



## Energy-efficient room climate system

Increasing prices for limited fossil resources as well as the increasing extent of CO<sub>2</sub> emissions and – as the consequence thereof – the arising global warming require a more efficient use of energy resources. In view hereof, Hippokrates GmbH is pursuing the objective to offer a system for heating and cooling with high energy efficiency which requires only a minimal energy supply of non-renewable energy sources.

The solution for achieving this by means of the Hippokrates system of heating and cooling (hereinafter „the Hippokrates-System“) takes the following requirements into account:

- Aiming at high energy efficiency, **renewable energy sources** (of which the energy power would not suffice for the operation of conventional heating/cooling systems) should be used to the greatest extent. Notwithstanding the aforesaid, the operation of the Hippokrates-System would, however, lead to **a substantial reduction of operational costs** even when using non-renewable energy sources.
- In applying the aforesaid efficiency idea, **heating and cooling combined in one system** should be regarded an overall requirement and – because of its implementation – is thus an decisive advantage of the Hippokrates-System.
- In regard of room hygienic considerations, a modern room climatizing system should ensure providing a room air quality which is **free of noxious or other harmful substances** with a physiologically relative air humidity of about 50%.
- In order to allow the application of energy efficient heating and cooling in all building categories energy efficient heating/cooling systems must be applicable also for such existing buildings which cannot be insulating from outside (e.g. monument-listed buildings). The system should allow an inside insulation which should fit into the room climatization of the respective building.

### The Hippokrates-System

The innovation consists of the combination of a permeable **inside insulation plaster**, a **calcium-silicate panel** of high hygroscopicity, a **capillary tube mat** and an especially developed **clay plaster** and may be installed both in new and old (existing) buildings at the roof, the walls and/or the floor. With effect of November 25, 2015, the **PCT application WO 2015/177358 A1** had been made public by means of which the Hippokrates-System shall be protected under and pursuant to patent law.

### CO<sub>2</sub>-neutral heating/cooling with the Hippokrates-System and Overcoming the Dew Point problem

Heating and cooling by applying **low inlet temperature of 20 to 25 °C** with the Hippokrates-System leads to a comfortable room climate. The radiant energy for heating respectively cooling which the Hippokrates-System operates with, is especially comfortable for the occupants of the room. Because of the low inlet temperatures, the needed energy may be generated by means of renewable, thus CO<sub>2</sub>-neutral energy sources (such as solar collectors, geothermal- and air-heat pumps, small wind turbines etc.). If and when required, a buffer storage may cost- and energy-efficient supply any outstanding energy demand.

When **cooling below the dew point** the calcium-silicate panels as part of the Hippokrates-System absorb any occurring condensate. Such condensate is automatically being returned into the room when active cooling is no longer needed (slow and comfortable evaporation in form of passive cooling).