Water heating / Paver cooling test

On August 9, 2012 a test was run to measure solar absorption by ThermaPAVER® panels and the paver surface cooling effect of cool water flowing through the system.

The air temperature was 83°f. The pavers had full sun exposure all day. The two hour test, during the hottest part of the day, yielded exceptional results. ~76°f water was pumped through a ten panel test system beneath a medium grey, ground mounted paver walkway in Portsmouth, NH. The system had an average flow rate of 1.342 GPM and an average ΔT (temperature differential) of 9.96°f. During the two hour test, 4.6 kWh of energy was exchanged. This is equal to approximately 15,695.85 Btu's or 196.2 Btu's /sq ft/ hr.

The control area of the sidewalk with no ThermaPAVER units installed remained at approximately 150°f.

Time	Flow Rate (GPM)	Temp. In (F)	Temp. Out (F)	Delta T	Avg. Paver Temp (F)
11:45 AM	1.396	77°	90°	13.4°	115°
12:00 PM	1.24	75°	88°	12.5°	114°
12:15 PM	1.235	75°	87°	11.6°	118°
12:30 PM	1.397	75°	85°	9.3°	117°
1:00 PM	1.328	76°	85°	8.6°	113°
1:15 PM	1.374	76°	84°	8.2°	114°
1:30 PM	1.401	76°	84°	7.9°	111°
1:45 PM	1.365	76°	84°	8.2°	113°

This photo compilation is an example of the cooling effect of ThermaPAVER® while heating water. The left side of the yellow line is a control zone without ThermaPAVER® (138°-150.6°). A ThermaPAVER® system is actively running on the right side of the yellow line (113°-118°). Far left and right readings are 16" apart, indicating a 36.76°f differential. The middle readings are only 3" apart on the same paver, at the same time, indicating a 20°f differential.

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