



### Stabilized Insulation for Attics

GREENSHIELD stabilized cellulose is a performance insulation system. GREENSHIELD is safe, easy to use, and provides excellent thermal performance across a wide range of extreme temperatures.

The GREENSHIELD stabilized formula includes organic fiber, a water activated adhesive, and a safe environmentally friendly fire retardant chemical blend.

GREENSHIELD is installed with a pneumatic blowing machine and incorporates a small amount of moisture required to activate the adhesive. Installed moisture should be in the range of 16 – 22%.



Shortly after installation much of the moisture added for installation will evaporate. The insulation will “shrink” a small predetermined amount and will stabilize to the proper depth to yield the specified R-value.

*Note: Installation height is slightly higher to allow for shrink and settled thickness.*

R-value performance in the attic is critical. Cellulose thermal performance has been demonstrated to maintain its R-value at extreme heat and cold better than other blown insulation products. This performance criterion is important because the insulation is placed at the ceiling barrier.

Cellulose will keep the heat in the attics during the summer; and keep the heat in the house during the winter better than other insulation products.

### ATTIC INSTALLATION GUIDLEINES

Coverage drives the profit for the installer. Coverage can vary significantly based on several critical factors:

- Operator technique
- Blowing machine design, age and performance
- R-value requirements
- Machine settings and adjustments
- Care in following installation guidelines
- Use of peripherals such as type, size and length of hose.

The insulation is pneumatically conditioned in the machine hopper as it is conveyed through the hose. Operators need to be careful of the following:

- Maintaining a consistent feed rate to the hopper
- Not overloading the hopper or allowing any material to fall to the floor around the machine. [Too much material in the hopper will affect shredder performance which will affect fiber conditioning]
- Material feed rate should be maintained to insure the material load level is slightly higher than the rotating blades. This allows for fiber conditioning and provides the necessary aeration for fiber conditioning in the feed hopper.
- Hose operator should apply a consistent material level at an even density across the attic.
- Slow consistent movements across the attic space allows for a consistent installation and eliminates high concentrations of material in a given space.

## INSTALLATION GUIDELINES - ATTICS

- Maintaining a consistent flow with the hose. It should be positioned parallel to the truss. Avoid erratic movements and do not bounce the hose. Allow material to flow or fall into place. The hose angle should be between 60° - 80°.
  - Increasing the angle may cause dust. Decreasing the angle may cause the material to “pack”, increasing the density and reducing coverage.
- Avoiding excessive air pressure. This will cause the material to “pack” reducing coverage and increasing the density.

Greenshield technical support can provide guidance to find the optimum speed for an installation crew based on their equipment set-up and experience level.

*We focus on quality installations and optimization*

In addition to operator guidelines and technique, machine settings for speed, feed rate and pressure are also important factors for a quality installation.

Based on operator normal performance, calculate normal blowing rates in number (#) of bags per minute [BPM]. A target rate for installation in a production attic should be about 1.5 – 2.0 BPM.

Each machine should be adjusted to ensure a properly stabilized product installation. Consider the following points:

- Gate opening at  $\frac{3}{4}$
- Pressure should be set to the pressure to 130 – 150 psi assuming the use of a high pressure pump.
- Air set to full open
- The size of the spray jets are dependent on the material volume and water pressure delivered by the pump
- Suggested tip size is 4002 – 4005
- Initial adjustments should be made with the pump pressure and tip size and not the gate opening
- Proper moisture level will feel “damp” in your hand. When squeezed it will want to stick together but not drip water.
- If the material is too wet it will settle due to the excess weight
- If the material is too dry, the adhesive will not activate properly and the fibers will not bond to create the required fiber matrix. Ultimately the material will settle due to the soft matrix.
- Once machine settings are determined, the pump should be locked.
- Where soffits and eaves are used it is recommended that vent chutes or baffles be installed to avoid blocking the soffit vents.
- Installers should start at corner furthest from the access door.
- Care needs to be taken with insulation around the access door to insure proper R-value at the opening.
- Installers should use a moisture meter to spot check the installed moisture to ensure compliance with the installation guidelines.

Attach the card to the roof rafter close to the attic access opening in plain view for the building inspector.

GREENSHIELD products are covered with a limited lifetime warranty and are guaranteed to perform if the material has been installed according to the manufacturers guidelines.

Questions or issues with GREENSHIELD installations should be directed to your GREENSHIELD installer or representative for technical support.

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