THE ARCHITECTURE
THAT PUTS
MAN
BACK IN THE CENTRE
OF EVERYTHING
The surfaces of any environment can create the perfect climate, enabling the dissipation of our metabolic heat in the most natural way possible, i.e. by radiation. How? By being the right temperature. Radiant architecture changes the players in the climate control, moving away from traditional systems and towards surfaces. Energy savings, respect for the environment and added value to each building.

Radiant architecture, namely thermally-active surfaces able to create optimal wellness conditions that air conditioning and heat convection systems simply cannot achieve. Great quantities of heat, in fact, are exchanged without creating any disturbance, simply enabling the people occupying the environment to “radiate wellbeing”.

WHAT IS RADIANT ARCHITECTURE?
Our body is designed to radiate (it is an almost perfect black body because its emissivity is 0.98, regardless of skin colour). The surfaces that surround us are like a second skin, which has similar characteristics and which is therefore able to instantly absorb the head the body needs to dissipate.

In moderate activity, as is normally the case in buildings, the human body also enjoys a “tranquil” air with velocity of below 5 cm/s; humidity is also important, as is hygiene in ensuring comfort temperature. Enjoying these conditions means feeling at the heart of the environment, in balance with one’s own body and with its and your intelligence.
Electromagnetic waves

Vibration propagates according to a straight line at various wavelengths which correspond to different properties (radio waves, infrared head, light, UV, etc.).

**EXCHANGE ENERGY CONTINUOUSLY AT THE SPEED OF 300,000 KM/S.**

**PRINCIPLES**

Our relationship with the environment is of an energy nature and is based on precise laws of physics. Underlying this, there is a vibration of the fundamental forces that can take on different geometries, determining the space-time (electromagnetic waves) and matter (elementary particles).

**Electromagnetic waves**

Vibration propagates according to a straight line at various wavelengths which correspond to different properties (radio waves, infrared head, light, UV, etc.).

**Particles**

Vibration is concentrated around a single point, determining the temperature for which the minimum (absolute zero) is unreachable.

This is why air, which is a fluid matter, if it is hot, goes up and if it is cold, goes down

**THERMOMETRY**

This image taken with an infrared camera shows the sequences of seven ray • magic panels supplied at only one end and closed off at the opposite end. The image shows the even distribution of heat over the entire length of the circuit.
COMFORT IS A GOLDEN PROPORTION

<table>
<thead>
<tr>
<th>TYPES OF EXCHANGE</th>
<th>IDEAL PROPORTIONS</th>
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<tbody>
<tr>
<td></td>
<td>SUMMER</td>
</tr>
<tr>
<td>RADIATION</td>
<td>45±50%</td>
</tr>
<tr>
<td>NATURAL CONVECTION</td>
<td>15±20%</td>
</tr>
<tr>
<td>CONDUCTION</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>OSMOTIC EVAPORATION</td>
<td>30±35%</td>
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</tbody>
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A comfortable temperature is:

- The correct proportion of the various types of thermal exchange, including evaporation (see table above).
- Uniform environmental temperature (surfaces and air).
- In the winter, surfaces should be 1-2° C warmer than the air.
- In the summer, surfaces should be 1-2° C cooler than the air and relative humidity should be 55-60%.
IN NATURE, THE PRINCIPLE OF MINIMUM ENERGY APPLIES BECAUSE EACH PHENOMENON OCCURS AS EFFICIENTLY AS POSSIBLE

Energy savings can be achieved by renouncing satisfaction of needs or by indulging the nature of our wellbeing: radiating better, evaporating correctly, moving in a healthy, tranquil air.

This ideal situation of wellbeing requires very little energy and increases yours.

DO YOU KNOW WHAT THE MOST VALUABLE ENERGY IS? YOURS!

Psychological-physical performance and therefore working performance too of a person are closely linked to the comfort of the surrounding environment. Studies and tests carried out worldwide have shown that productivity can increase by up to 10%, and this suffices to offset the entire cost of installing a climate control system in less than two years, whilst an improvement of just 1% was suffice to offset entire annual energy costs.

FREE UP THE POSITIVE ENERGY THAT IS IN YOU, RADIATING WELLBEING
GREEN INTELLIGENCE
RADIANT ARCHITECTURE

RAY · MAGIC
HELPS MEET THE REQUIREMENTS
OF LEED® CREDITS

LEED CREDITS TO WHICH
RAY · MAGIC PRODUCT CAN CONTRIBUTE

LEED®
for New Construction & Major Renovation, v3.0

Sustainable Site (SS)  26 points
Water Efficiency (WE)  10 points
Energy & Atmosphere (EA)  35 points
Materials & Resources (MR)  14 points
Indoor Environmental Quality (IEQ)  15 points
Innovation & Design (ID)  6 points
Regional Priority (RP)  4 points

* Out of a possible 110 points

ENERGY & ATMOSPHERE AREA
PREREQUISIT EA 2
Minimum Energy Performance
CREDIT EA 1
Optimize Energy Performance

AREA INDOOR ENVIRONMENTAL QUALITY
CREDIT IEQ 3.1
Construction IAQ Management Plan,
During Construction
CREDIT IEQ 7.1
Thermal Comfort, Design
ECONOMIC BENEFITS

The system enables better site management, as it is dry industrialised and therefore guarantees greater cleanliness and an optimisation of construction (therefore lower costs).

With its special connectors, the panel significantly simplifies assembly, speeding up installation times (and therefore reducing costs).

In terms of performance, the panel guarantees a very high yield. This means that, where conditions are equal, it takes less energy to obtain the same results as a traditional system.

High quality interior comfort is achieved by working at low heating temperatures and higher cooling temperatures (thereby saving on energy).
No radiators, no visible, cumbersome elements, just a small, elegant sensor fitted to the wall.

The radiating action performed by the ray • magic ceiling minimises the formation of dust and space is saved enabling more movement and potentially its optimisation in new ways. The climate is truly uniform and the air healthier, yours too! And nature says a big thank you.
We spend much of our days in work environments where we are called to give our best; for this to happen, we need to be at our best. These environments need to satisfy the operative functions carried out within in a technologically appropriate manner. Integrating these demands with those of flexibility, which also characterises its use, is the challenge the architect is today called to meet in choosing the most appropriate solutions for clients. With this in mind, one suitable solution consists of the use of raised flooring, which, when appropriately integrated with the air • ray conditioning technologies, are able to provide effective, customised answers to the needs described.

RAY • MAGIC and AYRO
are the names given to the two surfaces (ceiling and flooring), which, in addition to their normal finish functions, create thermal comfort and healthy air with the complete absence of noise and virtually entire visual discretion, optimising the beauty of interiors.

THE RIGHT WELLNESS TO WORK BETTER AND WITH MORE SATISFACTION
air · magic
the air treatment system.

Air quality is: the right level of humidity, cleanliness and neutral temperature without unpleasant jets of air. air · magic offers all this, along with the radiant heat of air · magic panels.

Again with this system, the aesthetic and acoustic impact is nil, or extremely low, offering energy consumption that would be unimaginable with a traditional system.

control · magic,
the regulating Electronic Control Unit.

The brain is important in comfort too and control · magic can go beyond the ordinary in this too:

- because it is Ethernet
- because it is powerful
- because it is beautiful

... and because it has the most evolved and tested air · ray conditioning control logics.
THE PANEL, THE CONTROL UNIT AND THE AIR TREATMENT SYSTEM

THE BEST SYSTEM FOR A PERFECT CLIMATE

ray • magic, the radiant panel with backbone.

Yes, ray • magic actually has a backbone, the secret behind its magic and its strength. Equipped with integrated supply lines along its main axis and the exclusive snap-in system, the ray • magic panels can be linked together without any external lines, in a simple snap.

ray • magic can also be cut into smaller modules to better fit the surface, and comes in a variety of different covers (sound absorbent, flexible, water resistant, high heat yield, treadable, etc.) for wall and floor installations as well.
RAY · MAGIC

RAY · MAGIC
THE RADIANT PANEL
WITH BACKBONE

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RAY · MAGIC beams

RAY · MAGIC BEAMS

for ceilings with visible wooden or metal beams.

The panel can be cut directly to size down to just 45 cm in width with a single cutter and 40 cm with a manual circular saw, also combining lengths from 120 to 240 cm thanks to the sub-modularity. Light and slim (46 mm all inclusive), it retains all the advantages of speed of installation and performance that feature in the ray · magic project.
Sound absorbent sheets... the best acoustics.

Not only heat, not only the perfect climate, but ray • magic tpanels also provide excellent acoustic insulation. The use of sound absorbent sheets reduces the reverberation of the panel surface, improving the acoustics of the room ($a_w$ ray • magic: 0,15 - $a_w$ sound proofing: 0,6).

A variety of sound absorbent solutions to meet a variety of needs:

**STANDARD**
13-mm thick white fibre sheet with density of 10.2 kg/m².

**GRAPHITE**
13-mm thick sheet with graphite insulation and finish. Greater thermal yield (+17%).

**FIREPROOF**
13-mm and 15-mm fireproof plasterboard for fire-resistant structures.

**TREADABLE**
10-mm thick fibreboard for applications on dry floors. To be covered with a second slab once laid.

**DIFFERENT PANEL COVERS TO MEET DIFFERENT NEEDS**

AND THERE’S MORE...
Merville
Residential complex on the coast

Hot/cold false ceiling application for 140 apartments, dehumidification with neutral air using a partial renewal system and plenum aspiration in the false ceiling, room-by-room regulation and interfacing with Merten home automation on touch screen.
APARTMENT

Restoration of apartment, heat/cold ceiling application with Habito sheets, adiabatic dehumidifiers built into the false ceiling (neutral air) and room-by-room regulation.
PROFESSIONAL STUDIO

Renovation
VILLA

Heat/cold false ceiling, Habito sheets, adiabatic dehumidifiers built into the wall (neutral air) + dehumidification and renewal with heat recovery, room-by-room regulation.
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