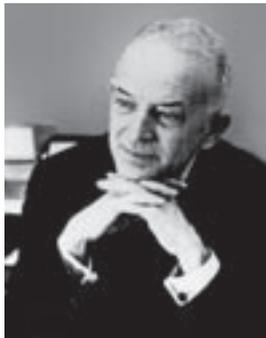


**A BRIEF HISTORY:**

The Doriot Climatic Chambers are named for BG George F. Doriot, who during World War II worked with his staff in the Quartermaster Corps to develop clothing and equipment for the individual Soldier, test those items under severe climatic conditions and quickly field the improved items.



General Doriot determined that an "Institute of Man" was needed to test Soldiers and their equipment at environmental extremes. The Doriot Climatic Chambers building was completed in 1954. Constant technology upgrades maintain the Doriot Climatic Chambers as a state-of-the-art facility for climatic testing.

**POINTS OF CONTACT:**

For more information about the Doriot Climatic Chambers, please contact us:

- COMM: (508) 233-5294
- COMM: (508) 233-4246
- FAX: (508) 233-5898
- EMAIL: nati-chambers@conus.army.mil

or visit our page on the NSRDEC website:

- [doriot.natick.army.mil](http://doriot.natick.army.mil)

# DORIOT CLIMATIC CHAMBERS

## Testing the Limits of Machine and Man



**US ARMY NSRDEC  
BUSINESS & OPERATIONS DIRECTORATE**

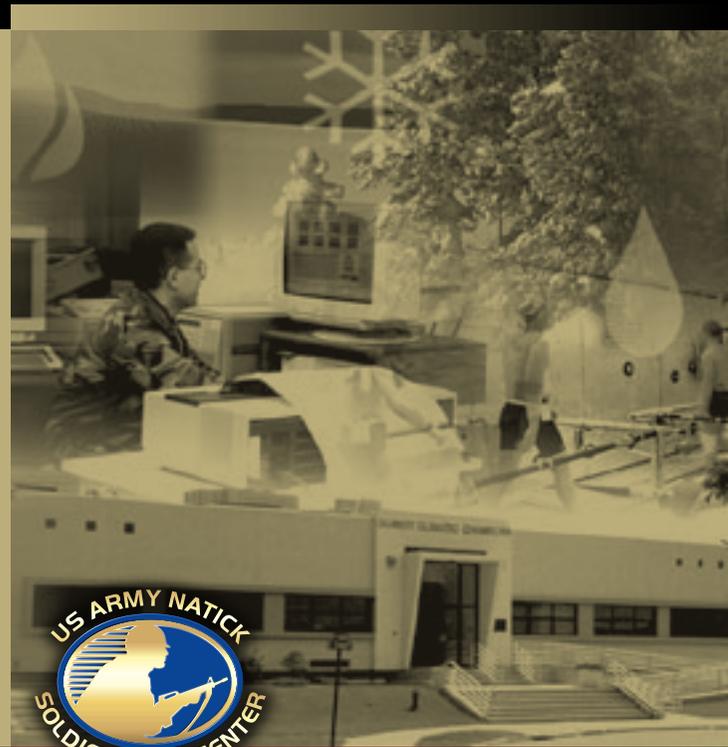
15 Kansas Street  
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# DORIOT CLIMATIC CHAMBERS: TESTING THE LIMITS

The **Doriot Climatic Chambers** at the Natick Soldier RD&E Center is a one of a kind facility. The ability to simulate an extreme range of global weather conditions is what makes the Doriot Climate Chambers unique.

## EQUIPMENT TESTING:

The 60x10x15 foot wind tunnels make them ideal for testing large sized equipment. Items enter through the 8 foot high by 10 foot long (2.4m x 3m) doors. Tents, heaters, parachutes, airbeams, medical devices and windmills have all been tested in the wind tunnels. Smaller items can be tested in the arctic or tropic conditioning rooms.

## HUMAN RESEARCH TESTING:

A dedicated group of Soldier volunteers provide critical guidance to field commanders operating in the Persian Gulf, Somalia, Bosnia or anywhere in the world.

## PHYSIOLOGICAL TESTING:

Measuring human adaptation to heat and cold.

## PROTECTIVE CLOTHING TESTING:

Testing new clothing items that keep humans warm in cold or cool in heat including the heat-transfer properties of clothing.

## PHYSICAL PERFORMANCE TESTING:

Walking/running on treadmills to simulate a variety of work rates in environmental extremes. Each chamber has two five-person treadmills that can run up to 15 mph at a 12% grade in each wind tunnel.

## NUTRITION:

An in-house kitchen can be used to prepare meals for soldiers testing or to test the effects of nutrition on physical performance.

The Chambers also contains a dormitory facility for sleep studies and dressing rooms with shower and laundering facilities.

*"The Doriot Chamber Facilities (the facility operation, personnel interactions, and experience) was inline with the total cost we were prepared to incur for the project of evaluating ADA Technologies WeatherPods™. We were very impressed with the quality of the facilities and the day-to-day support we received from Scott and Joshua in performing our task plan. It was very evident that the Doriot personnel was familiar with our task plan and had made preparations in advance of our visit. The personnel were exceptionally accommodating when facets of our experiments took longer than expected.*

*In summary, the total cost met our expectations and the experience with the facility and personnel exceeded our expectations. The overall experience receives a very positive feedback from ADA Technologies, Inc."*

**Kent D. Henry, Ph.D., Senior Research Scientist, Instruments Group Manager**

## TECHNICAL CAPABILITIES:

### ■ Tropic Wind Tunnel:

- -18° to 74° C (0° to 165° F)
- 10-90% relative humidity
- Rain up to 4 inches/hour
- Wind up to 40 mph
- Solar capability

### ■ Arctic Wind Tunnel:

- -57° to 49° C (-70° to 120° F)
- 10-90% relative humidity
- Rain up to 4 inches/hour
- Wind up to 40 mph
- Solar capability

### ■ Dimensions of Wind Tunnels:

- 18x4.5x3 meters (60x10x15 feet)

### ■ Dimensions at Back of Each Tunnel:

- 9x5.5x3 meters (30x18x14 feet)

### ■ Other Capabilities:

- 2 five-person treadmills in each wind tunnel, capable of up to 15 mph and up to a 12% grade
- Data acquisition systems available to monitor test parameters
- Customized plotting, graphing & print outs
- Constant control of temperature with wind and relative humidity to ± 1° Fahrenheit

