



## Everything you need to *know* about the use of loose-fill insulation for unused roof space

### The use of loose-fill mineral-wool and cellulose insulation in unused roof space is now mainstream, **but what are the consequences of this?**

On June 9, 2016, the Commission Responsible for Issuing Technical Appraisals (CCFAT) decided to remove the area of application of the method and, because of its widespread use, the use of loose-fill mineral wool and cellulose made of ground newspaper in thermal insulation processes for the floors of unused roof spaces. This means:

- After June 30, 2018, requests for Technical Appraisals and Technical Application Documents in the area of application covered by this decision will no longer be accepted.
- On June 30, 2020, the area of application covered by the decision must be removed from Technical Appraisals and Technical Application Documents. Those in the area of application covered by this decision will be canceled on that date.

#### Sound implementation

Feedback and experimentation on both types of loose-fill products demonstrate that the blow-in installation is now sound.

By becoming mainstream, they are subject to the NF DTU 45.11 standard, which will enter into force in early 2020. This standard replaces the Technical Appraisal (ATec) and Technical Application Document (DTA). As part of this transition, and pending entry into force of NF DTU 45.11, the CSTB has implemented the Transitional Technical Assessment (ATT), which enables stakeholders to continue using systems under good operating conditions.

ACERMI remains the certifying authority that attests the performance of installed products over time. When NF DTU 45.11 becomes effective, ACERMI will continue to certify the performance of both products by referring to this standard for their installation.

#### DTU: definite advantages

A Document Technique Unifié (DTU) is a unified building code that provides standard implementation specification clauses for building construction. Widely used in France, it facilitates and forms a contractual basis for the work of installers. The DTU also provides a clear benefit to insurers. It guarantees that work on a building is performed in accordance with industry standards to reduce the risk of sickness or loss. For products that have entered the mainstream, the risk of poor workmanship is low.

### CITE and CEE funding. Key points



Individuals who insulate their homes, especially with the help of funding schemes, must be attentive to the quality of the work in order to obtain the savings sought.

#### Three simple rules to ensure quality

- Use products that meet the technical criteria for the Energy Transition Tax Credit (CITE) (all ACERMI-certified insulation materials with thermal resistance that meets the criteria are eligible for the tax credit).
- Observe industry standards for product installation and Technical Appraisals for innovative products.
- Work with RGE-certified craftspeople and contractors to ensure energy efficiency.

#### Two easy-to-spot quality marks

- Product certification is indicated on packaging.
- RGE status must be specified in the estimates and on the invoices of contractors performing work.

#### Learn more about funding schemes:

<https://www.acermi.com/fr/marque-acermi/les-aides-financieres/>



The ACERMI quality certification is awarded by the Association pour la CERTification des Matériaux Isolants, a French non-profit organization (association loi 1901) established in 1983 by the CSTB and LNE. The certification enables insulation professionals to demonstrate the performance of their products following a testing, inspection and auditing procedure.

# Testimonials

Jean-Yves  
Labat



## What do they think?

### *Testimonial of an independent plasterer/drywaller. What does he think about loose-fill insulation becoming mainstream?*

An independent plasterer/drywaller in Dax, France, Jean-Yves Labat has been the President of the National Union of Plaster and Insulation Technical Professions (UNA MPTI) since April 2019. Labat is the grandson and son of plasterers and created his own company in 2004. He works primarily in the heritage sector. "I'm talking to you from 10 meters high, in a church."

### **Did you know that loose-fill insulation for unused roof spaces is now mainstream for mineral wool and cellulose?**

Yes, I am well aware. Two members of the UNA participated in commissions on the DTUs for both products. Our role is to represent plastering businesses and make our voices heard in the various professional bodies. As part of the Journées professionnelles de la construction (forum for construction professionals), we are going to prepare technical documentation to present this news, which is a major advancement for our profession.

### **What do you think are the implications?**

With DTUs, the rules are the same for everyone, whether project owner, craftsperson or consulting firm. It is no longer necessary to apply for Technical Appraisal. It saves a lot of time, which makes our work easier.

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### **What do you think about the role of ACERMI in this?**

If a product is properly installed with the DTU and certified by ACERMI, we offer a full guarantee regarding authorized insurance. As a company specializing in insulation, it makes sense to use ACERMI-labeled products. It is essential.

### *Alain Blacard is founder and CEO of ABF, which specializes in blow-in insulation.*

This group consists of 12 companies and 450 employees. Its consolidated sales in 2019 reached 75 million euros. With ABF, more than 300 private homes are insulated every day.



Alain  
Blacard

### **What can you tell us about DTU 45.11?**

I am the President of the Blow-in Insulation Division of the National Insulation Union (SNI). Since 1989, it has been the only union with a commission on blow-in mineral wool and, more recently, cellulose wadding from paper. In this context, I actively contributed to drafting DTU 45.11, which will soon come into force.

This is the culmination of 37 years of work, in construction, as well as commercial, technical and regulatory areas. You start with a blank page and an original product to promote understanding and recognition of a technique or product, then you give it respectability with Technical Appraisals and ACERMI certification, and eventually it enters mainstream use.

### **What's the situation with ATec?**

Technical Appraisals (ATec) date mostly from the 1970s. They addressed how to construct a building that is stable and lasting. Once works prove their stability and durability over many years, repeatedly and without abnormal loss history, they can, in the opinion of specialized groups, move into the mainstream, meaning the DTU.

### **What do you see as the difference between the DTU and ATec?**

The DTU is much more complete than the ATec, even though the ATec includes the "key aspects." The DTU is more demanding with regard to professionals. It will serve to support all stakeholders, including project managers, contracting authorities, architects, consulting firms and project owners.

### **What does this change do for you?**

It will push aside the many players who perform substandard work, those who have no respect for their profession or their customers. They must be vetted.

Compliance with the DTU involves few changes in implementation. A few additional aspects become mandatory, simple but time-consuming for some. For example, turbine installation machines supplied today by manufacturers can only be used for products designated by the same manufacturer, and not all types of products and brands. And, installation of wind deflectors at the bottom of roof slopes is difficult, if not impossible, from inside the roof space, so it requires work from the outside by a carpenter equipped with a platform.

### **What's the role of ACERMI in this?**

ACERMI plays a fundamental role in construction, for both new construction and renovation.



# Best practices:

## Use the ACERMI correspondence table for sizing

- ACERMI certification certifies a product's settling rating (SH) and thermal conductivity to derive its useful thermal resistance after settling. To achieve a given thermal resistance, ACERMI certificates specify the thickness, and therefore the density of product to be installed, known as "coverage."
- At a worksite, installers can refer to the items listed on the ACERMI certificate. By knowing the mass of a bag of insulation, and the surface area to be insulated, they can calculate the number of bags needed to achieve the desired performance.
- This data (product reference number, insulated surface area, thickness installed, surface density, number of bags used) must be entered by the installation company on a worksite sheet, which is the key element of the contractual agreement between the project owner and installer.

### Close-up of a certificate and how to read the manufacturer's label

**Example of a "Loose-fill cotton  
wool products" reference certificate**

Thermal resistance RTH (m2.K/W)	Minimum thickness (mm)	Thickness after settling (mm)	Minimum number of bags for 100 m <sup>2</sup>
			15 kg
7,00	350	280	70

By blow-in of product for unused roof spaces  
Certified thermal conductivity:  $\lambda_D = 0.040 \text{ W/(m.K)}$   
Density value:  $30\text{--}40 \text{ kg/m}^3$

For thermal resistance  $7.00 \text{ m}^2\text{.K/W}$  ( $R=7$ ), the minimum thickness of the product after blow-in must be 350 mm so that the thickness of the cotton wool does not fall below 280 mm after settling. The installer must then use at least 70 bags, each weighing 15 kg, for 100 m<sup>2</sup> of



surface area, with an air pump setting at a minimum density of about  $30 \text{ kg/m}^3$ .

! If the machine is set to a higher density value, more bags are required (about 94 when set to  $40 \text{ kg/m}^3$ ).





# Insulation & Uses

Fact sheet:  
Implementation – Insulating  
unused roof spaces with  
loose-fill insulation products

***In a house with little or no insulation, the roof space accounts for most heat loss, reaching 30%. In summer, it is the space most exposed to sunshine. For all-season comfort and energy savings, it is therefore essential to install efficient thermal insulation in roof spaces. Close-up of a technical solution: loose-fill insulation.***

Using an air pump, this system involves blowing a loose-fill insulation product into unused roof spaces. The most commonly used are mineral products, such as rock wool and glass, and biosourced products, like cellulose, cotton, sheep wool, linen and hemp.

## Rules to follow

If insulation is blown into plasterboard facing with timber or metal framing, follow the rules in Document Technique Unifié (DTU) 25.41, which is the unified building code

*Blowing in loose-fill insulation and rule for measuring product thickness.*

concerning the maximum permissible insulation fill based on the structure's size, fixing system, framing system, spacing and type of work (new, complete rehabilitation or insulation of existing ceiling).

Exercise caution when there are heat sources, such as smoke ducts, downlights and unprotected electrical equipment. If this is the case, refer to the guide Cahier du CSTB No. 3693\_V2 of June 2015, DTU 24.1 P1, and the Technical Appraisals of the products concerned, which provide specific rules to follow during installation.



The installation of a water vapor barrier system can limit the risk of condensation reaching the insulated floor. The barrier also helps to improve the airtightness of the spaces below the roof room. The NF DTU 45.11 standard, soon to be published, specifies the conditions requiring the installation of a water vapor barrier system (humidity levels in the rooms below the roof room, resistance to water vapor migration through the insulated floor, level of ventilation of the roof room, type of covering, climate zone).

## Thermal resistance: conditions to achieve the desired performance

Due to variations in temperature and humidity, the thickness of loose-fill insulation can decrease over time (settling). Because thermal resistance is proportional to the thickness of the blown insulation, it in turn decreases. It is therefore important to consider this phenomenon when installing insulation to achieve the energy savings expected by the project owner.

## ACERMI for long-term high insulation performance

*The information on ACERMI certificates makes it possible to install high-performance, durable insulation when observing the installation requirements in DTU 25.41, NF DTU 45.11, Technical Appraisals of insulation products, and the guide Cahier du CSTB No. 3693\_V2 of June 2015 (airtightness of walls, treatment of position points, measurement of the thickness of loose-fill insulation on the worksite, installation of wind deflectors, blowing procedure, etc.).*

## DID YOU KNOW?

You can view certificates on worksites on tablets and smartphones. The ACERMI website employs responsive design to scale to the size of your screen. This enables you to access certificates on your tablet or smartphone, so you can make the checks you need on-site.

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