Combining Short and Long-Term Heat Storage for Solar Heating Systems

By the end of 2020, near-zero energy consumption is required by all new buildings in the EU, as stated in the Energy Performance of Buildings Directive. Solar heating is a promising technology to achieve this aim. However, due to the mismatch of solar energy resources and the demand patterns of single-family houses in central and northern Europe, long-term heat storage is essential for solar combi-systems that cover hot water supply and heating with a solar fraction higher than 50%. Water tanks can be used for this purpose, but large storage volumes are necessary to compensate for sensible heat losses.

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