



**Climatizer**<sup>®</sup>  
*Plus*

# BLOWN CELLULOSE INSULATION



**CIUR**  
SYSTEMS FOR ENERGY SAVINGS

# Climatizer Plus®

## – top thermal insulation

Climatizer Plus® cellulose insulation has been manufactured based on the original Canadian license since 1991. The raw material of cellulose insulation is 100% recycled newsprint, which is shredded, milled and impregnated with mineral additives. Climatizer Plus® is unattractive to vermin and small organisms and is resistant to mould and mildew. Mineral fire retardants are added to Climatizer Plus® in order to provide excellent reaction to fire performance. With this unique production technology Climatizer Plus® not only has superior performance in thermal and sound insulation, but also long-term efficacy and durability. Guaranteed installation by trained professional and certified companies.



The enhanced insulation properties of Climatizer Plus® is based on the separation of air in micro spaces between the fibers without any possibility of movement and perfect adherence of fibrous materials to the other parts of the structure when used in combination with membranes that regulate the rate of water vapour diffusion through structures, Climatizer Plus® effectively makes a pleasant atmosphere indoors, without inducing discomfort due to absolute closure of structure with quite tight vapour barrier. We can say that Climatizer Plus® inherently naturally “breathes” when used in conjunction with vapour membranes.



The increasing requirements for savings by developer and homeowner can be achieved by looking to the building fabric first, lower construction cost and lower ongoing fuel costs.

The aim is to provide practical proven system of insulation material that provides a healthy environment for occupants and lifetime of structures without defects.

We and our cooperating partners use suitable materials for each individual building with optimum quality at a competitive price.

In system Compri® we support this kind of solution, by our own supplies, specialist advisory and professional installation, and also subsequent inspection.

Mgr. Michal Urbánek  
Director of CIUR a.s.

# 10 ADVANTAGES of Insulation Climatizer Plus®



- 1 Saving energy and significantly reduce heating costs**  
– Excellent thermal insulation attributes
- 2 Significant improvement in building acoustics**  
– Excellent sound insulation attributes and increased sound reduction
- 3 Improving accumulation characteristics of building**  
– In the summer effectively prevents overheating of buildings, in the winter provides thermal comfort throughout the day
- 4 Low vapour resistance and the ability to control moisture transportation**  
– With correct composition of the layers the insulating material allows structures of the house to breathe
- 5 Perfect filling out of all construction details**  
– Application without waste, without the risk of thermal bridges and of longitudinal airflow
- 6 Universal use in roofs, walls and ceilings**  
– Application thickness of insulation according to the type of construction from 4 cm
- 7 Good reaction to fire properties**  
– Insulating material is impregnated with mineral additives
- 8 Fast availability and application**  
– Guarantee of the installation
- 9 Long-lasting insulation and resistant to mould and mildew**  
– Long-term life of insulation – a unique technology, guarantee 20 years for attributes
- 10 Environmentally friendly product**  
– Eco Logo certification since 1994



The house without thermal insulation  
**100%**  
of energy consumption



The roof or ceiling thermally insulated  
**65%**  
of energy consumption

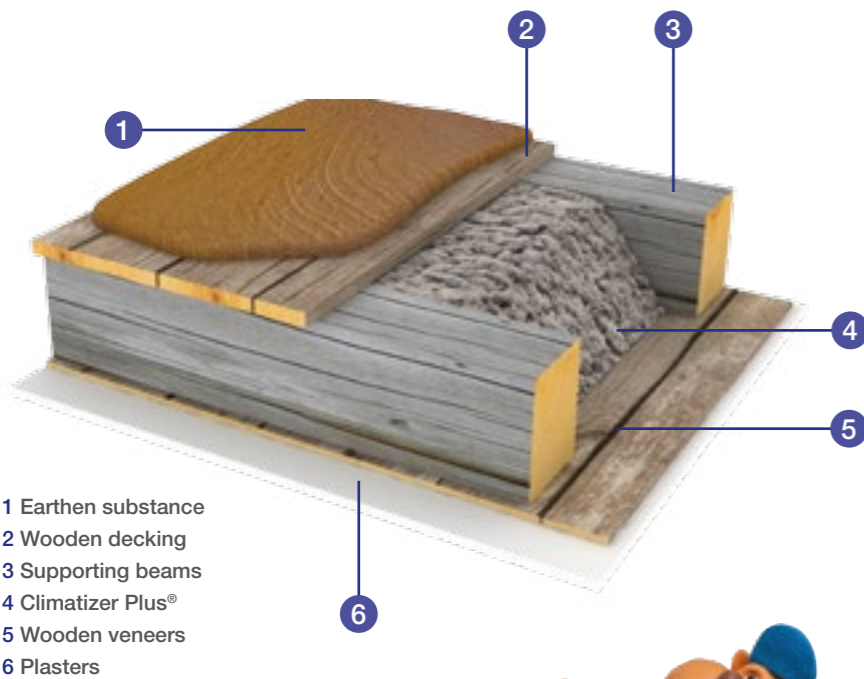


The complete thermal insulation of the entire structure  
**40%**  
of energy consumption



# INSULATION of Horizontal Surfaces

**Climatizer Plus®** insulation is installed using a pressurized blowing method, which gives one of the fastest and the most reliable methods of installation.



**Climatizer Plus®** insulation completely fills each void, and therefore there are no leaks and thermal bridges. Installation is very quick, only a few hours, and thanks to the natural character of insulation keeps the natural diffusion flow. The original timber structure is not compromised in any way by being overloaded or having build up of moisture. **Climatizer Plus®** is therefore also suitable for the insulation of existing buildings.



◀ For horizontal surfaces where a floor covering is already present, only one section of timber decking needs to be opened. The ceiling cavity can be then blown with the insulating material to a distance of 4 m on each side. Without any significant structural modifications, it is possible to insulate the original ceiling and thus significantly reduce the heating costs.



▲ If the attic is not already walkable, the insulating material can be applied directly to the original design. Open blowing is one of the most effective installation techniques. The thickness of the insulating material depends on target U-value, and most often in the range 25-40 cm. The loft can usually be easily insulated via access through the loft hatch.

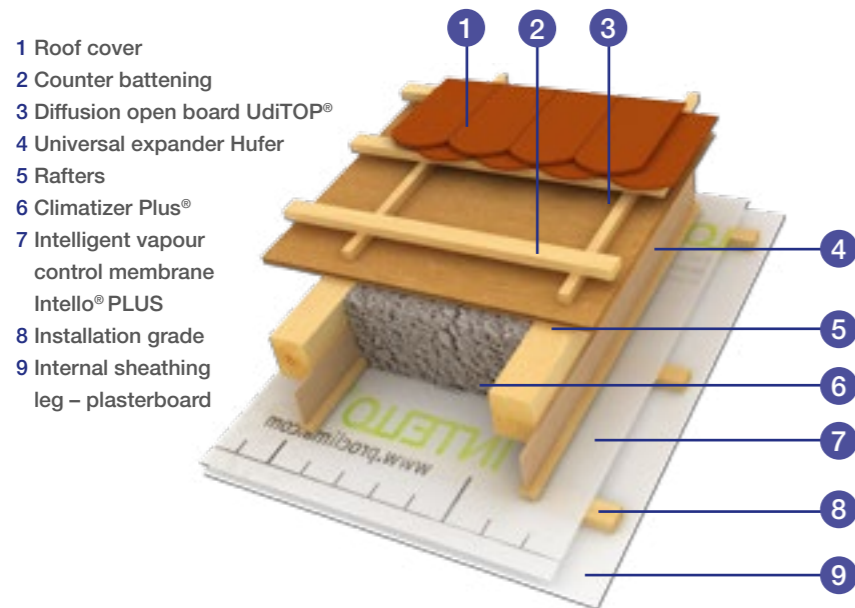


▲ Raised loft floors for storage purposes using ceiling joist expanders can easily be insulated with **Climatizer Plus®** hence giving a fully insulated “walkable” loft space.



# INSULATION of Sloping Roofs

**Climatizer Plus®** is suitable for use in new build pitched roof structures. The product can be blown directly against a breathable membrane or breathable timber boards with ventilation directly above.



▶ The combination of **Climatizer Plus®** with special membranes pro clima® is the ideal solution for pitched roofs. Systems of Intello® PLUS or DB + are specifically designed for blown insulation. Membranes provide sufficient strength during the pressurized filling of structures, and are an ideal safe solution for vapour barrier on the interior side. Their basic attribute is the variable diffusion resistance, which gives great protection from moisture and condensation in winter and allows drying out in the summer, when the membrane are diffusion opened for backward drying out to the interior. There is no risk of permanent roof failure and roof is always in “perfect condition” in the cold. It is also desirable to ensure optimum air tightness and insulation function.



▲ In the case of roofs without ventilation or with a covering on full boarding, such as bitumen shingles, insulation can be blown directly beneath the boarding without a ventilation gap. However, it must be protected from the interior side by correct vapour brake or by vapour barrier layer, verified by condensation risk calculation.



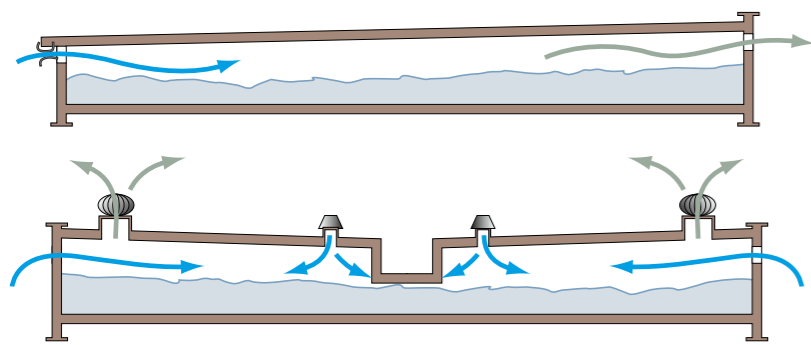
▲ The blowing of insulation through the top of a roof (detailed above) is especially an advantage for topping up the insulation of partially insulated lofts. After the installation has been completed, the hole is patched with a breathable membrane in order to make the roof weather proof.



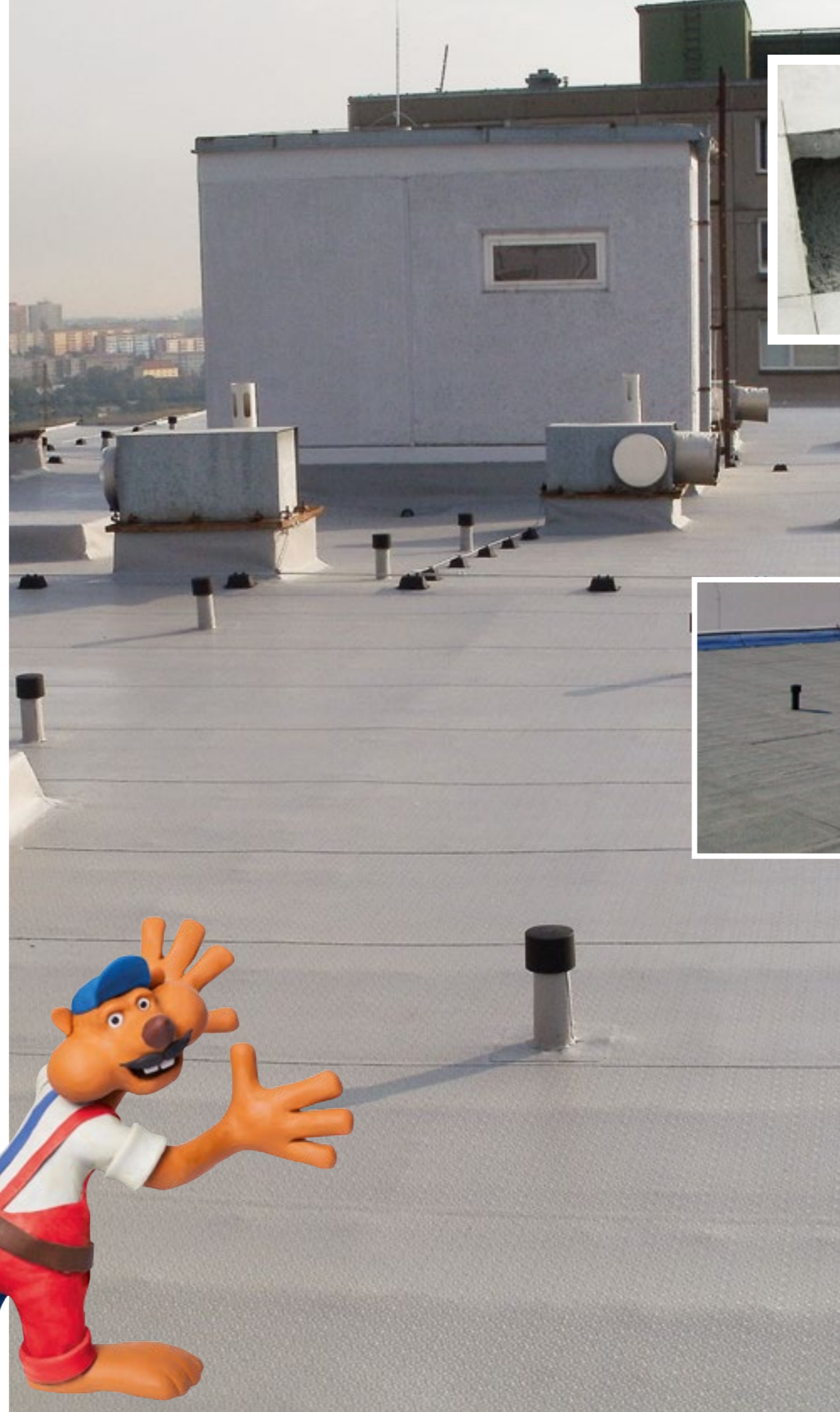
# INSULATION of Twin-Canopy Ventilated Roofs

A large number of existing roofs consist of hatches are twin-canopy ventilated systems. Their main disadvantage is usually poor level of thermal insulation compared to current requirements. Renovation and addition of an insulating layer by blowing **Climatizer Plus®** is the easiest way to efficiently reconstruct these roofs to the current building requirements.

Just as with a block of flats and high-rise buildings it is possible to implement this alternative method of insulation, together with many family houses where frequently the roofs of this type occur. The advantage is that the entrance hatches are often already prepared and the roof is usually easily accessible from one or a few sites.



The gap in the shell easily allows us to add an insulation layer of 15-30 cm, which, together with the original insulating layer fully complies with the current requirements. It does not matter whether any upper decking made up of wood or other material, such as concrete or ceramic bricks. The layer of insulation is perfectly homogeneous; there is no possibility interstice and leaks. The big advantage of cellulosic fibers of **Climatizer Plus®** is a unique ability to quickly transport moisture. Any moisture that passes through the residential area to the insulated shell is by insulation immediately transported to the ventilation gaps and take away of the roof. So the roof even after long periods of winter is always in good condition, without the lower part of the insulation provided with a vapor barrier.



▲ These types of roof structures usually have “man-holes” for entry. After installing the insulation, these holes can be used as housings for ventilation caps. The ventilation cap should be raised above the roof level in order to decrease air flow, whilst maintaining maximum volume and improving ventilation during periods of high snow covering.



▲ In many cases the space in the roof is too small to enter for installing quilt material and hence blowing loose fill **Climatizer Plus®** is an advantage. With this technique fewer holes can be drilled into the existing structure.



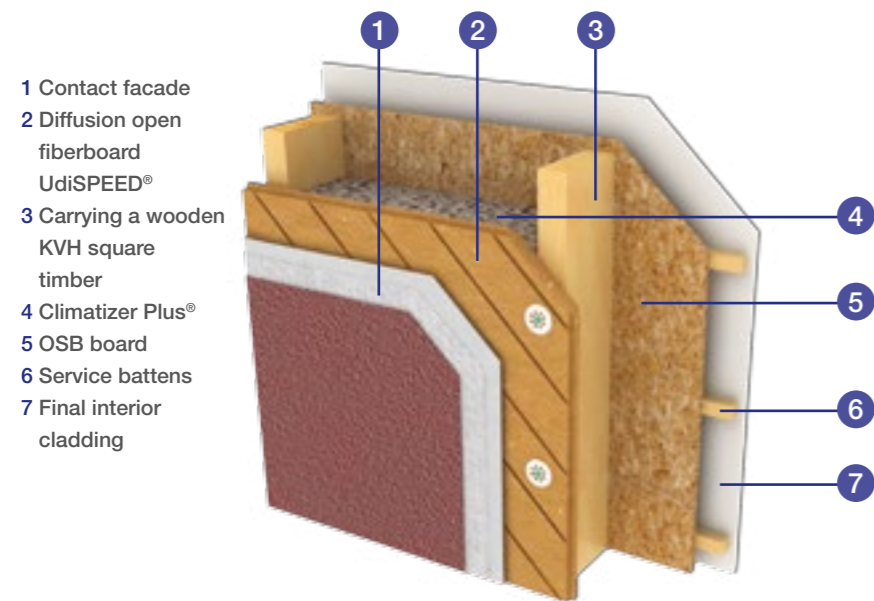


# INSULATION

## of Vertical Wall Structures

A widespread application of **Climatizer Plus®** insulation filling external walls of timber frame buildings, and also internal lightweight partition walls made of different materials.

Careful design of the timber frame wall structure is required in order to prevent interstitial condensation and hence the build up of moisture in a structure. An example is given below.

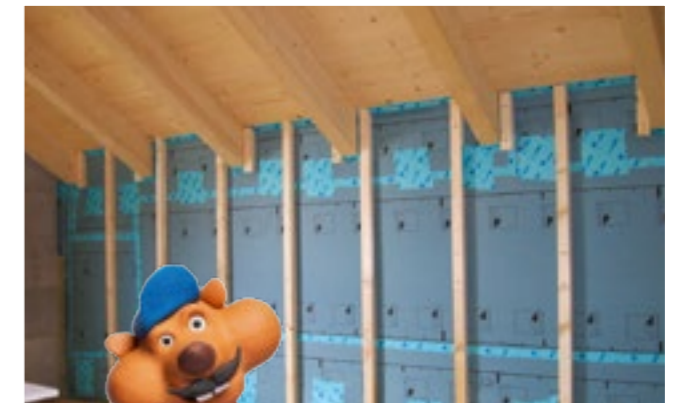


► **Climatizer Plus®** is installed through the X JET nozzle that provides a dust-free delivery system, making it possible to fill the gap between plasterboard separating walls and ceilings. The application through one opening into sections that average up to 80 cm wide and 3.2 cm high is an advantage. With higher wall construction it is necessary to create a horizontal line of division. Installed density in these cases range from 50 to 75 kg.m<sup>-3</sup>, depending on the thickness and type of the fill structure. This also ensures thermal comfort and excellent acoustic comfort. The basic attributes are perfect adhesion of the insulating material to every detail of construction, stability without danger of settlement and possibility to easily fill into varying thicknesses and different shaped spaces with virtually no restrictions.



▼ **Climatizer Plus®** can be also installed into prefabricated panels directly during their production in a factory. In this application, it is necessary to use volume weight of 60-70 kg.m<sup>-3</sup>, to avoid settlement during transport and thereby to form a thermal bridge. The disadvantage of slightly higher material consumption is compensated by the comfort and increased productivity of factory work.

▼ More frequently **Climatizer Plus®** is installed directly (in-situ). This brings in terms of material consumption. Great savings, because it is possible to install the material at a density according to the needs of each individual structure and its inclination. The insulating material is filled into the structure when the building is weather tight.





# INSULATION SPRAYS

Thermal and acoustic insulation spray with **Climatizer Plus®** has been designed primarily for applications under ventilated facade systems, onto installation front walls or as a final installation layer for storage rooms and rooms with higher requirements on room acoustics.

▶ This type of installation method uses the damp spray technique. The application machine contains an additional device that allows mixing of insulating material with water or special bonding agents. The base layer is roughly applied into a prepared grid directly on the base. The installation is levelled off using a special roller. Spraying of insulating material **Climatizer Plus®** can be in several steps reach a thickness up to 17 cm.



▲ For ventilated facades Vinyl cladding systems can be used. The insulating layer can be additionally protected by a suitable breathable membrane such as pro clima Solitex.

The final sprayed surface can be applied with a variety of colored shades. In this case the final layer has been formed by **Climatizer Plus®**. Because of rough surface and density this coating has excellent sound absorbing attributes and considerably improves the spatial acoustics in the room. It is possible to apply on both vertical and horizontal construction surfaces. An effective acoustic layer usually varies within the range of 2.5 to 6 cm.



▼ To eliminate noise transfer to the adjacent rooms, spraying of **Climatizer Plus®** is often also performed in underground car parks, industrial, sports or bowling halls.



▼ There are many buildings which suffer with condensation problems caused by uninsulated cold metal roofs. Condensation dripping destroys not only the building components, stored materials, machinery, but can cause problems for the livestock in agricultural buildings. With a thin layer spray on application this problem can be eliminated. Especially when combined with a proper ventilation system, exhausting moist air.



▼ Spraying of insulation to the external walls of a family house. After rolling, final cladding such as plasterboard is installed.





# EASY AVAILABLE

## and Technical Support

Through regional application partners is **Climatizer Plus®** easily available in all regions of the Europe. Companies are regularly trained and put through final testing. The manufacturer annually evaluates the performed work and gained experience of partner companies and conducts their certification.

Modern material with a wide offer of advantage applications in your building sites, an experienced team of workers with long technical practice, technical service, technical consulting and a wide team of reliable partners all over Europe.



# QUICK APPLICATION

Application of insulating material **Climatizer Plus®** is very simple and fast. The insulation is installed directly into the appropriate voids and gaps, gaps between walls, loft, roofs, and ceilings through an insulation blowing machine. The fine loose-fill cellulose fibre **Climatizer Plus®** penetrates very easily into the smallest corners and hence provides a full fill installation without any air gaps. Thanks to the compactness of the insulating layer, client may not have a fear of thermal bridges, which is not always the case in layman's prefabricated sheet materials.

► is installed directly from a van or truck using specialist application machine. The product can be installed many tens of meters away from the point of insertion, spraying or blowing hence minimizing disruption in the property.



# TECHNICAL DATA



## DIMENSIONS

TRADE MARK	WEIGHT (KG)
Climatizer Plus®	13,6

## PHYSICAL PROPERTIES

PROPERTY	MEASURED VALUE	UNIT	HARMONIZED TECHNICAL SPECIFICATION
THERMAL PROPERTIES			
Thermal conductivity $\lambda_{D(23/50)}$ – dry product	0,038*	W.m <sup>-1</sup> .K <sup>-1</sup>	EN 12667, EN ISO 10456
Thermal conductivity factor $\lambda$ – spraying with water (binding agent)	0,039 (0,042)	W.m <sup>-1</sup> .K <sup>-1</sup>	
Specific heat capacity $C_D$	2020 ± 6 %	J.kg <sup>-1</sup> .K <sup>-1</sup>	EN ISO 8990, EN 675
PHYSICAL PROPERTIES			
Volume weight	30–90**	kg.m <sup>-3</sup>	EN 1602
Settling rate (at 27–40 kg.m <sup>-3</sup> ) – open blowing on horizontal surface	≤10–15	%	–
Settling rate – volume filling – ceilings, roofs, partitions	undetectable (≤1)	%	–
FIRE PROPERTIES			
Reaction to fire – dry material	C-s1, d0	–	ČSN EN 13501-1
Reaction to fire – dry material in the cavity under specified conditions	B-s1, d0	–	
Reaction to fire – spraying with the Karsil E01 binding agent	B-s1, d0	–	
Reaction to fire – spraying with the Sokrat 2802 A binding agent	D-s2, d0	–	
Flame spread index $i_g$	0,00	mm.min <sup>-1</sup>	ČSN 73 0863***
Maximum used temperature	80 (105 for short time)	°C	–
OTHER PROPERTIES			
Diffusion resistance factor $\mu$	1,1–3**	–	ČSN EN 12086

\*Declared value given for the mean temperature of 10 °C and moisture content equal to the moisture of the material in the equilibrium state at 23 °C and the relative humidity of 50 %  
\*\*Based on the method of application for various structures and their inclination  
\*\*\*Based on Czech technical standards





### Tightness of Buildings

FILMS, ADHESIVES, TAPES



### Thermal Insulation

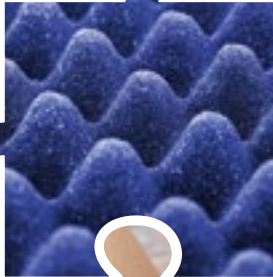


### Diagnosis

THERMAL CAMERA, BLOWER DOOR



### Sound Insulation



### Consulting and Design



### Interior Insulation



### Thermal Pumps Air Conditioning Ventilation



### Fire Resistance



### Recovery for Passive Houses



### Expanders

SOLUTION OF ADDITIONAL INSULATION



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