



Thermetrics, LLC is a wholly owned subsidiary of Measurement Technology NW, dedicated to the design and manufacture of a wide range of precision instruments to measure and evaluate the thermal comfort of textiles, garments, and protective apparel.

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## Project Profile – RPP (Radiant Protective Performance) Test Device

Norfab Corporation, Norristown, Pennsylvania (parent company Amatec) is a privately-held company that specializes in the manufacture of high performance textile products used in safety and protective clothing applications. Their primary customers are utilities, heavy industry, and the military – end users who don't allow for margins of error and where products either meet the specifications or they're rejected.

For many years Norfab had been using an RPP test device that had been built internally to meet mil-spec testing requirements, but this device was very limited in terms of testing capabilities and Norfab wanted a more versatile RPP unit for R&D and new product testing. Harrish Lilani of Norfab Corporation puts it this way: "We needed an RPP to test metallized FR fabric materials for compliance to NFPA 1971, and we were also looking for a way to characterize prototype FR materials so we could see how their performance compared to other compositions or formulations and identify those with enough promise to warrant further R&D investment. The RPP device from Thermetrics was the answer to both of these problems."

A Radiant Protective Performance (RPP) device, sometimes referred to as a Radiant Heat Performance (RHP) device, is used to measure the time elapsed for a controlled radiant heat source to penetrate through a protective fabric system - resulting in damage to human skin. As heat moves through the



materials being tested and reaches the sensor, the temperature rise is depicted as a curved line that is automatically compared to Stoll's curve, which represents the blister point of human skin as a function of heat and time. The point of intersection between the test's curve and the Stoll curve provides a fabric's RPP/RHP rating.

Thermetrics' RPP/RHP device features a 5-bulb quartz infrared lamp assembly, calorimeter sensors, a pneumatically actuated water-cooled shutter, two thermocouple inputs, an integrated sensor cooling stand for improved test throughput rates, and software safety interlocks. All systems include PC laptop computer with ThermDAC data acquisition and control system, plus burn prediction algorithm.

"Having the ability to test according to these additional standards (**ASTM F1939 and F2702, NFPA 1971 and 1977**) was a plus," said Harrish, "and doing preliminary testing in-house means we're able to save a fair amount of time and money by identifying our best performing materials and sending only those finalists out for 3rd party certification."



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Thermetrics engineers traveled to Norfab to do the RPP installation and training, and upon seeing that Norfab was intending to run the RPP almost exclusively at maximum heat levels we took the extra step of redesigning/retrofitting the RPP's sample holder assembly to improve stability and durability under these long duration, maximum power test sequences.

The result? According to Harrish, "If there were any problems I would have heard about it, so no news is good news in my book! I'm pleased to say that the RPP installation, training, and the retrofit all went very well, the Thermetrics team was professional, and the support we've received after the sale has been great. I'm really quite happy with the whole experience."

For over 25 years, Thermetrics has manufactured a wide range of precision instruments for measuring and evaluating the thermal comfort of textiles, garments, and environments such as automobile, truck, and aircraft interiors. Thermetrics systems support all major ASTM, ISO, and ENV textile testing standards.

To learn more, contact Thermetrics at 206-456-9119, or send an email inquiry to [thermal@thermetrics.com](mailto:thermal@thermetrics.com).

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