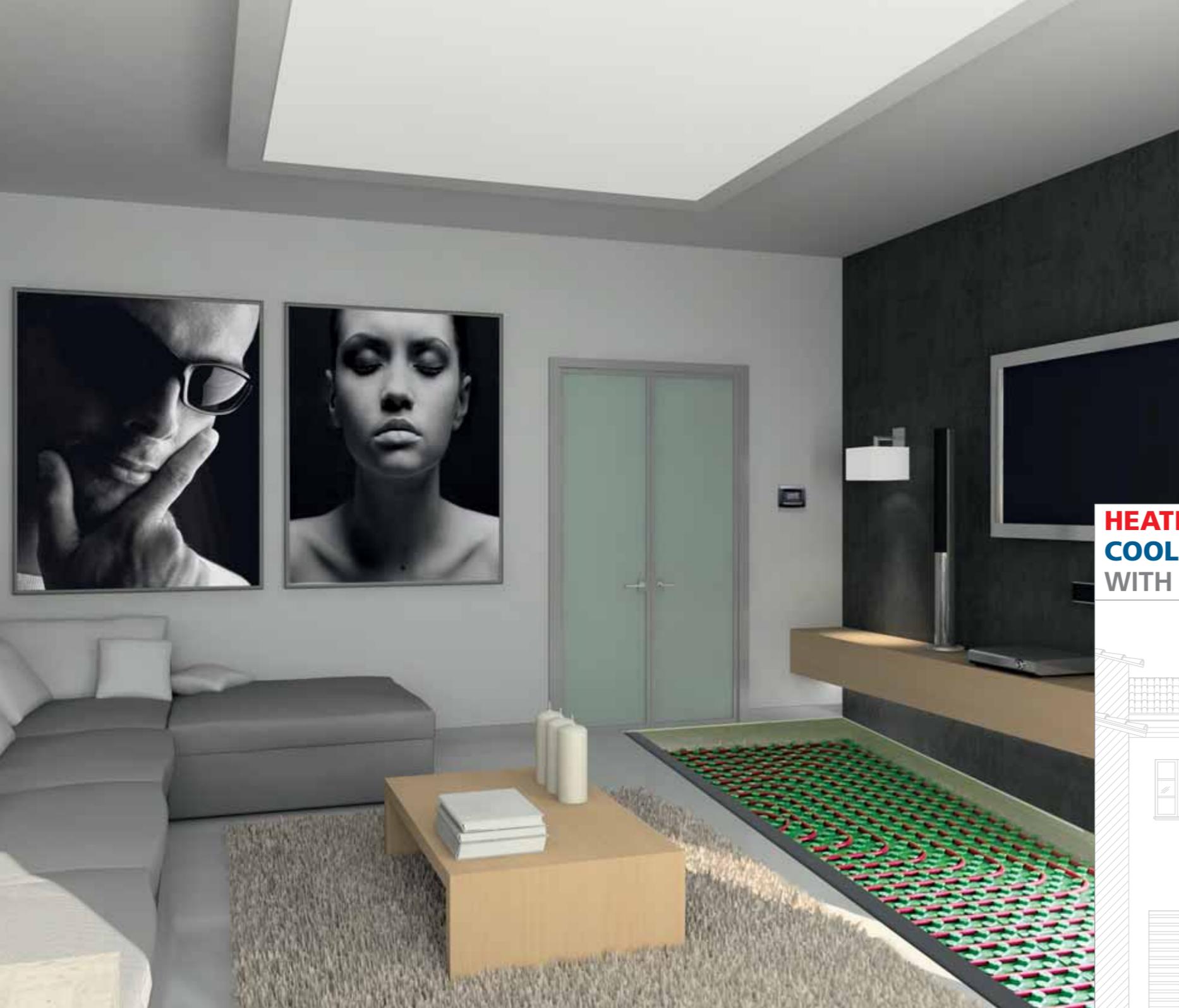




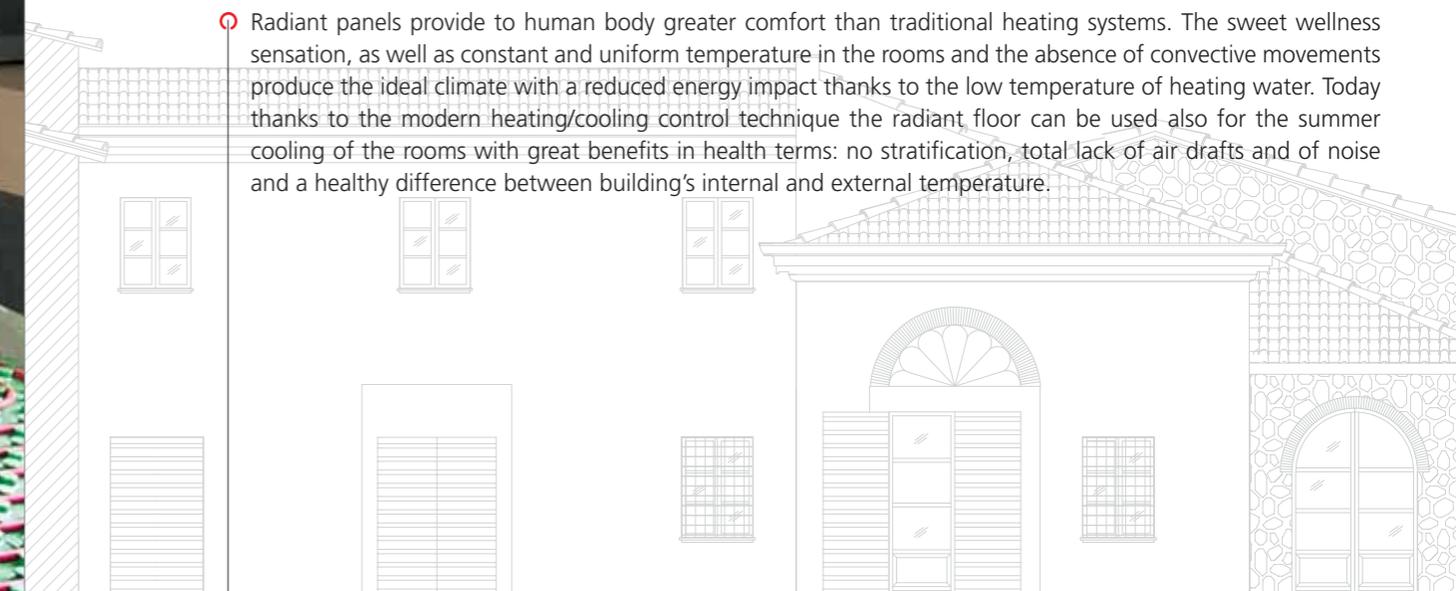
**HEATING
AND COOLING
UNDERFLOOR SYSTEM**

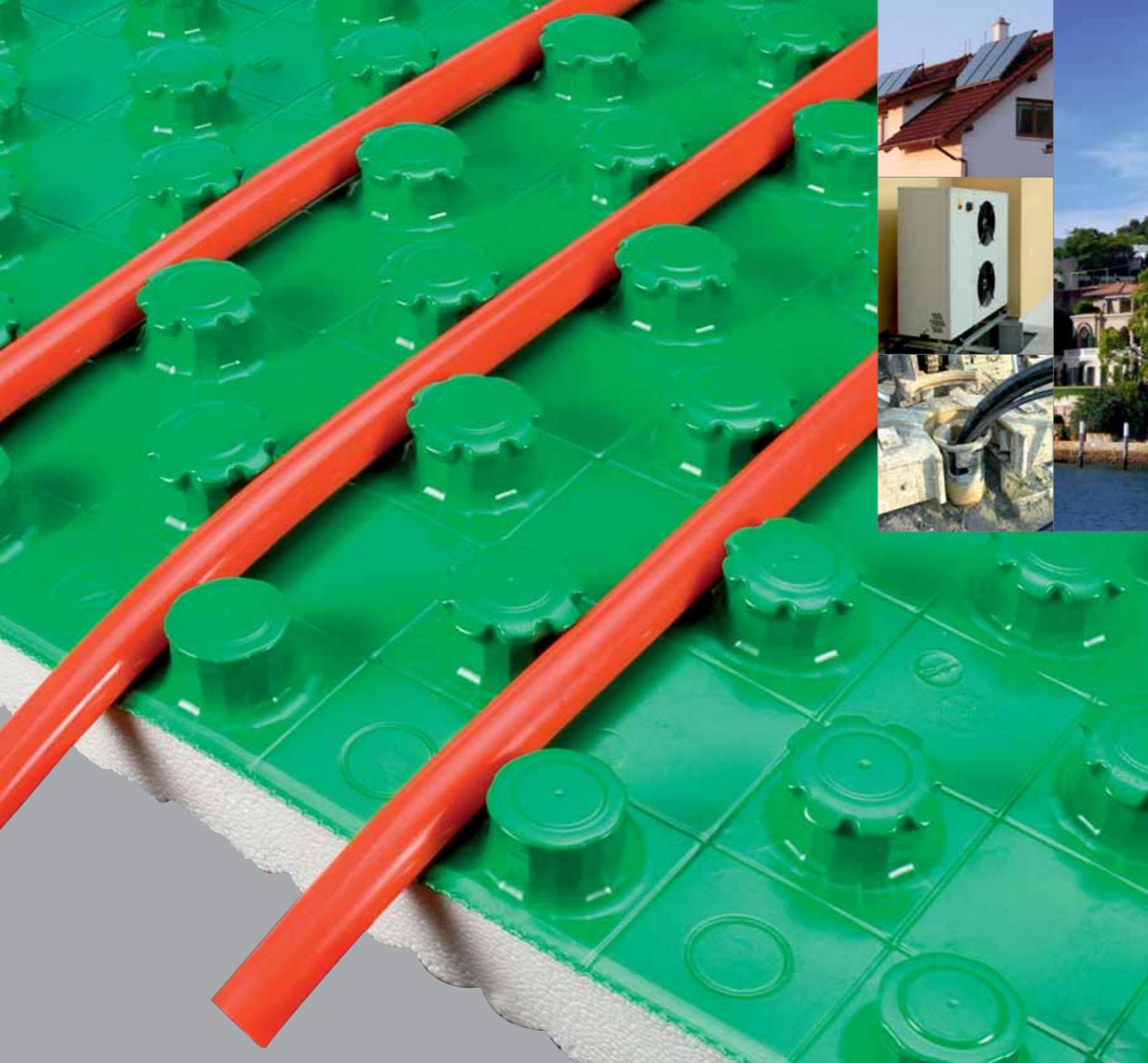
GIACOMINI 
Technology in Comfort



HEATING IN WINTER COOLING IN SUMMER WITH A SINGLE SYSTEM

○ Radiant panels provide to human body greater comfort than traditional heating systems. The sweet wellness sensation, as well as constant and uniform temperature in the rooms and the absence of convective movements produce the ideal climate with a reduced energy impact thanks to the low temperature of heating water. Today thanks to the modern heating/cooling control technique the radiant floor can be used also for the summer cooling of the rooms with great benefits in health terms: no stratification, total lack of air drafts and of noise and a healthy difference between building's internal and external temperature.





TOWARDS SUSTAINABLE CHOICES

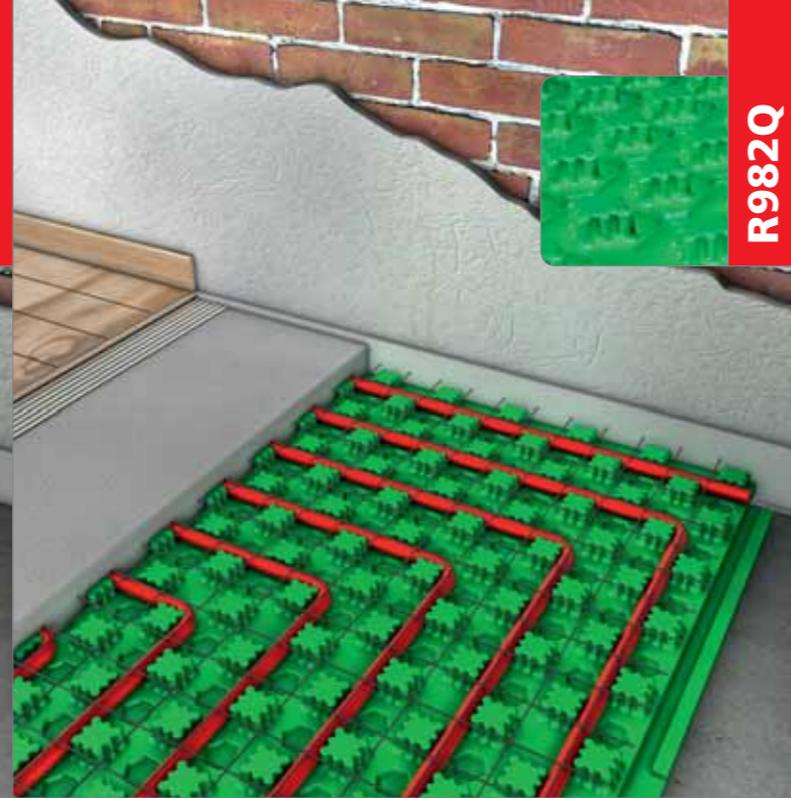
Reaching the Kyoto Protocol objectives, complying with the constraints of the European Union for 20% consumption of renewable energies by 2020, the obligation of energy certification of the buildings under European Directive 2002/91/CE are all factors that drive towards sustainable choices for systems installation in the buildings. Given that buildings account for 40% of energy consumptions in Europe energy efficiency can and should be improved and saving is the first energy source at our disposal!

THANKS TO RADIANT A WORLD OF NEW POSSIBILITIES

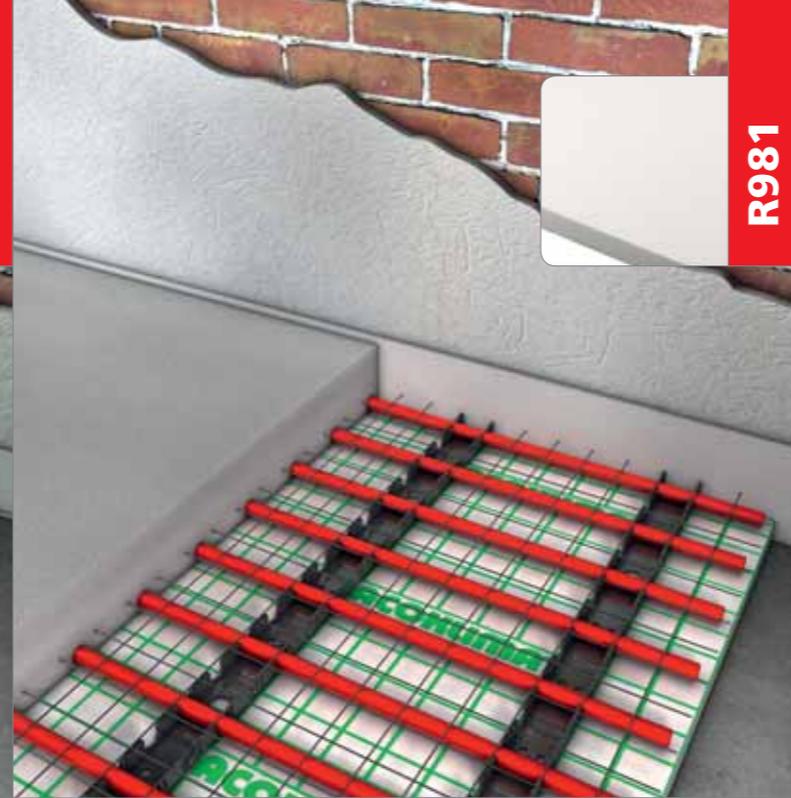
In such a varying scenario it is necessary to find innovative solutions, more efficient and with a reduced environmental impact. In this respect, the floor system operation is ideal if associated with state of the art highly efficient generators such as condensation boilers. The use of heat pumps is particularly beneficial for the low water temperature to supply to radiant panels; this allows using the costless and inexhaustible heat present in the air, in the water or in the land, reducing to the maximum the use of fossil fuels. During the summer to cool the rooms a geothermal system can be used as well, releasing heat of the basement environment through underground manifolds or depth sensors. The energy captured by solar panels, can be used also to integrate the heating: in this case, too, the prerequisite is to have a radiant panels system installed. In condo buildings using one only radiant system also for summer cooling offers an additional benefit: the chance to use centralised generators for cold, as for boilers in winter, with a huge efficiency recovery with respect to independent solutions.



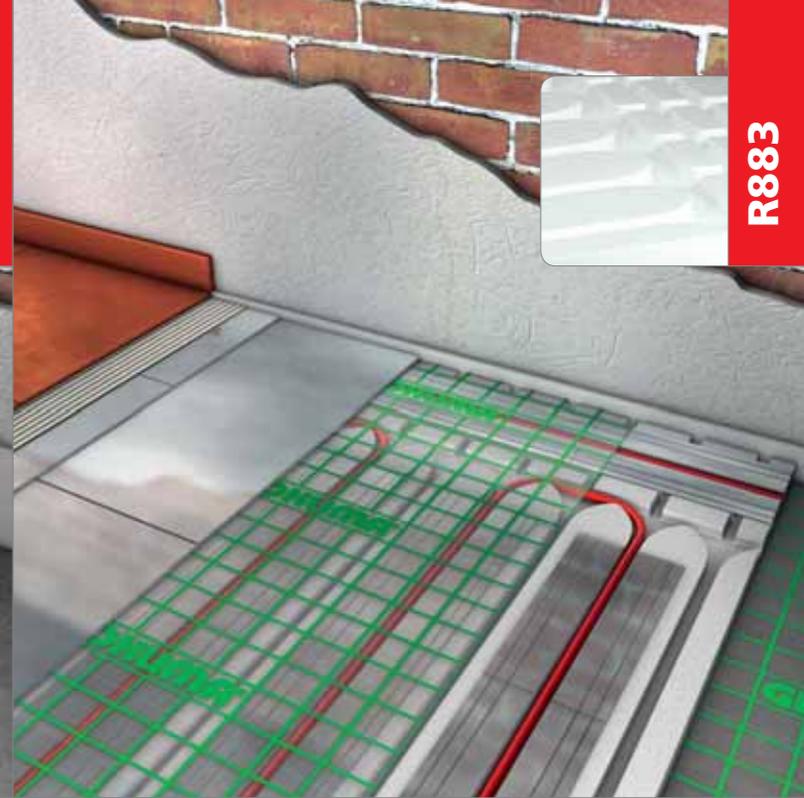
R979



R982Q



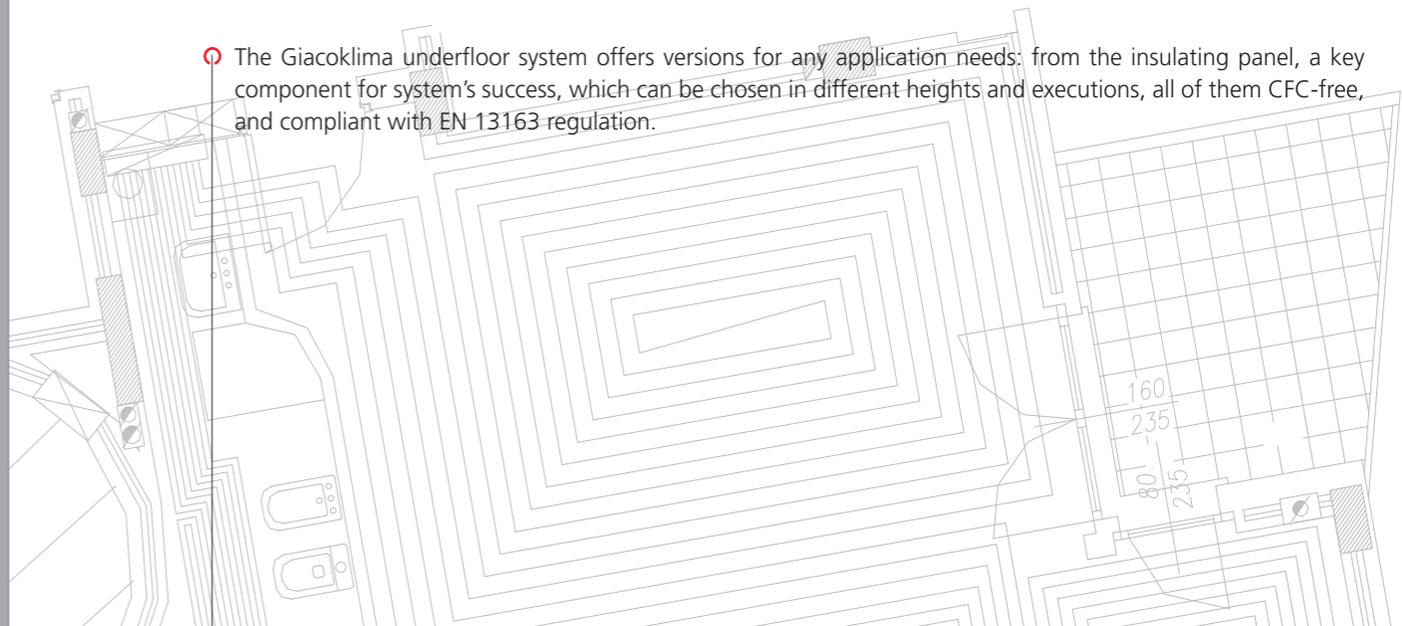
R981



R883

- The **R979** and **R982Q moulded panels** represent the most classical solution to create the insulating layer. The special profile of moulded protuberances allows embedding firmly the pipe during the installation, without the need to use clips. The moulded polystyrene plate is coupled with a coating film that acts as a barrier for vapour and remarkably increases resistance to trampling.
- For large surfaces, such as industrial hangars, churches or sports centres the **R981 smooth panel** associated with clips or the K389W pipe fastening rail are the ideal solution. The rail accepts a large range of pipe diameters and allows installing rapidly and very precisely coils with multiple pitches of 50 or 100 mm. The function of barrier for vapour is executed installing on the smooth panel the **R984 protection sheet**.
- When there are limits of space in height, the use of the **R883 panel for dry installation** brings many benefits; thanks to its minimum overall size and to the specific milling to insert steel thermal diffusers and pipe, it is possible to make the radiant floor with a much reduced height. The system does not require the layer of concrete screed: to guarantee a uniform distribution of the loads the support function is provided by a double layer of zinc-plated steel blanks on which the final coating is directly applied.

A SYSTEM, MANY VERSIONS



○ The Giacoklima underfloor system offers versions for any application needs: from the insulating panel, a key component for system's success, which can be chosen in different heights and executions, all of them CFC-free, and compliant with EN 13163 regulation.



R553F



R557R



R559



R553 manifold represents a simple and versatile solution: a supply manifold, with balancing lockshields equipped with mechanical memory embedded, and a return manifold, equipped with micrometric thermostatic valves are installed on two offset brackets that facilitate the piping connection. These valves allow, not only manual shut-off, but also the assembly of electro thermal actuators usually open (R478) or usually closed (R473). In the R553F version the supply manifold also has practical supply measuring devices.

R557R manifold is designed for heating systems with radiant panel with fixed point adjustment; a specific thermostatic supply head, temperature limiter, sets the supply temperature. In the same box it is possible to supply heating bodies with high temperature (as towel dryers, towel racks or radiators). The electronic circulator with variable supply and the safety thermostat are part of the standard equipment; the shut-off thermostatic valves, embedded in the return manifold, can be equipped with electro thermal actuators with end of stroke micro-switch (R478M or R473M) so to pilot automatically circulator switch-on and off.

R559 manifold runs assorted sophisticated radiant panel systems where, in addition to the heating function, is required the one of summer cooling. The supply temperature adjustment can be set at a fixed point or with external climatic compensation. A set of units, not mixed, in addition allows supplying heating bodies with high temperature (as towel dryers, towel racks or radiators) or fan coil units for summer cooling integration. Unit's standard equipment includes a circulator, a mixing unit and an adjustment power supply unit: the latter is part of the innovating family of Giacoklima bus technology heating/cooling control. Shut-off thermostatic valves, embedded in the return manifold, can be equipped with electro thermal actuators (R478 or R473).

OPTIMAL DISTRIBUTION

In a radiant panels system distribution manifolds have a basic function: supply water to every single circuit with the necessary supply for its optimal operation. Not all the systems have the same requirements: this is why in the Giacoklima system there is a wide range of options: from single components to build-units according to a wide range of installation situations, to functional manifolds, preassembled and pre-cabled, that offer completeness, simple installation and time saving.

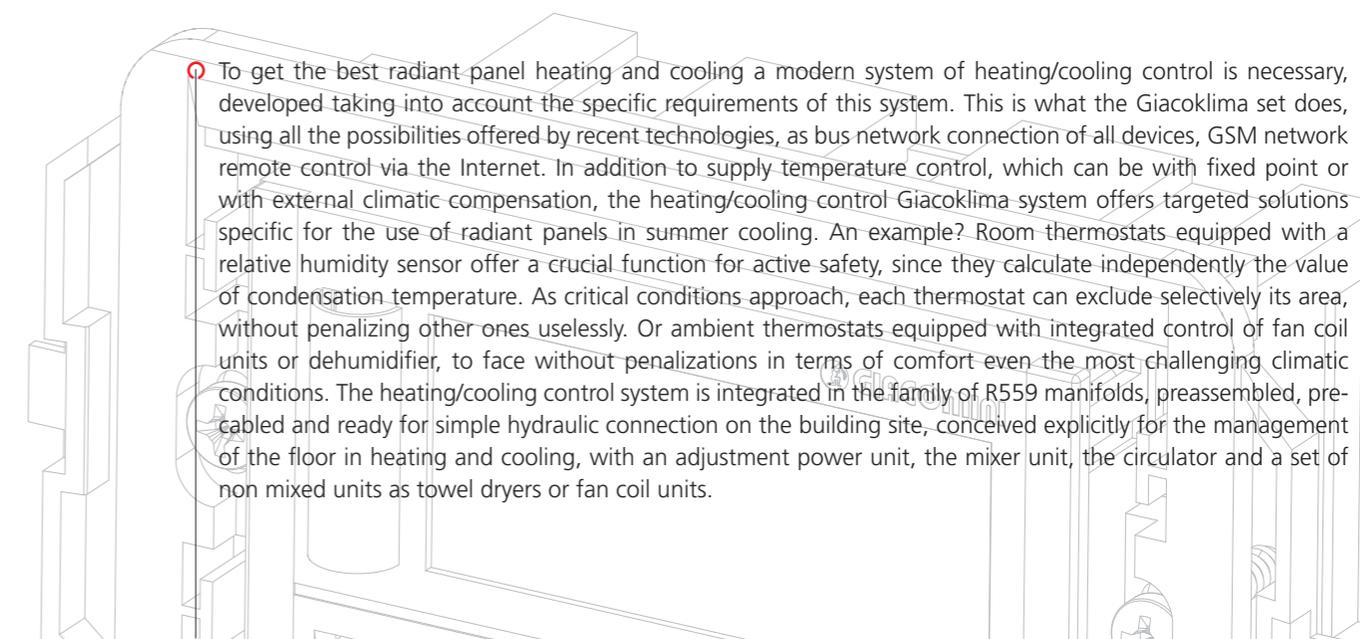




INDIVIDUAL IS BETTER

To use energy at best central temperature regulation of water delivered to radiant circuits is not enough: in these cases there is a risk of decreased comfort or overheating uselessly some rooms. Different needs come from the individual perception of heat and cold, from the different use of the rooms, their geographical exposure or the costless energy contributions from outside or inside. The individual heating/cooling control provides a rational and convenient solution to this problem that allows having in each room or in each area the most adequate temperature, associating comfort and energy saving.

STATE OF THE ART HEATING - COOLING CONTROL



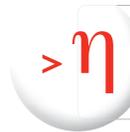
To get the best radiant-panel heating and cooling a modern system of heating/cooling control is necessary, developed taking into account the specific requirements of this system. This is what the Giacoklima set does, using all the possibilities offered by recent technologies, as bus network connection of all devices, GSM network remote control via the Internet. In addition to supply temperature control, which can be with fixed point or with external climatic compensation, the heating/cooling control Giacoklima system offers targeted solutions specific for the use of radiant panels in summer cooling. An example? Room thermostats equipped with a relative humidity sensor offer a crucial function for active safety, since they calculate independently the value of condensation temperature. As critical conditions approach, each thermostat can exclude selectively its area, without penalizing other ones uselessly. Or ambient thermostats equipped with integrated control of fan coil units or dehumidifier, to face without penalizations in terms of comfort even the most challenging climatic conditions. The heating/cooling control system is integrated in the family of R559 manifolds, preassembled, pre-cabled and ready for simple hydraulic connection on the building site, conceived explicitly for the management of the floor in heating and cooling, with an adjustment power unit, the mixer unit, the circulator and a set of non mixed units as towel dryers or fan coil units.



Reduced energy impact thanks to the operation with low temperature water



Single system for winter heating and summer cooling



Ideal associated with highly efficient generator as condensation boilers



Possibility of use of renewable sources such as geothermal and solar



Possibility of summer operation associated with units for the relative humidity slashing down



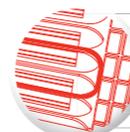
High comfort with uniform distribution of temperatures in horizontal and vertical, free from air drafts and dust circulation



Possibility of remote control via SMS or Internet



Smallest overall size in height in the dry version



Possible integration with radiant walls

Full and integrated system

Easy and fast installation

Wide range of variants for insulating panels, pipes, manifolds, heating/cooling control and fittings

Time and error saving with pre-assembled manifolds

Possible integration with radiant wall

Technical advice and targeted training

THE UNDERFLOOR SYSTEM BENEFITS



No maintenance



Highest freedom in the arrangement of furniture and recovery of useful space thanks to the absence of terminals in the room



Full bus technology heating/cooling control system



THE BENEFITS FOR THE INSTALLER



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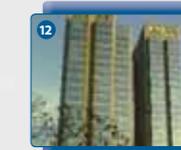
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