

3THERMO

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RENOVATION OF OLD AND HISTORIC BUILDINGS

Renovations of tenement houses

The 3THERMO heating system is an ideal product for applications inside revitalised buildings. Not only does it not change the historic character of premises, being invisible in the layer of plaster, but it may also effectively prevent all typical problems which occur in such buildings. We are talking here about moisture, or actually about a change in the existing balance through the partial sealing of the building as a consequence of a renovation (new tight windows, repaired and thermally insulated roof). The lack of any interferences with the ventilation system often results in the formation of moulds in the newly refurbished premises. Another problem is the energy efficiency of the building which is so much different from the current standards, and unfortunately the majority of buildings of this type cannot count on additional thermal insulation. No less important is also the condition of the old masonry, which is not subject to replacement, and over the years has managed to suck up a large amount of salt contained in groundwater.

3THERMO concealed radiators are part of a modern and energy-efficient wall heating system, which can make any historic construction function like a modern apartment building, without any problems and at a similar level of efficiency. First of all, the surface heating systems are characterised by exceptionally low energy consumption, therefore, the majority of newly erected buildings is heated by means of floor heating systems. In the case of tenement houses or other old buildings, the application of floor heating may be impracticable. One reason is, for instance, the wooden or historic floor, and the second reason is the insufficient amount of heating power. Owing to 3THERMO, a much more suitable heating surface, that is, an external wall, is already available. For the first time we can supply heat precisely to the place where thermal losses occur, with minimum heat resistance to the interior. The minimum resistance is provided by the innovative design of the concealed radiator, which resembles a reinforcement mesh for plaster rather than a heating system. Such a design can be embedded in a thin layer of plaster (1-1.5 cm), obtaining high heating power and minimum inertia, that is, the opposite of the underfloor heating system. The wall heating system, just like the underfloor heating system is characterised by the low-temperature redistribution (the wall temperature never exceeds 30 °C), and yet, its efficiency is higher because of the possibility of taking advantage of a higher temperature of water from the central heating system. The introduction of the



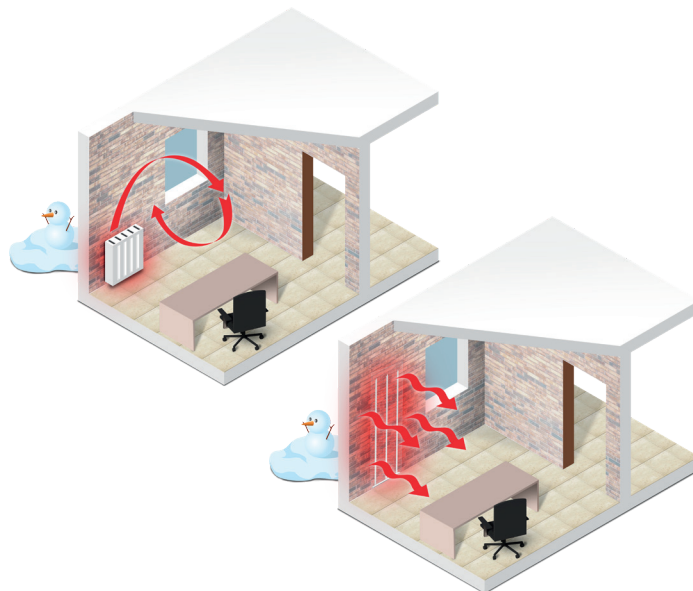
higher thermal energy into the external envelope ensures better response and precision, and the minimum convection does not cause additional chimney losses (into the ventilation system). The radiators are manufactured up to a height of 1.7 m, as there is no need to heat the space under the ceiling, which is of great energy importance in the case of high rooms. The low level of convection and easy control of the wall heating system mean that it can easily achieve savings at the level of at least 40% compared to convection heating. The warm wall is also the only heating system which allows for the real reduction in the air temperature in the room without losing the sense of heating comfort. Simply the air around us no longer has to balance the effects of the cold external wall, so that we do not feel the cold.

The introduction of thermal energy into the external wall surface also reverses the transmission of moisture, which makes the wall heating so different from any other form of heating that it is almost hard to believe. Regardless of whether we heat the rooms with the underfloor heating system, a heater or blower, the heat is spread with heated air. The air loses its thermal energy at the





The 3THERMO wall heating has no visible elements, collects no dust, produces no noise and requires no maintenance. The structure of the Rabitz mesh used in the radiator also provides an excellent reinforcement for plasters in the renovated tenement houses. The use of radiators as a system for the discharge of heat from the central heating water solved the basic problem related to the thickness of tubes under the plaster as well as the problem of limitations of fluid hydraulics. Concealed radiators do not use water for direct distribution of energy in the plaster layer, which also makes the system safe in reference to accidental boreholes



contact with external envelopes, which it constantly tries to heat. Learn more at www.3thermo.com The excess of energy, which will not be used to heat external envelopes, is accumulated under the ceiling. The more energy is accumulated under the ceiling, the higher losses such heating system generates. With the hot air, the moisture in the air is also in motion. This means that a large amount of moisture during the heating season is directed to external building envelopes, maintaining moisture in them. This is one of the reasons for the development of moulds in the so called "thermal bridges" and the component of the air dehumidification process during the heating season. Unlike all other heating systems, the wall heating supplies heat from the external wall and thus compensates for losses the fastest of all. Additionally, such a wall does not absorb moisture from the air during the heating season, but rather removes it, and this in direct proportion to the amount of radiated heat. Such a favourable phenomenon has an exceptionally high regulatory efficiency in the context of the stabilisation of the proper air humidity inside the heated premises. The location of the heating system in all thermal bridges prevents moulds from development (no water = no life), which may be of great significance for the success of the investment in the case of revitalised buildings. It also definitely improves the heating comfort. The low-temperature heat emission (as opposed to the high-temperature infrareds) does not cause any thermal effects, the radiation is imperceptible and there are no differences in temperatures or blasts of air so characteristic of convection systems.

in the wall. However, the likelihood of damaging the radiator is minimal due to its height (statistically, the holes for pictures, cabinets, etc. are drilled above the height of 1.6 m) and the fact that with such a thin layer of plaster, warmer radiator cores can be easily felt, and thus it is possible to determine their positions in the wall.



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2018
1st place in
a competition



2015
1st place in
a competition

