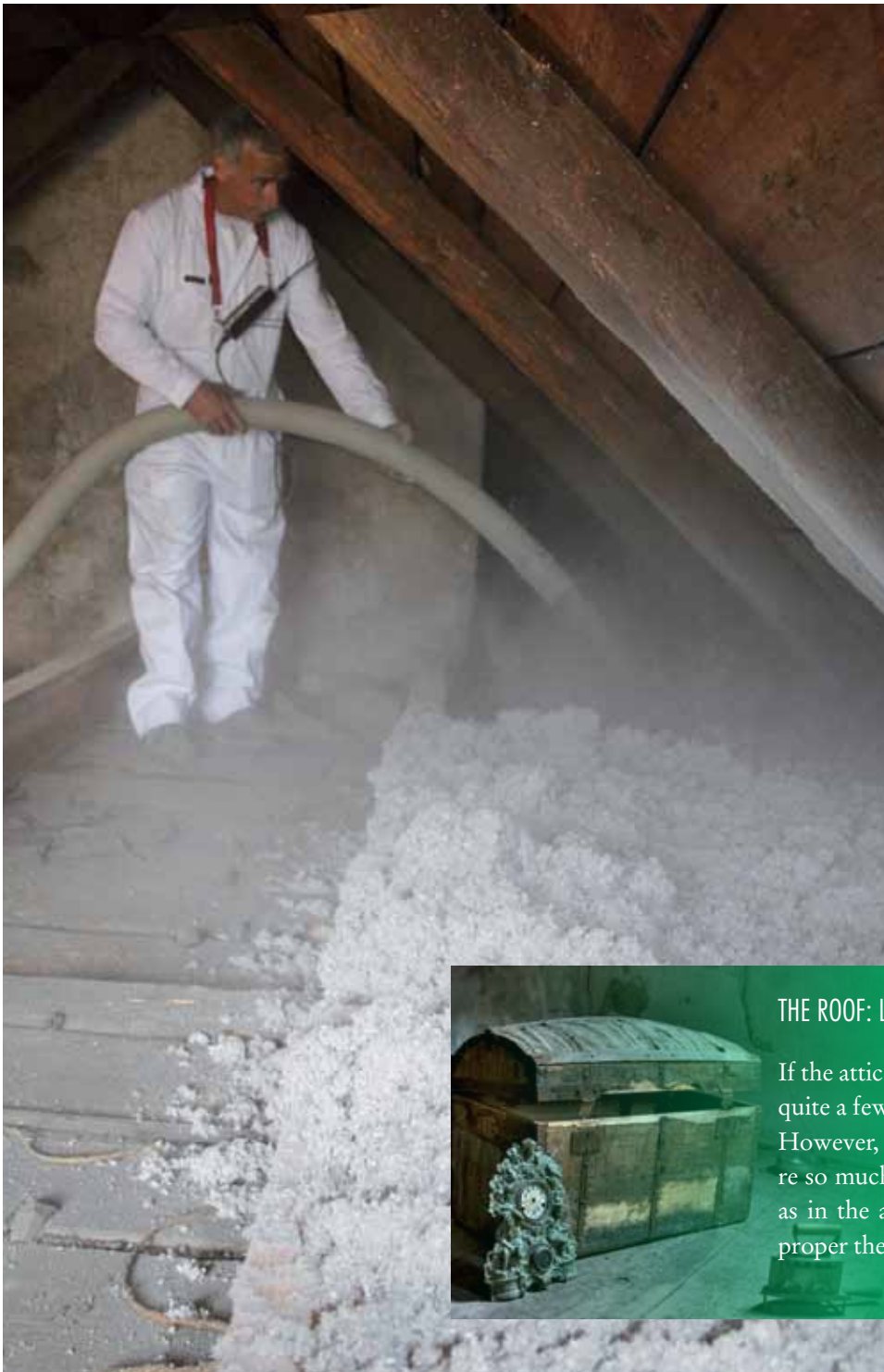


## SOLUTION: TOP FLOOR - NOT ACCESSIBLE



## PLANK-LATTICE TRUSS ROOF STRUCTURES AND UNUSED ATTIC SPACE

# INSULATION WORK IN PRACTICE



## BUILDING SITE PROCEDURE

The injection specialist comes with his truck to the building site and bring along everything he needs: the injection machine and the material.

## THE ROOF: LITTLE EFFORT – BIG EFFECT

If the attic is not used as living space, then it collects quite a few 'treasures'.

However, there is no other part of the building where so much energy can be saved with so little effort as in the attic. The actual treasure of the house is proper thermal insulation!





An assistant fills the injection machine on the truck with the ISOCELL cellulose insulation.



Only the injection hose needs to be brought to the place of installation, not enormous amounts of material.

The injection specialist controls the injection machine on the truck by remote control. The top floor or attic is insulated in just a few hours.

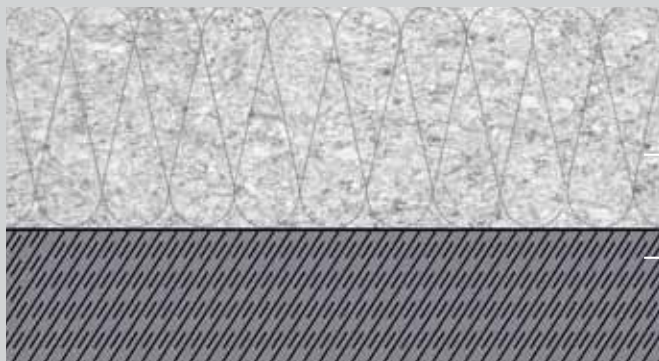
## BLOW UP - INACCESSIBLE AREAS

For the insulation of uneven surfaces with floor bracings (plank-lattice truss constructions), ISOCELL cellulose represents the only sensible solution from the point of view of building technology and economy. The loose material is conveyed from the truck up to the attic with the aid of the injection machine. After that an even, precisely fitting and jointless cellulose layer insulates the top floor and keeps the building warm in winter and cool in summer.



# SOLUTIONS IN DETAIL, SIDE VIEW AND SECTION

Cellulose blown up openly onto concrete floor



ISOCELL cellulose insulation

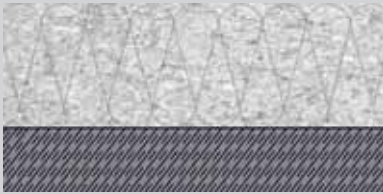
Concrete floor



Designation	ISOCELL cellulose insulation
Approval:	ETZ ETA - 06/0076 (A); Z-23.11-1236 (D)
Installation density as per approval	Free lying 28 - 40 kg/m <sup>3</sup> Space filling 38 - 65 kg/m <sup>3</sup>
Delivery moisture content	max. 12 %
Greenhouse potential (GWP)	-0,8 kg CO <sub>2</sub> äqu. per kg

# TECHNICAL DATA FOR THE STRUCTURAL ELEMENT ILLUSTRATED

ISOCELL cellulose insulation  
Concrete floor



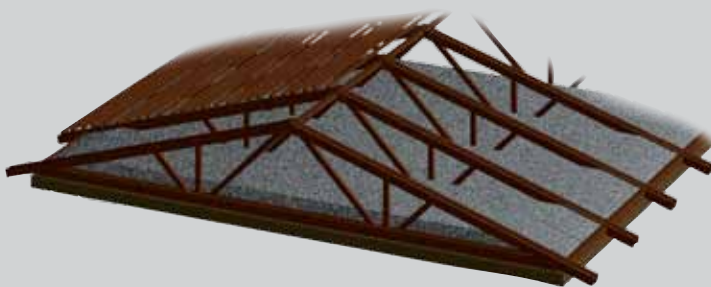
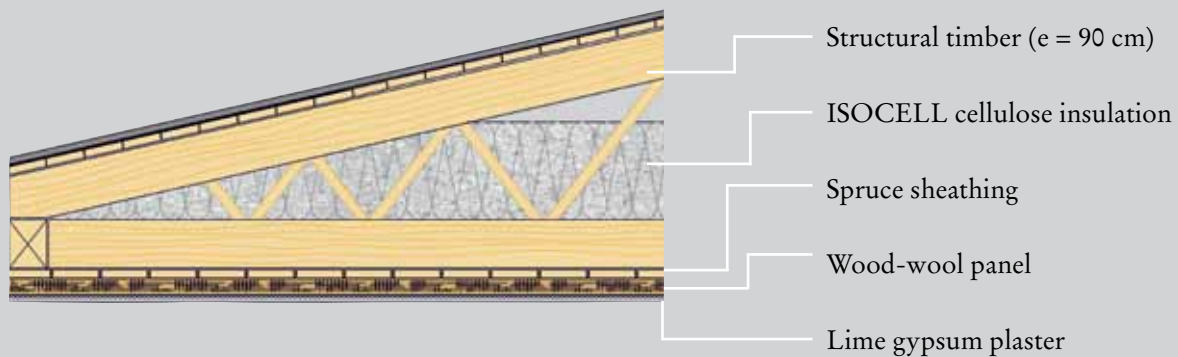
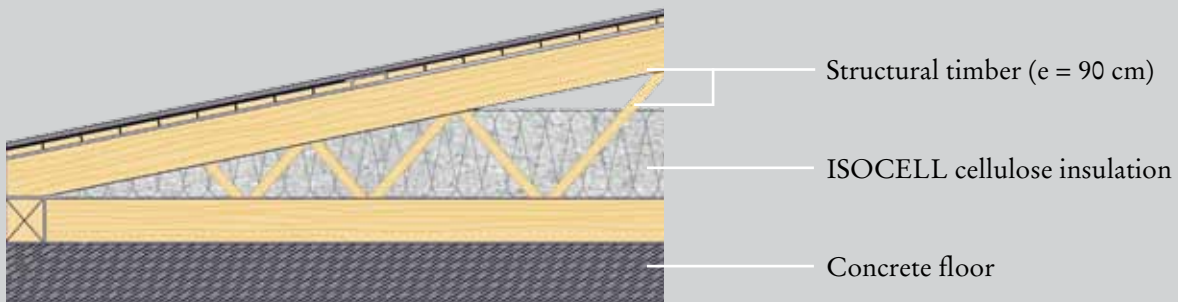
Building material	Layer thickness (mm)	$\lambda$ (W/m K)	Fire class (EN)
ISOCELL cellulose insulation	160	0,039 0,040 (D)	B-s2,d0
Concrete floor	200	2,33	A1

Thickness of insulating material (mm)	Insulating material density (kg/m <sup>3</sup> )	GWP* (kg CO <sub>2</sub> äqv./m <sup>2</sup> ) for overall structure	PHI (phase shift in hours)	U-value (W/m <sup>2</sup> K)
160	30	56,63	9,5	0,233
180	32	55,75	10,2	0,209
220	32	54,59	11,3	0,173
260	34	52,95	12,7	0,147
320	36	50,51	14,8	0,121
360	38	48,55	16,4	0,108
400	38	47,16	17,7	0,097

\* Total GWP (Global Warming Potential)

# SOLUTIONS IN DETAIL, SIDE VIEW AND SECTION

Cellulose blown up openly into plank-lattice truss constructions



## Advantages

- Top thermal insulation values
- Outstanding protection against heat
- High sound insulation
- High fire protection
- Ecological insulating material
- Non-rotting
- Adapts itself without wastage or joints to all undulations and gaps.

# TECHNICAL DATA FOR THE STRUCTURAL ELEMENT ILLUSTRATED

Cellulose blown up openly into plank-lattice truss constructions



Building material	Layer thickness (mm)	$\lambda$ (W/m K)	Fire class (EN)
Structural timber	140	0,13	D
ISOCELL cellulose insulation	140	0,039 0,040 (D)	B-s2,d0
Concrete floor	200	2,33	A1

Thickness of insulating material (mm)	Insulating material density (kg/m <sup>3</sup> )	GWP * (kg CO <sub>2</sub> äqv./m <sup>2</sup> ) for overall structure	PHI (phase shift in hours)	U-value (W/m <sup>2</sup> K)
140	30	48,48	9,2	0,312
200	32	42,82	10,7	0,225
280	34	35,18	13,3	0,164



Building material	Layer thickness (mm)	$\lambda$ (W/m K)	Fire class (EN)
Structural timber	140	0,13	D
ISOCELL cellulose insulation	140	0,039 0,040 (D)	B-s2, d0
Spruce sheathing	24	0,13	D
Wood-wool panel	35	0,09	B1
Lime gypsum plaster	10	0,7	A1

Thickness of insulating material (mm)	Insulating material density (kg/m <sup>3</sup> )	GWP * (kg CO <sub>2</sub> äqv./m <sup>2</sup> ) for overall structure	PHI (phase shift in hours)	U-value (W/m <sup>2</sup> K)
140	30	-29,36	9,5	0,267
200	32	-35,10	11,1	0,201
280	34	-42,88	13,7	0,151

\* Total GWP (Global Warming Potential)

## REFERENCES



### Porr residential complex in Rum

The entire 315 m<sup>2</sup> flat roof construction of the former Porr residential complex was insulated with 3.5 tonnes of ISOCELL cellulose insulating material in just eight working hours. The insulation of the roof construction dating from the 1970s would not have been possible with conventional board insulating materials due to the cramped spatial conditions.



### Historic house in Bad Ischl

The positive product properties of ISOCELL cellulose insulation as well as the gentle work process really come in to their own when renovating historical buildings. The injection process is accomplished rationally and with low dust levels. The result is a jointless insulating mat with no thermal bridges that meets the highest energy saving and room climate demands.

