have bare spots on top of the Tri-Ply, add insulation to those areas. Both the level of existing insulation and the AgriBarrier insulation may be considered when determining compliance with International Energy Conservation Code or other building codes. For example, for Atlanta, GA a Radiant Barrier added to an existing R-19 insulation will meet the R-30 IECC requirement.
4. Measure area to be covered to determine amount of AgriBarrier needed. Be sure to measure from the outside edge of the wall plates.
5. Determine the length of the pieces to be cut. Measure and cut, allowing an extra 2" at both ends. Always install the first piece before cutting the rest to make sure of your measurements.
6. There are two install methods of laying Radiant Barrier on top of the existing insulation like a blanket for a Poultry House.
7. If the Animal Confinement House does not have a leaky drop ceiling, lay Radiant Barrier on top of the existing insulation like a blanket at a right angle to the joists. Extend the Radiant Barrier within 12" of the wall plates. Use a stick, (1/4" furring strip would be fine), to push the Radiant Barrier around. When laying the next piece, overlap the previous piece about 1". Do not attempt to make Radiant Barrier lie smooth or flat. The more wrinkled it is, the better it works. Do NOT tape seams.
8. If you are attempting to seal up the barn's drop ceiling from the top side of the insulation, run our two-sided tape on top of the trusses and attach the Radiant Barrier on top of the trusses and staple every foot or two. The tape will harden and create a sealed environment over the insulation. Be sure to clean dust or condensation from the top of the trusses before taping. Lay Radiant Barrier on top of the existing insulation like a blanket at same direction the joists. When sealing up the ceiling extend the Radiant Barrier to the wall plate.
9. Cut around exhaust fans and any other appliance that produces heat and protrudes through the attic floor. Mark any electrical junction boxes that are covered by the Radiant Barrier. Lay Radiant barrier loosely over heating and air conditioning ducts. Provide at least 1" airspace between the Radiant Barrier and the duct spacers.
10. Special Notes:
 - A. If, after installation, the Radiant Barrier is torn, repair is made simple and complete with aluminum foil tape.
 - B. Condensation should be a concern whenever adding any type of insulation to the attic area. The general rule is that additional ventilation should always be considered. Neither insulation nor Perforated Radiant Barriers cause condensation. Always investigate potential moisture problems prior to installation of any insulation.
 - C. For additional safety recommendations regarding installation, see ASTM C1158.



Introducing the “Smart Barrier System”

The “SMART BARRIER” System combines the features of our Polyshield R-12.45 AgriBarrier directly under the metal roof and our R-25/38 Triplex that replaces fiberglass mass insulation over the drop ceiling. This combined system protects the metal roof from corrosion and the attic space from excessive heat gain due to radiation from the sun and from heat loss due to leakage of radiation during the winter months.

Triplex R-25, R-38 achieves its R-Value by trapping air space above the drop ceiling.

All forms of mass insulation achieve the associated R-Values by trapping dead air space as well. Triplex Insulation is a superior option in animal confinement barns because it is designed to last the lifetime on the barn it doesn't corrode compress or experience damage from moisture. Mass insulation has a reputation for settling and being damaged by moisture and many times must be replaced at the expense of the farmer.

Triplex ceiling insulation is easy to install, you don't even have to go into the attic space.

Triplex is simply installed from underneath the trusses before installing the drop ceiling.

Just simply push the 48” wide material in between the trusses from underneath till the material is almost at the top of the trusses. Staple the edges every 24 inches to the inside of the trusses to prevent the material from moving out of place.



Be sure to inspect for air gaps in between the Triplex and the inside of the trusses. If you're not sure the edge is sealed. Seal the edges and seams with foil tape. You do not want mass air flow in between the edges.

On the bottom side of the truss, apply a moisture/vapor barrier before applying the metal drop ceiling.

