Operational Specifications:

The first component of this project will involve testing the Coolpac cooling sleeve in terms of its thermoregulation capabilities. The product will either be worn or applied in a designed apparatus that will involve applying heat stress settings. To be determined physiological data and vital signs will be taken in order to compare its effect on the body in comparison to a subject without the Coolpac under the same conditions. Furthermore testing conditions will be designed as to adequately simulate physical performance in combination with the layers of protective gear worn by firefighters.

On another level testing of phase change material within the Coolpac will seek to validate its phase state properties over a spectrum of temperatures. Specifically the key phase change from solid to liquid at 28 degrees Celsius (82 deg. F) will be explored. In addition the effectiveness of the “rechargeable” nature of the sleeve will be tested in terms of dipping it in an ice water bath after use.

Modifications to the Coolpac from a mechanical perspective will be aimed towards making the sleeve more universal with respective to size. This would make the product more marketable and easier to manufacture. Likewise emphasis will be given to making the sleeve as comfortable as possible without reducing its thermoregulative properties.

Technical Specifications:

Physical: Type of Material – (Phase Change Material. Exact Composition TBD)

Mechanical:

Size: (Length, Height, Width TBD)

Weight: 0.5 kg per sleeve

Environmental:

Storage Temperature: Below 82 °F

Operating Temperature: Above 82 °F

Operating Environment: Indoors, Outdoors, High Temperature

Safety:

No adverse side effects

Easy to Remove in case of an emergency

Use non-allergenic fabrics to prevent rashes

Phase Change Material should not leak, ideally should be non-hazardous
Maintenance:

“Re-energizable” by Dipping into ice water

Proper Storage Temperature: Below 82 °F

Shelf Life: TBD

Sterilization Necessary: TBD
**Project Specifications**

**CoolPac: Cooling Device for Firefighters**

Team 2:

Jaspreet Mankoo, Kerri Blanc

Sponsor: Createc Consulting LLC

Sponsor Advisor: Hans Almqvist, 203-215-6824, HAcreatec@aol.com

**Note: We talked with our sponsor client and went over some of the details of the project but he requested that we schedule a face to face meeting once the entire team was assembled. (ME’s don’t find until 9/7) In addition he said he had to talk with the manufacturing company from Sweden, who designed the phase change material for the cooling sleeve prototype, about our involvement before we proceeded with the project. We've completed the project statement document, but have limited information regarding the specifications. Seeing that the specifications are subject to change as the project progresses, they will be updated once a more information is obtained.**