

## Product Specification

### 1. PRODUCT NAME

NU-WOOL Premium Cellulose Insulation and WALLSEAL are registered trademarks for NU-WOOL Co., Inc.

### 2. MANUFACTURER

NU-WOOL Premium Cellulose is made from recycled paper (85%) and is packaged in 26 pound bags. Installation is done by factory trained installers. NU-WOOL WALLSEAL Cellulose Insulation is a spray-in-place cellulose insulation made from recycled paper, primarily newspaper. It is installed in both attics and walls of residential and commercial buildings because of its superior thermal and air infiltration properties. WALLSEAL is an energy-saving material that has an R-Value of 3.8 per inch, and will last for the life of the structure. NU-WOOL uses borate chemicals as a fire retardant, making NU-WOOL WALLSEAL Cellulose Insulation one of the most environmentally friendly materials used in construction.

### 3. PRODUCT DESCRIPTION

NU-WOOL Premium Cellulose Insulation is an energy saving insulation made from recycled paper. NU-WOOL Premium Cellulose Insulation, with its superior thermal and air infiltration properties, is installed in both attics and walls of residential and commercial buildings. This environmentally friendly, "green" insulation provides up to 40%\* savings on energy bills when compared to fiberglass insulation materials. NU-WOOL Premium Cellulose Insulation also contains an EPA registered fungicide making it resistant to the growth of mold.

WALLSEAL is applied by a spray-on method that insures the correct density to prevent settling while making the wall resistant to air movement and achieving maximum thermal performance.

NU-WOOL Attic insulation is applied with air to open spaces at a density of 1.6 pounds per cubic foot. The manufacturers' coverage chart has reflects the settling after application in open blow situations.

### 4. TECHNICAL DATA

4.1 All cellulose insulation must conform to the CPSC standard 16 CFR Part 1209 and 1404. NU-WOOL also meets ASTM C-739. Also refer to UL R-8078 and R-13173.

4.2 Density is measured using ASTM C-739 standards and is 1.6 lb/ft<sup>3</sup>.

4.3 Thermal resistance was measured by test method ASTM C-518 (4 in. thick) and is 3.8 (R-value/in.)

4.4 Surface Burning Characteristics: Surface burning characteristics are determined using two methods. Critical radiant flux using test method ASTM E 970 and ASTM E 84. ASTM E 970 Greater than 0.12 watts/ cm<sup>2</sup> ASTM E 84 Less than 25, Class 1

4.5 Moisture Vapor Sorption: NU-WOOL meets the requirements of ASTM C 739 of less than 15% maximum weight gain under test conditions. Variations in relative humidity will not affect the thermal properties of the insulation.

4.6 Corrosiveness: NU-WOOL is tested for contact against copper, steel and aluminum under the test conditions of ASTM C 739 and is not corrosive to these metals.

4.7 Building Codes: NU-WOOL meets all the current building codes.

4.8 Sound Transmission Loss (STC) Ratings: NU-WOOL has been tested for numerous wall assemblies at Riverbank Laboratories using ASTM E 90. Specific wall assemblies are listed in this book.

4.9 Other Test Properties: Under ASTM C 739, there are tests for fungi resistance, odor and smolder resistance.



## SECTION 072100 - THERMAL INSULATION

### 1.1 SUMMARY

- A. Applications:
  - 1. Cavity-wall insulation
  - 2. Concealed building insulation
  - 3. Exposed building insulation
  - 4. Loose-fill building insulation
  - 5. Self-supported, spray-applied cellulosic insulation
  - 6. Vapor retarders
  - 7. Sound attenuation insulation.

### 1.2 PERFORMANCE REQUIREMENTS

- A. Product meets ASTM E 84 for surface burning characteristics
- B. Product is tested for ASTM E 90 for STC ratings
- C. Product is tested to ASTM C 739 standards
- D. Product is tested to ASTM E 119 standards

### 1.3 MATERIALS

- A. Insulation:
  - 1. Cellulose Spray-on Insulation: Installed Density 3.2 lb/cu. ft. (51 kg/cu. m)
  - 2. Cellulose Attic Insulation: Installed Density 1.60 lb/cu. ft. (26 kg/cu.)
- B. Vapor Retarders: [Polyethylene] [Reinforced polyethylene] [Fire-retardant, reinforced polyethylene] [Foil-polyester film]. Vapor barriers needed for high humidity areas only.
- C. Auxiliary Insulating Materials
  - 1. Eave ventilation troughs
  - 2. Insulation fabric

END OF SECTION 072100

# UL Evaluation Report

**UL ER8078-01**

**Issued: May 14, 2015**

Visit UL's On-Line Certifications Directory: [www.ul.com/erdirectory](http://www.ul.com/erdirectory)  
for current status of report.

**UL Category Code: ULEX**

**CSI MasterFormat®**

**DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION**

**Sub-level 2: 07 20 00 – Thermal Protection**

**Sub-level 3: 07 21 00 – Thermal Insulation**

**Sub-level 4: 07 21 23 – Loose Fill Insulation**

**Sub-level 4: 07 21 26 – Blown Insulation**

**COMPANY:**

**Nu- Wool Company Inc.**  
**2472 Port Sheldon St**  
**Jenison, MI 49428**  
**(800) 748-0128**  
[www.nuwool.com](http://www.nuwool.com)

**1. SUBJECT:**

**NU-WOOL PREMIUM CELLULOSE INSULATION, NU-WOOL ENERGY CARE CELLULOSE INSULATION AND NU-WOOL WALLSEAL FIRE & SOUND INSULATION**

Throughout this report, the reference to Nu-Wool Insulation will apply to all products described above, except where indicated otherwise, and except for Nu-Wool Wallseal Fire & Sound Insulation.



## 2. SCOPE OF EVALUATION

- 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 2015, 2012 and 2009 *International Energy Conservation Code*® (IECC)
- 2015, 2012, and 2009 *International Mechanical Code*® (IMC)
- NFPA 70 National Electric Code® , 2014 Edition
- ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014

### The products were evaluated for the following properties:

- Surface Burning Characteristics (ANSI/UL723, ASTM E84)
- Physical Properties (ASTM C739)
- Thermal Resistance (ASTM C739, ASTM C518)
- Sound Transmission (ASTM E90, ASTM E413)
- Fireblocking
- Fire-Resistance Rated Construction (ANSI/UL263)
- Ignition Barrier – Attics
- Attic and crawlspace applications

## 3. REFERENCED DOCUMENTS

- ANSI/UL723, 10<sup>th</sup> Ed. (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- ANSI/UL263, 14<sup>th</sup> Ed. (ASTM E119), Fire Test of Building Construction and Materials
- ASTM C739-11, Standard Specification for Cellulosic Fiber Loose Fill Thermal Insulation
- ASTM C518-10, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM C1015-06, Standard Practice for Installation of Cellulosic and Mineral Fiber Loose Fill Thermal Insulation
- ASTM E90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- ASTM E413-10, Classification for Rating Sound Insulation
- ASTM C840-13, Standard Specification for Application and Finishing of Gypsum Board
- CPSC 16 CFR Part 1209 (2002), Interim Safety Standard for Cellulose Insulation
- CPSC 16 CFR Part 1404 (2002), Cellulose Insulation
- ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014

## 4. USES

Nu-Wool Insulation is used as nonstructural thermal insulating material in buildings of all types of construction. The insulation is for use as an interior finish on or within floors, floor-ceiling or roof-ceiling assemblies, attics, crawl spaces, walls and partitions. See Sections 5 and 6 for specific applications for each product. The insulation is recognized for use in sound transmission assemblies, as fire blocking material, in both non-fire-resistance rated construction and fire-resistance rated construction in accordance with [Section 703](#) of the 2015, 2012, or 2009 IBC, and as an ignition barrier over foam plastic in accordance with [Section R316.5.3](#) of the 2015, 2012, or 2009 IRC.

Nu-Wool Wallseal Fire & Sound Insulation is for use in specific fire-resistance rated construction in accordance with [Section 703](#) of the 2015, 2012, or 2009 IBC, as described in Section 6.10.

## 5. PRODUCT DESCRIPTION

### 5.1 General:

Nu-Wool Insulation consists of a uniform low density mixture of recycled cellulosic fibers and borate-based fire retardant chemicals. Product application methods include wall spray (spray-applied), loose fill, and dry dense-pack, as described in Section 6. Spray-applied applications are applied with water. Loose fill and dry dense-pack applications are applied without water. Fire-blocking, and fire-resistance rated applications are non-thermal insulation applications for use in various structures.

Nu-Wool Wallseal Fire & Sound Insulation is a spray-applied, uniform, low density mixture of recycled cellulosic fibers and borate-based fire retardant chemicals.

### 5.2 Surface Burning Characteristics

The products meet the requirements of CPSC 16 CFR Part 1209 and have a flame spread index of not more than 25, and a smoke developed index of not more than 50 when tested in accordance with ANSI/UL 723 (ASTM E84) in accordance with the requirements set forth in [Section 720](#) of the 2015 or 2012 IBC (Section 719 of the 2009 code) and [Section 302.10](#) of the 2015, 2012, or 2009 IRC.

### 5.3 ASTM C739 Properties

Nu-Wool insulation has a thermal resistance R-value of 3.8 F-ft<sup>2</sup>-h/Btu at a nominal density of 1.6 lb/ft<sup>3</sup> when tested in accordance with ASTM C739 and C518, at a mean sample temperature of 75°F. In addition, the insulation has been evaluated in accordance with ASTM C739 for the following properties:

Property	Tested in Accordance with
Settled Density	ASTM C739 / CPSC 16 CFR 1209
Smoldering Combustion	ASTM C739 / CPSC 16 CFR 1209
Odor Emission	ASTM C739 / ASTM C1304
Critical Radiant Flux	ASTM C739 / ASTM E970 / CPSC 16 CFR 1209
Corrosiveness	ASTM C739 / CPSC 16 CFR 1209
Fungi Resistance	ASTM C739 / ASTM C1338
Moisture Vapor Sorption	ASTM C739

## 5.4 Sound Transmission:

The products described in this section have been evaluated in accordance with ASTM E90 and ASTM E413 for use as part of the Sound Transmission Rated Assemblies as summarized below:

Product	In accordance with	UL Design Assembly	STC rating
Nu-Wool Insulation	ASTM E90 ASTM E413	U360	50 or greater
Nu-Wool Wallseal Fire & Sound Insulation	ASTM E90 ASTM E413	U382	50 or greater

Refer to the UL Fire Resistance Directory, File R8078 ([CCAZ](#)), for details of the sound assemblies above.

## 6. INSTALLATION

### 6.1 General:

Installation of Nu-Wool Insulation and Nu-Wool Wallseal Fire & Sound Insulation must comply with ASTM C1015, as applicable, this report, and the manufacturer's published installation instructions.

Installation must be in accordance with CPSC 16 CFR 1404, [Section E4004](#) of the 2015, 2012, or 2009 IRC, and NFPA 70 (NEC) 410.116 when installation is above or adjacent to recessed luminaires (lighting fixtures) or other heat-producing elements. A permanent barrier is necessary to maintain a 3 inch (76 mm) clearance between the item and the insulation, unless the recessed luminaire is identified as Type IC and is listed in accordance with the applicable code for direct contact with insulation, or the heat-producing element is listed for zero clearance to combustibles. The insulation is limited to areas where the temperature will not exceed 194°F (90°C) in accordance with [Section E4003.2](#) of the 2015, 2012, or 2009 IRC.

When Nu-Wool Insulation or Nu-Wool Wallseal Fire & Sound Insulation is installed within a plenum, the installation must be in accordance with [Section 602.2.1](#) of the 2015, 2012, or 2009 IMC. Installation is not permitted in the area from the exit of the cooling coil to the downstream end of the drain pan, in accordance with [Section 604.13](#) of the 2015, 2012, or 2009 IMC.

The code official may require an approved vapor retarder to be installed in accordance with [Section 1405.3](#) of the 2015, 2012, or 2009 IBC, [Section R702.7](#) of the 2015 or 2012 IRC, [Section R601.3](#) of the 2009 IRC, or [Section 402.1.1](#) of the 2015 IECC. Protection against condensation in exterior wall assemblies must be provided in accordance with these sections of the code.

Attic ventilation, when required by the code, must not be blocked by the application of the insulation when installed in accordance with [Section R806.3](#) of the 2015, 2012, or 2009 IRC.

### 6.2 Wall Spray (Spray-Applied):

Nu-Wool Insulation may be used in spray-applied, exposed applications as an interior finish and in concealed applications within walls and partitions at a density of between 3 and 4.6 lbs/ft<sup>3</sup> (43.2 and 73.7 kg/m<sup>3</sup>).

Before enclosing spray applied Nu-Wool insulation in walls, the insulation must be left uncovered for a minimum of 24 hours.

Spray-applied Nu-Wool insulation must be installed in accordance with the manufacturer's detailed instructions, published by Nu-Wool, Co. Inc.

Nu-Wool Wallseal Fire & Sound Insulation is a spray-applied, uniform, low density mixture of recycled cellulosic fibers and borate based fire retardant chemicals used for UL fire wall design designation U382. The product is spray-applied with water at a minimum density of 4.58 lbs/ft<sup>3</sup> (73.4 kg/m<sup>3</sup>), and is assembly specific.

Before enclosing Nu-Wool Wallseal Fire & Sound Insulation in walls, the insulation must be left uncovered for a minimum of 24 hours.

### **6.3 Loose Fill:**

Nu-Wool Insulation is used for exposed loose fill applications on horizontal or sloped attic floors at a density of between 1.5 and 3.0 lbs/ft<sup>3</sup> (19.2 and 48.0 kg/m<sup>3</sup>) when installed in accordance with Section [R806.3](#) of the 2015, 2009, or 2009 IRC.

Nu-Wool Loose Fill Insulation is installed into its final position using a pneumatic device. The insulation may be applied to sloped attic floors having a maximum slope of 5:12 (41.7 percent slope).

Loose fill Nu-Wool Insulation applications must be installed in accordance with the manufacturer's detailed instructions, published by Nu-Wool Co., Inc.

### **6.4 Dry Dense-Pack:**

Nu-Wool Insulation is used in dry dense-pack applications for concealed spaces of walls, partitions, and roof-ceiling or floor-ceiling assemblies. Dry dense-pack products are installed at a density of between 3.5 and 5.0 lbs/ft<sup>3</sup> (56.1 and 80.0 kg/m<sup>3</sup>) when installed in accordance with Section [R806.5](#) of the 2015 or 2012 IRC or Section [R806.4](#) of the 2009 IRC, as applicable.

Dry dense-pack installation requires pneumatic application of the product in closed or netted cavities. Nu-Wool Insulation installed in dry dense-pack applications must be installed in accordance with the manufacturer's detailed instructions, published by Nu-Wool Co., Inc.

### **6.5 Installation Directly Beneath the Roof:**

Nu-Wool Insulation may be installed beneath the roof deck when installed in accordance with Section [R806.5](#) of the 2015 or 2012 IRC, or Section [R806.4](#) of the 2009 IRC, for the following applications using the dry dense-pack methodology:

- **Exposed Roof Decks and Roof Framing Members:**

May be installed beneath exposed roof decks when dry dense-packed behind netting at a minimum density of 3.5 lbs/ft<sup>3</sup>. Climate Zones 2B and 3B do not require an air impermeable insulation layer to the roof deck per Section [R806.5](#) of the IRC. The use of Nu-Wool products in cathedralized attics outside of Zones 2B and 3B needs to be reviewed by a hygric / thermal analysis evaluation tool, such as WUFI (Wärme und Feuchtetransport Instationär, or Transient Heat and Moisture Transport), to determine the need for air barriers on the exposed side of the insulation.

- **Enclosed Rafter Spaces (Insulated Cathedral Ceilings):**

Insulated cathedral ceilings are rafter spaces, formed where ceilings are applied directly to the underside of the roof framing members, which fully encapsulate the thermal insulation on all sides. In applications with vented rafter spaces, Nu-Wool insulation is dry dense-packed to a density of 3.5 to 5.0 lbs/ft<sup>3</sup> (56.1 to 80.0 kg/m<sup>3</sup>) and installed in accordance with [Section 1203.2](#) of the 2015, 2012, or 2009 IBC and Section [R806.5](#) of the 2015 or 2012 IRC or Section [R806.4](#) of the 2009 IRC, as applicable.

In applications with unvented rafter spaces, Nu-Wool Insulation may be dry dense-packed over an air impermeable insulation in accordance with Section [R806.5](#) of the 2015 or 2012 IRC or Section [R806.4](#) of the 2009 IRC, as applicable. The air impermeable insulation must be of a thickness necessary to comply with the R-Value specified in Table [R806.5](#) of the 2015 or 2012 IRC or Table [R806.4](#) of the 2009 IRC, as applicable.

### **6.6 Metal Construction:**

Nu-Wool Insulation may be used in construction using metal studs, metal buildings, or any construction in which Nu-Wool Insulation will be in contact with metal structural or sheathing members.

### **6.7 Crawl Spaces:**

Nu-Wool Insulation can be applied to foundation walls in unvented crawl spaces. Nu-Wool Insulation may be used as floor / ceiling insulation over a crawl space.

### **6.8 Fireblocking:**

Nu-Wool Insulation may be used as fireblocking materials in accordance with Section [718.2.1](#) of the 2015 or 2012 IBC, [Section 717.2.1](#) of the 2009 IBC, Sections [R302.11.1](#) and [R602.8](#) of the 2015, 2012 or 2009 IRC, and may be used as alternatives to the fireblocking materials required in Section [R302.11.1](#) of the 2015, 2012 or 2009 IRC.

The insulation may be placed in concealed spaces of wood or steel stud walls and partitions of combustible construction with stud spacing up to 24 inches (610 mm) on center. When the walls and partitions have existing insulation in the spaces between the studs, access holes measuring from 1 inch (25.4 mm) in diameter to 6 inches (152 mm) square are cut in the wall covering at each space between studs, and the plugs are removed. The existing insulation is cut and pushed away to form a space with a minimum height of 16-inches (406 mm) above the floor level. Nu-Wool Insulation is then installed into the open space, filling from the floor a full 16-inch (406 mm) (or greater) height, and contacting all surfaces. After installation has been completed, the plugs are replaced and the wall covering is repaired with tape and joint compound in accordance with ASTM C840 or GA 216.

When there is no insulation in the wall or partition, insulation must completely fill the stud cavity to a minimum depth of 16 inches (406 mm).

### **6.9 Installation in Attics when used as a Prescribed Ignition Barrier:**

Nu-Wool Insulation may be used as an ignition barrier over foam plastics on attic floors in accordance with [Section R316.5.3](#) of the 2015, 2012, or 2009 IRC, when applied at a minimum thickness of 1-1/2 inches (38.1 mm) and a minimum installed density of 1.6 lbs/ft<sup>3</sup> (25.6 kg/m<sup>3</sup>).

## **6.10 Fire-Resistance:**

### **6.10.1 Calculated Fire-Resistance**

The fire-resistance rating of wood-stud walls is increased by 15 minutes when calculating fire-resistance in accordance with Table [722.6.2\(5\)](#) of the 2015 or 2012 IBC, or [Table 721.6.2\(5\)](#) of the 2009 IBC, when the spaces between wood studs are completely filled with Nu-Wool Insulation having a nominal density not less than 2.6 pcf (41.6 kg/m<sup>3</sup>).

### **6.10.2 Fire-Resistance Ratings**

Refer to the UL Fire Resistance Certification information for File R8078 ([CCAZ](#)) for applicable design coverage and details of the fire-resistance wall assemblies covered by this report. Fire-resistance ratings are only applicable when the assemblies are constructed in accordance with the published designs.

Nu-Wool Wallseal Fire & Sound Insulation is for use only in UL Fire Resistive Design No. U382. All other designs specified in the File R8078 ([CCAZ](#)) Classification Card are applicable for Nu-Wool Insulation.

## **7. CONDITIONS OF USE**

### **7.1 General:**

The products described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 2.0 of this report, subject to the following conditions:

- 7.2** Installation must comply with this report, the manufacturer's published installation instructions, and the applicable code. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 7.3** Nu-Wool Insulation and Nu-Wool Wallseal Fire & Sound Insulation may be installed in noncombustible construction without affecting the noncombustible classification as described in [Section 603.1](#) of the 2015, 2012, or 2009 IBC.
- 7.4** The installer must provide the code official a signed and dated statement describing the type of insulation installed, including thickness, coverage area, *R*-value and number of bags or pounds of insulation installed.
- 7.5** When the fire-resistance rated wall or floor-ceiling assemblies described in Section 6 are used in multi-family applications, design and details to verify compliance with all of the applicable requirements of any code must be prepared by a registered design professional where required by state or local jurisdictions in which the project is constructed and submitted to the local code official for approval.
- 7.6** Nu-Wool Insulation and Nu-Wool Wallseal Fire & Sound Insulation are manufactured under the UL LLC Classification and Follow-Up Service Program at the following Nu-Wool Co. Inc. plant, which includes audits in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC10:

Jenison, Michigan

## 8. SUPPORTING EVIDENCE

- 8.1 Manufacturer's published installation instructions.
- 8.2 UL test reports and Classification in accordance with the following:
- Surface Burning Characteristics in accordance with ANSI/UL 723 (ASTM E84). See UL Product Certification Category for Loose Fill Materials ([BNST](#)) Thermal transmission testing in accordance with ASTM C518
  - Physical properties testing in accordance with ASTM C739. See UL Product Certification Category for Loose Fill Materials ([BPHX](#))
  - Fire Resistance in accordance with ANSI/UL 263 (ASTM E119). See UL Product Certification Category for Sprayed Fiber ([CCAZ](#))
- 8.3 Reports of physical property testing in accordance with CPSC 16CFR Parts 1209 and 1404
- 8.4 Reports of sound transmission testing in accordance with ASTM E90 and ASTM E413
- 8.5 Reports of fireblocking testing
- 8.6 Documentation of quality system elements described in AC10, ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014

## 9. IDENTIFICATION

Each package of Nu-Wool Insulation and Nu-Wool Wallseal Fire & Sound Insulation described in this evaluation report is identified by a marking bearing the report holder's name (Nu-Wool Co. Inc.), the product name, the address of the manufacturing plant, the date of manufacture, the UL Classification Mark, and the evaluation report number UL ER8078-01. Additionally, each package must bear a label with information required by FTC 16 CFR Part 460 and CPSC 16 CFR, Parts 1209 and 1404.

The validity of the evaluation report is contingent upon this identification appearing on the product or UL Classification Mark certificate.

Jobsite labeling for the insulation must comply with Section [N1101.10.1.1](#) of the 2015 IRC or [Section N1101.12.1.1](#) of the 2012 IRC.

## 10. USE OF UL EVALUATION REPORT

- 10.1 The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.
- 10.2 UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.
- 10.3 The current status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via our On-Line Certifications Directory:

[www.ul.com/erdirectory](http://www.ul.com/erdirectory)

© 2015 UL LLC

*This UL Evaluation Report is not an endorsement or recommendation for use of the subject and/or product described herein. This report is not the UL Listing or UL Classification Report that covers the subject product. The subject product's UL Listing or UL Classification is covered under a separate UL Report. UL disclaims all representations and warranties whether express or implied, with respect to this report and the subject or product described herein. Contents of this report may be based on data that has been generated by laboratories other than UL that are accredited as complying with ISO/IEC Standard 17025 by the International Accreditation Service (IAS) or by any other accreditation body that is a signatory to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). The scope of the laboratory's accreditation shall include the specific type of testing covered in the test report. As the accuracy of any non-UL data is the responsibility of the accredited laboratory, UL does not accept responsibility for the accuracy of this data.*



**ICC-ES VAR Environmental Report****VAR-1005**

Reissued March 2014

*This report is subject to renewal April 1, 2016.*[www.icc-es.org/ep](http://www.icc-es.org/ep) | 1-800-423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 07 00 00—THERMAL AND MOISTURE  
PROTECTION

Section: 07 21 00—Thermal Insulation

REPORT HOLDER:

NU-WOOL CO., INC.  
2472 PORT SHELDON ROAD  
JENISON, MICHIGAN 49428  
(616) 669-0100  
[www.nuwool.com](http://www.nuwool.com)  
[rdevries@nuwool.com](mailto:rdevries@nuwool.com)

EVALUATION SUBJECT:

NU-WOOL WALLSEAL PREMIUM THERMAL AND  
SOUND INSULATION**1.0 EVALUATION SCOPE****Compliance with the following:**ICC-ES Environmental Criteria for Determination of  
Recycled Content of Materials (EC101), dated March  
2012.**Compliance eligibility with the applicable sections of  
the following codes, standards and green building  
rating systems:**

- 2012 *International Green Construction Code*™ (IgCC)  
(see Table 2 for details)
- 2010 California Green Building Standards Code  
(CALGreen), Title 24, Part 11 (see Table 3 for details)
- ASHRAE Standard 189.1 – 2009 (see Table 4 for  
details)
- National Green Building Standard (ICC 700-2008) (see  
Table 5 for details)
- LEED 2009 for New Construction and Major  
Renovations (LEED NC) (see Table 6 for details)
- LEED for Homes 2008 (see Table 7 for details)
- LEED 2009 for Schools New Construction and Major  
Renovations (see Table 8 for details)
- ANSI/GBI 01-2010 – Green Building Assessment  
Protocol for Commercial Buildings (see Table 9 for  
details)
- CSI GreenFormat™ (see Table 10 for details)

**2.0 USES**Nu-Wool WALLSEAL Premium insulation is used as  
nonstructural thermal- and sound-insulating material inbuildings. The insulation is used on or within floors, floor-  
ceiling or roof-ceiling assemblies, attics, crawl spaces,  
walls and partitions.**3.0 DESCRIPTION**Nu-Wool WALLSEAL Premium insulation consists of a  
uniform low-density mixture of recycled cellulosic fibers  
and fire-retardant borate-based chemicals. The insulation  
is available in both a loose-fill and spray-applied form. The  
product contains the recycled content type and amount set  
forth in Table 1 of this report.**4.0 CONDITIONS****4.1 Code Compliance:**See ICC-ES evaluation report [ESR-2217](#) for compliance  
with IBC and/or IRC code requirements.**4.2 Code, Standards and Green Rating Systems  
Eligibility:**The information presented in Tables 2 through 10 of this  
report provides a matrix of areas of evaluation and  
corresponding limitations and/or additional project-specific  
requirements, and offers benefit to individuals who are  
assessing eligibility for credits or points.The final interpretation of the specific requirements of the  
respective green building rating systems, standards and/or  
codes rests with the developer of that specific rating  
system, standard or code, or the Authority Having  
Jurisdiction, as applicable.Compliance with the items noted as “Verified Attribute” is  
subject to any conditions noted in Tables 2 through 10. The  
user is advised of the project-specific provisions that may  
be contingent upon meeting specific conditions, and the  
verification of those conditions is outside the scope of  
this report. Rating systems or standards may provide  
supplemental information as guidance.The total percentage of recycled content reported is  
based upon assigning an equal value for each type of  
recycled content used in accordance with IgCC Section  
505.2.2, ICC 700 Section 604.1 and ANSI/GBI 01-2010  
Section 10.1.2. Where the recycled content values are  
used for determination of compliance with requirements  
other than the IgCC, ICC 700 and ANSI/GBI 01, the total  
percent of recycled content must be calculated in  
accordance with the percentage requirements stated in  
that document.Due to the variability of costs and volume, the recycled  
content percentage listed in this report is based upon  
weight (mass). The use of cost or volume as the method  
for calculation is outside the scope of this report.

**5.0 BASIS OF EVALUATION**

The information in this report, including any "Verified Attribute," is based upon the ICC-ES Environmental Criteria for Determination of Recycled Content of Materials (EC101). [Evaluation applies to IgCC Section 505.2; CALGreen Sections A4.405.3 & A5.405.4; ASHRAE 189.1 Section 9.4.1.1; ICC 700 Section 604.1; LEED NC Credit MR 4; LEED Homes Credit MR 2.2; LEED Schools Credit

MR 4; ANSI/GBI 01-2010 Section 10.2.1.1; CSI GreenFormat Section 2.3.3]

**6.0 IDENTIFICATION**

Each bag of insulation is identified by a label bearing the Nu-Wool Company, Inc., name and address, product name, manufacturing date and the VAR Environmental Report number (VAR-1005).

**TABLE 1—RECYCLED CONTENT BY WEIGHT SUMMARY**

PRODUCT	% PRE-CONSUMER RECYCLED CONTENT	% POST-CONSUMER RECYCLED CONTENT	% IN-PROCESS RECYCLED CONTENT— TREATED	% TOTAL RECYCLED CONTENT
Nu-Wool WALLSEAL	30	56	0	86

**TABLES 2 THROUGH 10**

Section Number	Section Intent	Possible Points	Conditions of Use to Qualify for Points	Finding
<b>TABLE 2—SUMMARY OF AREA OF ELIGIBILITY WITH THE 2012 INTERNATIONAL GREEN CONSTRUCTION CODE</b>				
505.2.2	Recycled content building materials	N/A	Recycled content building materials shall comply with one of the following: 1. Contain not less than 25 percent combined post-consumer and pre-consumer recovered material, and shall comply with section 505.2.3 2. Contain not less than 50 percent combined post-consumer and pre-consumer recovered material.	•
<b>TABLE 3—SUMMARY OF AREA OF ELIGIBILITY WITH THE 2010 CALGREEN</b>				
A4.405.3 A5.405.4	Recycled content	N/A	To achieve Tier 1 - Use materials, equivalent in performance to virgin materials, with a postconsumer or preconsumer recycled content value (RCV) for a minimum of 10% of the total value, based on estimated cost of materials on the project. To achieve Tier 2 - Use materials with a postconsumer or preconsumer RCV for a minimum of 15% of the total value, based on estimated cost of materials on the project. RCV shall be determined as follows: RCV = (% PC X material cost) + 0.5 (% PI X material cost) Notes: 1. PC means post consumer waste. 2. PI means post industrial waste.	•
<b>TABLE 4—SUMMARY OF AREA OF ELIGIBILITY WITH ASHRAE 189.0-2009</b>				
9.4.1.1	Recycled Content	N/A	The sum of post-consumer recycled content plus one-half of the pre-consumer recycled content shall constitute a minimum of 10%, based on cost, of the total materials in the building project.	•
<b>TABLE 5—SUMMARY OF AREA OF ELIGIBILITY WITH THE NATIONAL GREEN BUILDING STANDARD (ICC 700-2008)</b>				
604.1	Use two or more major and/or minor building materials containing recycled content	1 3 max	1, 2 or 3 points may be earned when products are used with another minor building component with recycled content of 25% < 50%; 50% < 75%; or ≥ 75%, respectively. Nu-Wool insulation can qualify for 3 points	•
<b>TABLE 6—SUMMARY OF AREA OF ELIGIBILITY WITH USGBC'S 2009 LEED FOR NEW CONSTRUCTION</b>				
MR 4	Recycled content	1 2 max	To earn 1 point use materials with recycled content such that the sum of post-consumer recycled content plus 1/2 of the pre-consumer content constitutes at least 10%, based on cost, of the total value of the materials in the project. To earn 2 points use 20% or more. Nu-Wool's recycled content equals 76% using this formula	•
<b>TABLE 7—SUMMARY OF AREA OF ELIGIBILITY WITH USGBC'S LEED FOR HOMES 2008</b>				
MR 2.2	Recycled content	0.5	To earn 0.5 point use insulation with recycled content of either 10% post-consumer or 95 % post-industrial (pre-consumer). Nu-Wool's recycled content equals 76% using this formula	•
<b>TABLE 8—SUMMARY OF AREA OF ELIGIBILITY WITH USGBC'S LEED 2009 FOR SCHOOLS</b>				
MR 4	Recycled content	1 2 max	To earn 1 point use materials with recycled content such that the sum of post-consumer recycled content plus 1/2 of the pre-consumer content constitutes at least 10%, based on cost, of the total value of the materials in the project. To earn 2 points use 20% or more. Nu-Wool's recycled content equals 75.83% using this formula	•
<b>TABLE 9—SUMMARY OF AREA OF ELIGIBILITY WITH ANSI/GBI 01-2010</b>				
10.1.2	Materials content - Assemblies	1 8 max	Recycled post-consumer or post-industrial (pre-consumer) content materials accounted for 1% to 20% or more of building materials. Percentage is calculated as 100 x A (total cost or weight of recycled content materials) ÷ B (total cost or weight of all building materials)	•
<b>TABLE 10—SUMMARY OF AREA OF ELIGIBILITY WITH CSI GREENFORMAT™</b>				
2.3.3	Recycled content	N/A	This category relates to LEED rating system points. For specifics, see the GreenFormat-LEED Relationships Table.	•
•	= Verified attribute			