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Certification Report Number: 11026-002.01-KCR
Issue Date: 2/25/2016
Revision Date: N/A
Re-evaluation Date: 2/25/2019
Licensee EPA Organizational ID: 1020646

This Thermal Insulation Program Certification Report is issued by Keystone Certifications, Inc. (KCI) and is only valid when signed by an authorized KCI representative. This Certification Report indicates that the named Licensee product was evaluated in accordance with Thermal Insulation Program Policy and found to be in conformance with the US Environmental Protection Agency (EPA) *Definitions and Testing Requirements for Residential Insulation V1.0*, the referenced standard(s) and building codes. Production insulation of this model name are qualified for the application of the Seal and Insulate with ENERGY STAR® Educational Product Graphic in accordance with *Seal & Insulate with ENERGY STAR® Program for Residential Insulation Manufacturers Partner Commitments* and for the optional application of Thermal Insulation Program certification labels by the named Licensee.

Ongoing product conformance can be verified at www.keystonecerts.com.

Licensee Information: Service Partners, LLC 1029 Technology Park Dr. Glen Allen, VA 23059	Product Information: Model Name: SMARTSHREDZ (CEL-SSR-PAL) Product Type: Cellulose Loose Fill Insulation <input type="checkbox"/> <i>Family / Series Qualification</i>
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Product Description Smart Shredz is a high quality cellulosic insulation used in new construction or retrofit markets. High efficiency cellulose is designed to be blown dry into attics. SMARTSHREDZ cellulose insulation contains boric acid, manufactured entirely from recycled newsprint and available in 20.2 lb (9.16 kg) bags.
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Product Uses The product is designed to be used in Attic (horizontal) and above grade flat ceiling (non-cathedral) applications in both new and existing construction.
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Referenced Standards EPA <i>"Definitions and Testing Requirements for Residential Insulation Version 1.0 (Rev. Mar 2013)"</i> ASTM C 518-10 <i>"Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus" R-Value calculated per ASTM C104-07</i> ASTM E 84-14 <i>"Standard Test Method for Surface Burning Characteristics of Building Materials"</i> ASTM E970-14 <i>"Critical Radiant Flux of Exposed Attic Floor Using a Radiant Heat Energy Source"</i> ASTM C739-11, Sections 8 & 10, <i>"Specification for Cellulosic Fiber Loose-Fill Thermal Insulation"</i>
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Referenced Building Codes
2012 International Residential Code® (IRC) Section R302.10

Definitions
<p><i>Loose Fill Insulation:</i> Insulation in granular, nodular, fibrous, powdery, or similar form designed to be installed by pouring, blowing, or hand placement. Materials may include, but are not limited to fiber glass, cellulose, cotton, or wool.</p> <p><i>R-value:</i> The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area.</p> <p><i>Flame-Spread Index:</i> The characteristic of a material to resist the spreading of flames when exposed to flame or fire compared to red oak.</p> <p><i>Smoke-Development Index:</i> The characteristic of a material to emit smoke when exposed to flame or fire compared to red oak and inorganic cement.</p> <p><i>Critical Radiant Flux:</i> The minimum radiant energy a fire needs to sustain flame propagation on the material. The lower the CRF result number, the great the tendency of the material to spread flame.</p>

Qualifying Test Information (all test results from Keystone recognized, accredited laboratories)	
Testing Laboratory:	Intertek (Elmendorf, TX) and R & D Services
Test Report No(s):	102075047SAT-003D, RD14421

Qualifying Test Results					
<i>Test Specimen for RD14421:</i> SmartShredz Loose-Fill Cellulose Insulation; Blown Using a Krendl Machine and Conditioned for > 72 hours at 69.8 +/- 3.6°F and 50 +/- 5% RH. ASTM C 739-11, Section 8 "Specification for Cellulosic Fiber Loose-Fill Thermal Insulation."					
<u>Test/Density-Application</u>	<u>Rep Thickness</u>	<u>Test Results</u>	<u>Requirement</u>	<u>Complies</u>	
ASTM C518-10 Thermal Test		Hr . ft² . ° F/Btu	R/In.	S&I V1.0 2-A-b	
1.43 lb/ft ³ Density - Horizontal	4.00"	14.4	3.595	Claims Not > 10% Above	Yes
<u>Critical Radiant Flux</u>	<u>Length of Burn</u>	<u>Avg CRF</u>	<u>Density</u> : 1.45 lb/ft ³		
ASTM C 739-11 Section 10 & ASTM E 970-14	72 cm	0.17 W/cm ²	1.43 lb/ft ³	≥ 0.12 W/ cm ²	Yes
<i>Test Specimen for 102075047SAT-003D:</i> SmartShredz Loose-Fill Cellulose Insulation; Conditioned for 29 days at 73°F and 50% RH. ASTM E84-14, Test for Surface Burn Loose-Fill Thermal Insulation."					
ASTM E84-14 Surface Burn Test	<u>Nominal Density</u>	<u>Index</u>		<u>IRC 2012 R302.10</u>	
Flame	3.0 lb/ft ³	0		≤ 25	Yes
Smoke	3.0 lb/ft ³	0		≤ 450	Yes



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Coverage Table – Attic Application (Horizontal Ceiling Area)

R Value @ 75 F	Initial Installed Thickness (in.)*	Minimum Settled Thickness (in.)	Bags / 1000 ft ² **	Net Coverage ft ² / Bag**	Minimum Weight / ft ² (lbs)
11	4.1	3.6	14.2	70.6	0.29
13	4.6	4.1	17.4	57.3	0.35
19	6.2	5.6	27.5	36.3	0.56
22	7.0	6.3	32.7	30.6	0.66
24	7.6	6.8	36.1	27.7	0.73
26	8.1	7.3	39.5	25.3	0.80
30	9.3	8.3	46.4	21.6	0.94
32	9.8	8.8	49.8	20.1	1.01
38	11.5	10.4	60.2	16.6	1.22
40	12.1	10.9	63.7	15.7	1.29
45	13.5	12.1	72.3	13.8	1.47
48	14.3	12.9	77.5	12.9	1.57
49	14.6	13.2	79.2	12.6	1.61
50	14.9	13.4	81.0	12.4	1.64
55	16.3	14.7	89.6	11.2	1.82
60	17.7	15.9	98.3	10.2	1.99

* Initial thickness based on ASTM C1374 using Krendl 2000 blowing machine with shredder; Gate=4, Air=7.

** Coverage not adjusted for framing



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Field Preparation – Exposed Attic (Horizontal) Applications

Preliminary Inspection - An inspection of the building should be made prior to installation application. Special consideration should be given to the following areas:

- Holes in ceilings, penetrations and gaps that would allow the insulation to escape; must be sealed.
- Openings in heating or air conditioning systems, in insulated areas, must have blocking placed around them but not restricting air flow. Keep insulation away from exhaust flues of furnaces, water or space heaters and any other heat-producing devices.
- Keep cellulose insulation at least three inches from sides of recessed light fixtures, fans or from on top to entrap heat.
- Use a barrier to permanently maintain clearance around heat areas discussed above. Check local building or fire officials for guidance and requirements.

Preparations – New Construction Attic:

- Where individual vents are used in the soffit, the rafter space immediately in front of and on either side of the vent should be provided with an air chute (See Figures 1A and 1B). Other spaces should be totally blocked.

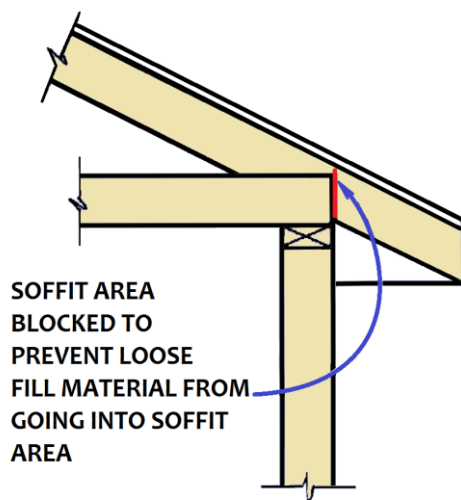


Figure 1A

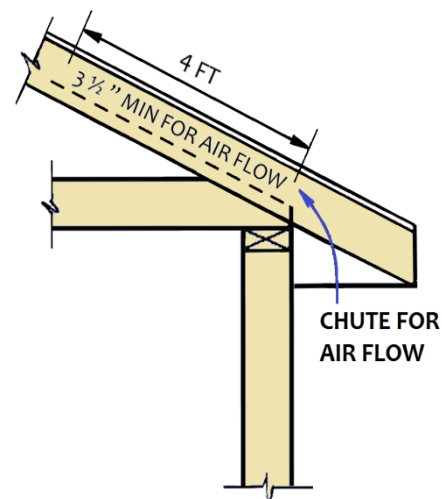


Figure 1B

- Where a continuous strip vent is used in the soffit, an air chute should be provided every third rafter space with the other spaces completely blocked.
- Insulating the corners of the attics in building with hip roofs may require special nozzles or placement tools. Alternately, corners can be insulated with suitable insulation before the drywall or plastic board is installed. Any other areas inaccessible after the interior finish is installed must be handled in like manner.



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Preparations – New and Existing Structure Attics:

- Blocking should be placed around access to the attic to prevent insulation from falling out. Holes in adjacent sidewalls, that would allow the insulation to escape, must be sealed.
- Blocking should be placed around recessed light or heating fixtures, chimneys and flues. Clearance between heat producing elements and combustible construction should follow applicable codes. Blocking should be permanently placed so as to keep insulation a minimum of 3 inches away from all sides of recessed lighting fixtures and other heat-producing devices. The open area above recessed lighting fixtures and other heat producing devices should not be insulated per the National Electrical Code.
- Cabinet bulkheads, stairway wells and wall cavities which open into the attic should be covered by backer board to support the insulation.
- Using a permanent marker and tape measure, mark rafters to the desired initial installed thickness. These marks can be referenced when blowing in the insulation.
- Install a rigid barrier around access hole at least as high as the insulation after installed.
- Cavities, which open in basements or crawl spaces, must be sealed.
- The open side of any wall between a heated and unheated area should be covered by backer board to form a cavity to retain loose fill material.
- In joint areas, where soffit vents are installed, the opening from attic into the soffit area may be blocked by batt type insulation between and at the end of the joists (See Figure 2). Insulation should not totally fill the space between ceiling and roof. There should be at least 1 inch (2.54 cm) opening next to the roof for ventilation from the soffit area, a chute may be installed per Figure 1B.
- Operate blowing machine on a dry level surface. If using a Force 1 blower, plug into grounded 110-volt outlet. If using a Force 2 blower, plug cords into two separate grounded outlets on separate breakers. The agitator motor requires its own 20 amp breaker. Attach blowing hose to the machine and move into area to be insulated along with the corded remote switch. Two people are required to do the job safely - one person in the attic with the hose and remote blowing the insulation in place. The other person will need to load the hopper of the blower with loose-fill insulation. Make sure the area around the hopper is clean of construction debris. This will keep from damaging the machine if reusing the spilled insulation on the floor.

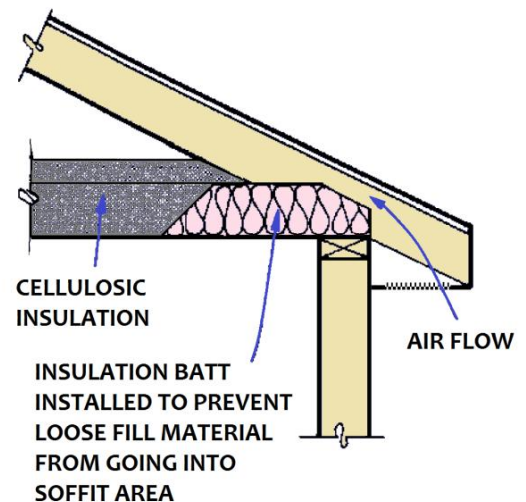


Figure 2

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Additional Field Preparation – Enclosed Flat Ceiling Cavity (Horizontal) Applications in Existing Structures

- Preliminary Inspection* - An inspection of the building should be made prior to installation. Special consideration should be given to the following areas:
- Ceiling cavities, which are used as air ducts for heating or air conditioning systems, must not be filled with insulation.
 - Do not fill enclosed flat ceiling cavities that contain recessed lighting, electrical fixtures and/or heat generating sources such as chimneys and flues.

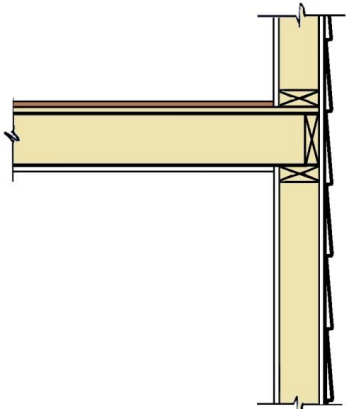


Figure 3

Coverage Requirements: When installing insulation in enclosed flat ceiling cavities (see Figure 3), care should be taken not to exceed the square foot coverage shown on the above Coverage Table or the product label. Adjust coverage based on framing systems.

The thickness specified is the minimum thickness required for a given R-value. The initial installed thickness will exceed the settled thickness shown on the coverage chart. The bag count and weight-per-square-foot requirements of the coverage chart must be followed to provide the specified R-value at settled density. Use ventilation adequate to keep airborne exposure below recommended limits.

Personal Protective Equipment (PPE):

- Wear suitable gloves
- Safety glasses or goggles recommended
- Protective clothing as suitable
- Particulate respirator is recommended
- Please adhere to safety information supplied by manufacturer

Installation Instructions – Attic (Horizontal) Applications

Cellulose insulation may be applied in attics in both new and existing cavities by homeowner or experienced contractor using a blowing machine that is available for rent at most big-box stores, specialty lumberyards and many tool rental centers. When installing insulation by pneumatic means, it is important that the application machine be set and operated as recommended by the machine manufacturer. The installer must wear a particulate respirator.

Accessible Attic Areas - Begin to insulate at the farthest point away from the attic access point of entry. Fill area to the required thickness to obtain the required predetermined thermal-resistance keeping the blowing hose horizontal and close to the installation surface (See Figures 4 and 5). Warning: Only ceiling joists or flooring should be stepped on when working in attics, high risk of falling through ceiling if drywall between ceiling joists is used as a walking surface. Use the markings on the rafters and a ruler to insure the proper depth. Do not block soffits with insulation. Do not cover heat sources with insulation. Use all the insulation required to achieve the required density and R value.

Empty the machine when finished and return to the retailer. Only dislodge hopper jams and clean out the machine when it is turned off and disconnected from the electrical power source.



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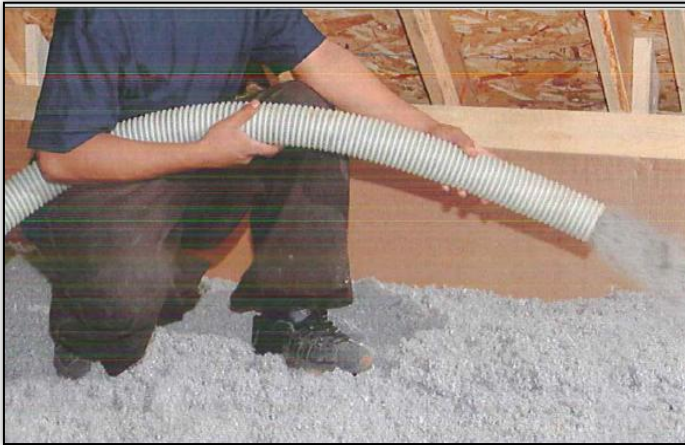


Figure 4



Figure 5

Installation Instructions – Enclosed Flat Ceiling Cavities (Horizontal) Applications

Cellulose insulation may be applied in new and existing structure enclosed ceiling cavities by homeowner or experienced contractor using blowing machine. When installing insulation by pneumatic means, it is important that the application machine be set and operated as recommended by the machine manufacturer. The installer must wear a particulate respirator.

Installations of this type must be made by pneumatic means and each cavity should be completely filled. One entry hole per cavity is necessary with tube reaching within 18" of plate on all exterior walls. See Figure 6. Size of access holes is determined by Fill Tube. After access holes are drilled, all cavities should be checked for fire blocks or other obstructions with an electrician's fish tape or other similar tool. A mathematical check should be made in the first few joists to assure that the proper amount of insulation is being installed (See Coverage Table).

Insert fill tube into each cavity and withdraw as the cavity is filled. The fill tube should be inserted far enough to reach within 18 inches (45.72 cm) of the plate furthest from the point of entry. The air setting on the machine should be set as recommended by the machine manufacturer for application.

Coverage will be proportional to that shown on the manufacturer's Coverage Chart or product label, depending on size.

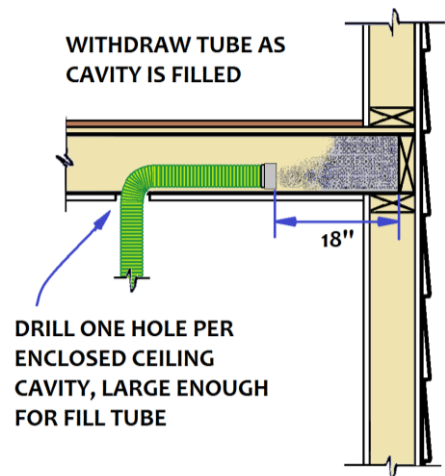


Figure 6

Excerpts from CIMA Technical Bulletin #2 used with permission.

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