Phase Change Material support for HVAC Air Reheat and solar hot water

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PCM as Thermal Batteries

Streamline Automation LLC

Maximum thermal production happens at the same time as peak demand for humidity reduction and air reheat requirements

Reliable and free hot water can replace some of the reheating coils that normally use peak rate electricity

PCM storage of excess heat allows the reheat capacity from the hot water to be extended during times of less direct solar energy

PCM increases the effectiveness of solar water heating systems by extending the time that this water is available into low solar energy periods

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PCM as Thermal Batteries

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- PCM increases the thermal storage capacity per unit volume because of the high storage density at the desired temperature
- PCM is a good candidate for providing nighttime heat and hot water to deployed shelters by storing abundant daytime solar energy
- PCM can be integrated into most commercially available solar systems, reducing the design risk

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Demonstration Conceptual Design

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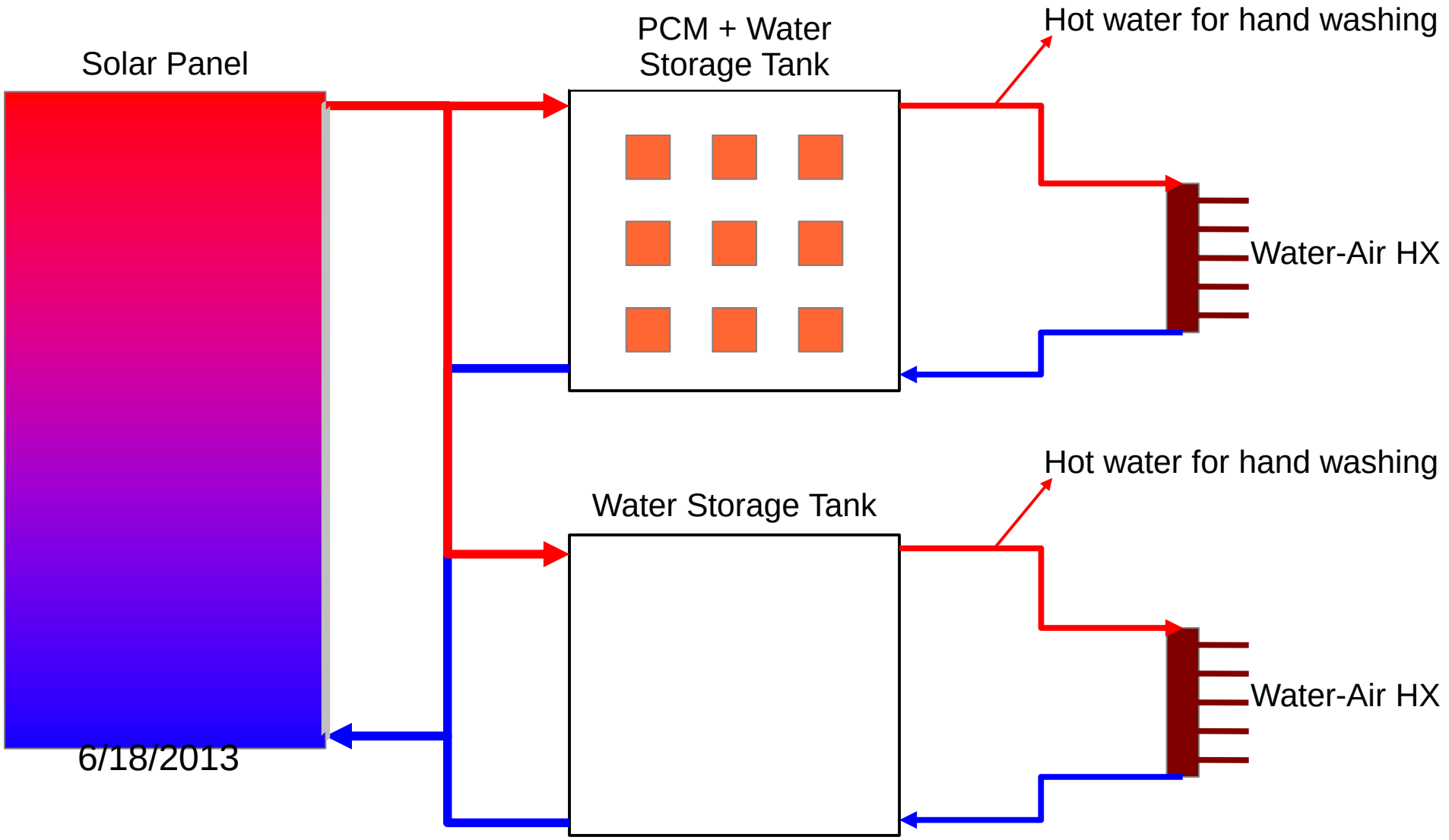

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Test Scenario

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- Solar panel is used to produce hot water
- Hot water is circulated and stored in a tank with PCM
- Flow through the solar panel is stopped simulating time after sunset or a cloudy day
- Flow is started through a water-air heat exchanger to simulate HVAC reheat
- The storage tank with PCM will cool slower and provide more total energy for heating the air

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Expected Performance

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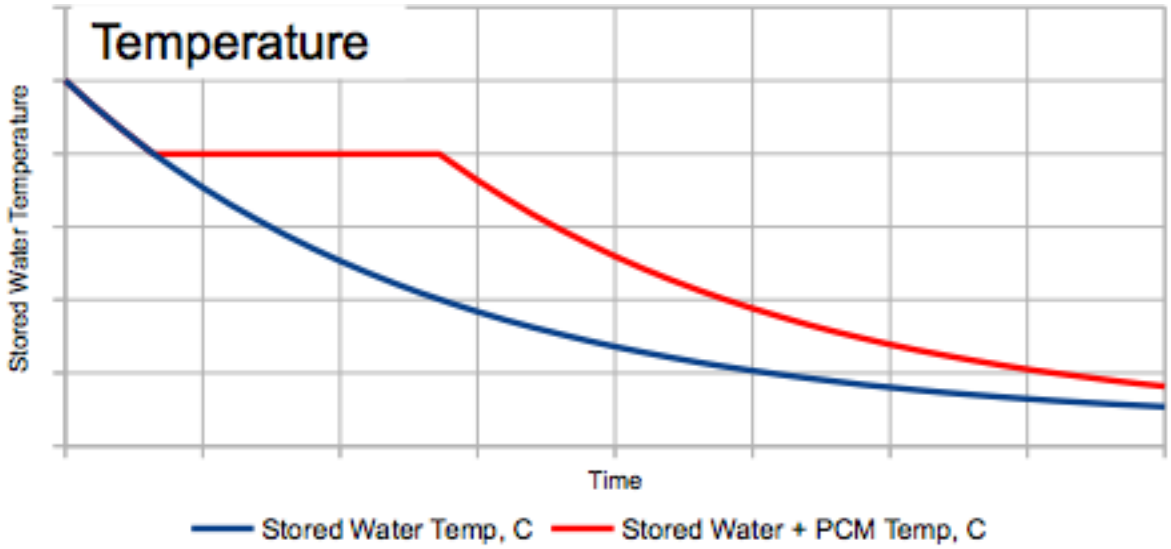

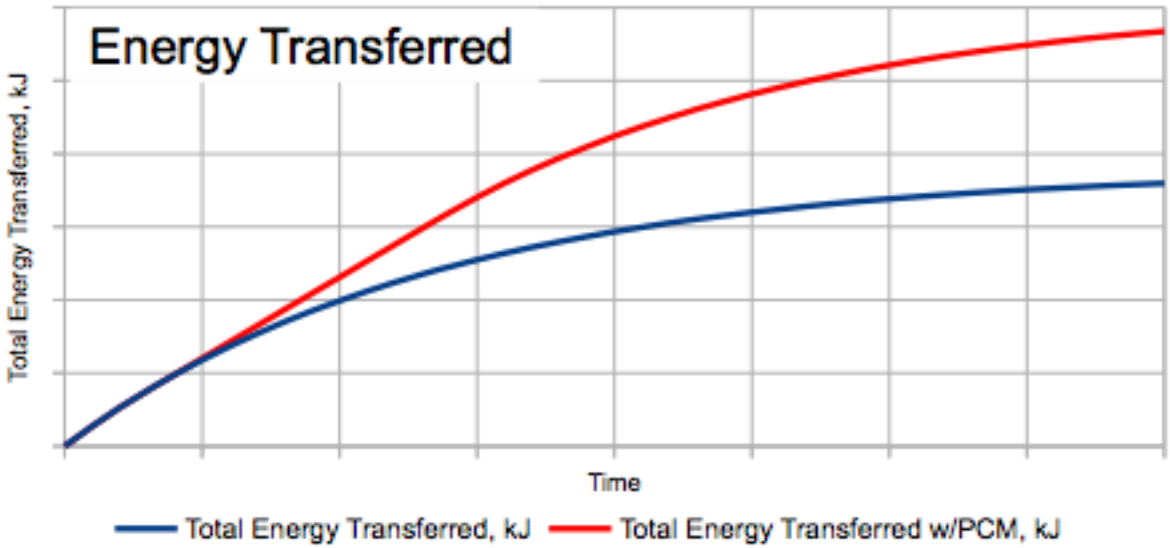

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Commercialization Support

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PCM Supported solar water heating systems qualify for a number of tax credits, low or no interest rate loans and rebates for most all type of buildings and organizations, including private homes. Visit this site for a better understanding of what is available.

http://energy.gov/savings

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