Hydronic Cooling Can Cut Costs by Two-thirds

In South Korea, virtually all homes (single-family, multi-family and high-rise) have hydronic radiant heat floor heating, according to *Radiant Panel Report*. Cooling is becoming important, prompting university professor Dr. Seung-Bok Leigh to conduct sophisticated research on cooling with hydronic floors. Dr. Leigh's recent American Society for Heating, Refrigeration and Air-conditioning Engineers (ASHRAE) report "A Study for Evaluating Performance of Radiant Floor Cooling Integrated with Controlled Ventilation details his research. His research shows that "radiant floor cooling with dehumidification can provide cooling with only one-third of the energy required by a conventional air conditioner." Radiant cooling also showed much faster response time.

Dr. Leigh's research used a combination of laboratory test cubicles and computer simulations. The laboratory apparatus included 8 ft. x 8 ft. x 8 ft. cubicles designed specifically for analyzing radiant floor cooling and comparing it to conventional air conditioning. A fan coil provided dehumidification and supplemental cooling with fresh air ventilation set to provide one air change per hour.

Results of the laboratory tests were applied to a computer simulation of identical 1,400 s.f. houses. Conventional cooling used 1,400 kWh of energy, while the radiant cooling system consumed only 501 kWh.

With results like these, radiant cooling with dehumidifcation offers a viable alternative to conventional air-conditioning. *Radiant Panel Report* is published by the Radiant Panel Association.