

"Non ci aspettiamo
materiali in sé, ma
corretto. Persino i
on ci garantiscono
Ogni materiale ha solo
so sappiamo trarre."

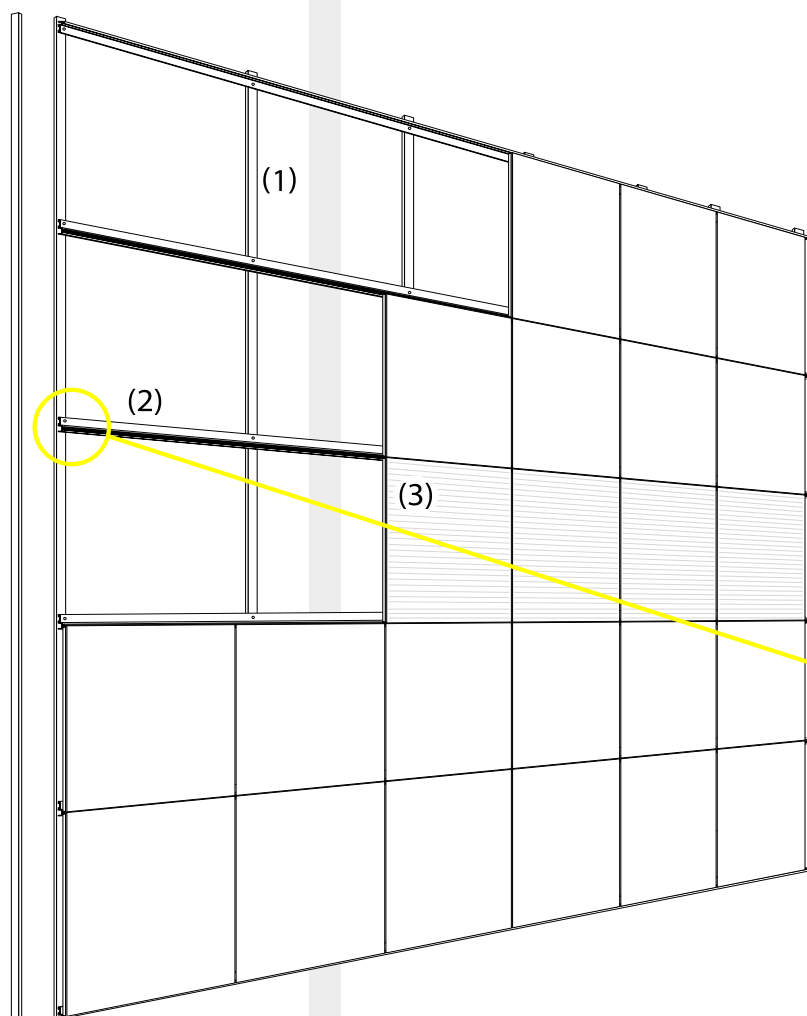
millimetri 4

millimetri4 wall system

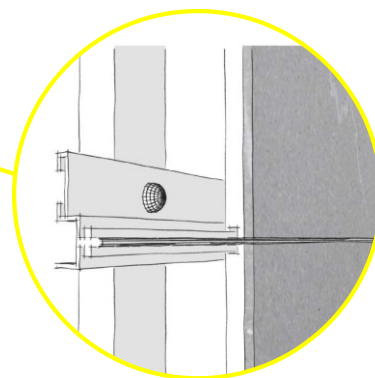
millimetri4 wall system is a complete wall-cladding system that allows natural stone panels to be dry-joint assembled.

Its extreme lightness allows to assemble it on any type of wall, including sliding walls, offering considerable benefits in terms of re-using components and simple disassembly and disposal.

The wall system designed by millimetri4 is composed of uprights, aluminium shaped profiles suitable for snap-fit joining and LIGHT PANELS.



- (1) vertical uprights
- (2) aluminium shake profiles
- (3) LIGHT PANEL





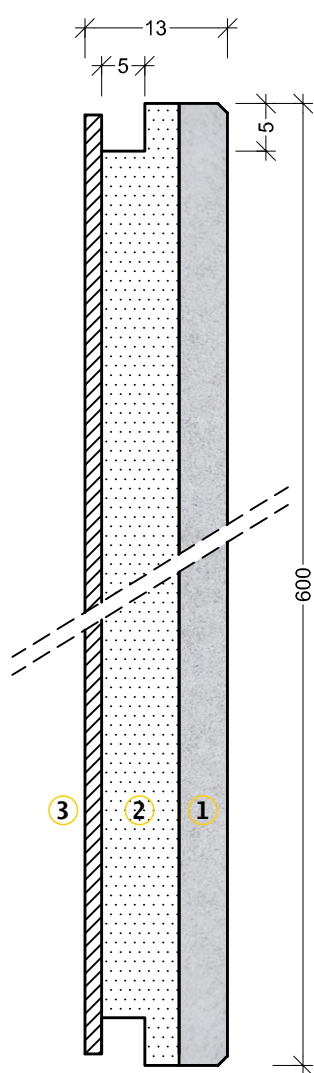
The Light panel

The LIGHT PANEL is a wall panel made up of a thin slab of Piasentina Stone (4-7 mm) applied onto a rigid polyurethane foam base and a plastic laminate layer, which confer lightness combined with compactness and mechanical strength to the whole assembly.

There are three standard sizes: mm 600x600; mm 300x600; mm 200x600.

The total thickness of the LIGHT PANEL is 13mm and it is made up of the following materials:

- ① Piasentina stone is a limestone with unique characteristics, a natural resource from the Friuli region. Its excellent physical and mechanical characteristics and its flexibility in use have allowed millimetri4 to use and highlight the qualities and aesthetic value of this precious local raw material.
- ② the rigid closed-cell polyurethane foam makes the LIGHT PANEL extremely resistant and light at the same time (total weight 14-18 kg/sq.m). Its combination with Piasentina stone provides the utmost precision in cutting it by calibration. This material features excellent insulation properties ($\lambda = 0.03 \text{ W / mK}$). On request it can be supplied in fire resistance class B2.
- ③ the hpl laminate provides durability and shock resistance to LIGHT PANEL fixing. It is made up of layers of cellulose fibre impregnated with thermosetting polymerised resins. In addition, it also confers excellent watertight and elastic properties to panels making them easy and safe to handle and install: all the operations can be repeated a number of times without any risk. The high-pressure hpl laminate has a density of $\geq 1.35 \text{ g/cm}^3$, is a chemically inert material, not subject to corrosion and oxidation.





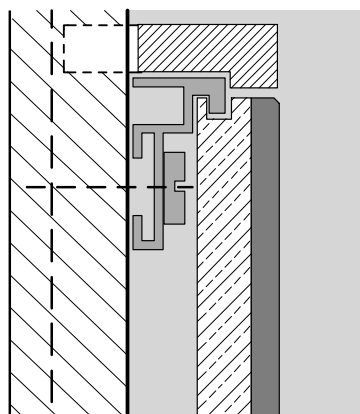
The reduced assembly time, the possibility to be removed to allow inspection, the easy maintenance and possibility to reuse the components are only some of the product distinguishing features.

Dry-joint wall panel installation

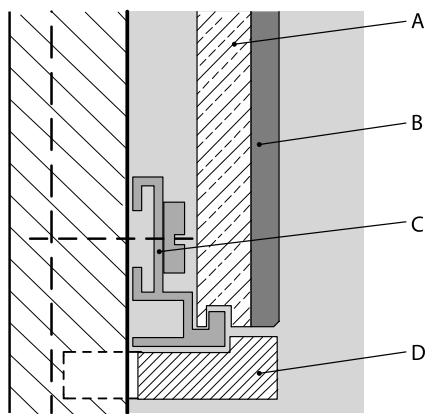
The wall panel system designed by millimetri4 consists of aluminium shaped profiles especially devised for the dry-joint wall and ceiling attachment of the LIGHT PANELS.

The standard metal framing for dry-joint installation consists of:

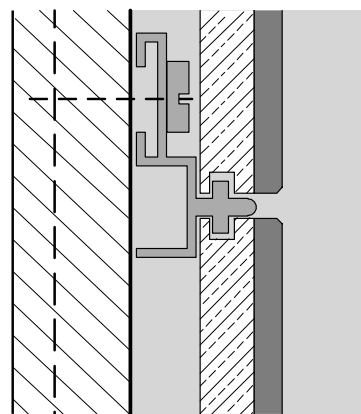
- aluminium end/perimeter profiles (see upper/lower end profile drawing);
- aluminium T-slot profiles (see intermediate profile type A drawing);
- two-way profile for accessory fitting (see intermediate profile type B drawing).



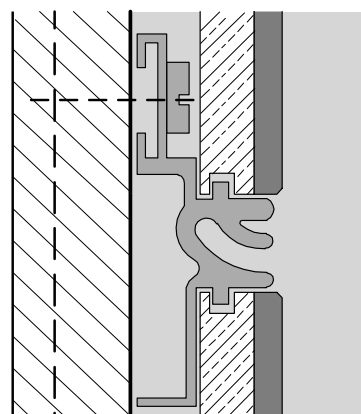
UPPER END PROFILE



LOWER END PROFILE



INTERMEDIATE TYPE A



INTERMEDIATE TYPE B

- A** polyurethane foam and plastic laminate base
- B** millimetri4 Piasentina stone sheet 4mm thick
- C** shaped aluminium profile fastened to the wall or supporting spacer
- D** Corian skirting or other material on request



Easy to be handled: it weighs 15% less than plasterboard.

Light easy to be handled

millimetri4 has developed the composite LIGHT PANEL combining three materials that make it easy and safe to handle and install: all the operations can be repeated a number of times without any risk.

The LIGHT PANEL is approx. 70% per square meter lighter than a traditional layer of Piasentina stone, and 15% lighter than plasterboard; this feature makes its transport, handling and installation easier.

Material	Specific weight [Kg/m ³]	Thickness [mm]	Specific weight* [Kg/m ²]
Marble	2650	13	34,5
Piasentina stone	2600	13	33,8
Full brick	1650	13	21,5
Cement in sacks	1400	13	18,2
Plasterboard	1180	13	15,3
Hollow brick	1110	13	14,4
Water	1000	13	13,0
LIGHT PANEL	996	13	12,9
Laminated wood	500	13	6,5
Beach wood	400	13	5,2
Cork	350	13	4,6

*Specific weight in Kg/m² normalized for a 13mm thickness



The LIGHT PANEL
can be supplied
in materials
having B1
flammability
class in
accordance with
DIN 4102.

Fire reaction

The reaction to fire determines the behaviour of a material in a fire and its degree of contribution to fire. This property of materials is conventionally expressed in fire reaction classes. The purpose of using materials with a proper fire reaction class is to reduce the rate of fire spreading and prevent flames from reaching other combustible materials, thus propagating the fire.

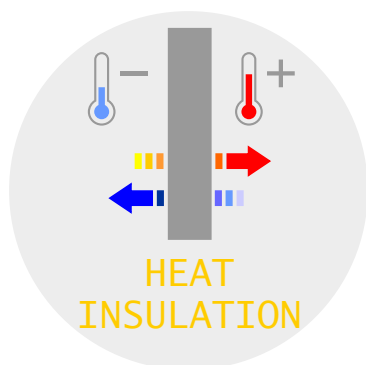
On request the LIGHT PANEL can be supplied in materials belonging to B1 class of fire resistance in accordance with the German standard DIN 4102, which classifies the reaction of construction materials and building elements to fire.

Materials are divided into the following flammability classes:

CLASS A	non flammable
CLASS B	flammable
CLASS B1	not easily flammable (fire-retardant)
CLASS B2	normally flammable
CLASS B3	highly flammable

The flammability class of the LIGHT PANEL is as follows :

on request	B1(*)
as a standard	B2



millimetri4
transformed
Piasentina
stone
into an
insulating
material.

The thermal
conductivity of
the LIGHT PANEL
can be compared
to that of
mineral wool
and cork.

Heat-insulation properties

Heat insulation allows to reduce the amount of energy used for building heating and/or cooling and to save on valuable raw materials, avoiding the emission of harmful substances.

The physical comfort felt by a person in a room depends on the thermal comfort, which is influenced by air temperature and the average thermal radiation emitted from the surfaces of the structural elements that surround that person. Thermal insulation has a direct impact on the temperatures of surfaces: the better a building is heat-insulated, the better will be the climate inside the building.

After studying the thermal properties of Piasentina stone, millimetri4 developed an ideal combination of materials that transforms it into a good heat insulator.

The LIGHT PANEL provides a thermal conductivity equal to $\lambda = 0.054 \text{ W/mK}$, which is reduced by 95% if compared to that of Piasentina stone ($\lambda = 2,3 \text{ W/mK}$) alone. This thermal conductivity coefficient can be compared to that of cork, mineral wool, polystyrene and calcium silicate.

Material	Thermal conductivity $\lambda \text{ [W/mK]}$	Equivalent thickness* [mm]
Piasentina stone	2,300	552,0
Cement mortar	1,400	336,0
Gypsum plaster	0,800	192,0
Plywood	0,440	105,0
Plaster board	0,210	50,0
Expanded clay	0,160	38,0
Calcium- Silicate	0,060	14,0
Cork	0,060	14,0
LIGHT PANEL	0,054	13,0
Polystyrene	0,040	9,6
Polyurethane	0,030	7,2

*To calculate the material equivalent thickness a resistance value normalized to the LIGHT PANEL has been used

The coefficient of thermal conductivity is a standardized unit of measure that indicates the amount of heat transfer across a specific material independently of thickness.

- the lower the heat transfer value is, the better is the thermal performance of the material;
- it provides a quick method to compare different materials between them;
- it is expressed in Watt per meter per Kelvin [W/mK]



Technical characteristics

Dimensions:	mm 600x600; 300x600; 200x600
Thickness:	mm 13
Thermal conductivity coefficient:	0.054 W/mK
Specific weight:	996 kg/m ³
Fire reaction classification:	B2*

*class B1 is also possible with materials to be used in shipbuilding.

(L. Mies Van der Rohe)
proprio niente dai
soltanto dal loro uso
nuovi materiali no
alcuna superiorità.
il valore che da ess