

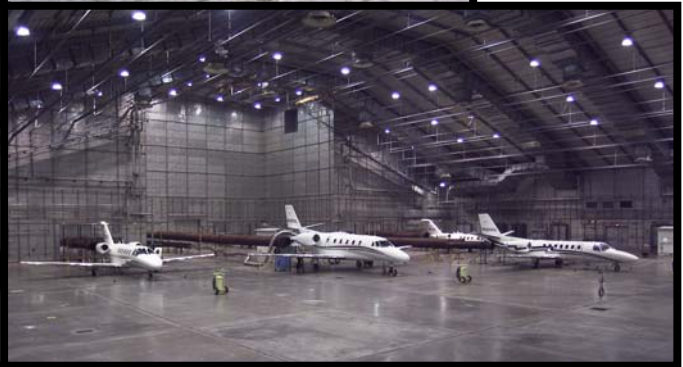


# 46TH TEST WING FACT SHEET

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<http://www.eglin.af.mil/46tw>  
March 2008

## CLIMATIC LAB McKinley Climatic Laboratory



### Uses

- **Testing under simulated worldwide weather extremes**
- **Full engine operations possible at all climatic extremes**
- **Ground fog and in-flight icing  
FAA part 25, 29, and 33 certification**
- **Tire testing on snow/ice fields**

### Unique Capabilities

- **Main Chamber**
  - **Largest environmental chamber in the world**
  - **Accommodates large aircraft**
  - **Temperature range of -65°F to +165°F**
  - **Simulates all types of climatic conditions**
- **Equipment Test Chamber**
  - **Same capability as Main Chamber on a smaller scale**
- **Sun, Wind, Rain, and Dust Chamber**
- **Salt Fog Chamber**
- **Altitude Chamber**

The McKinley Climatic Laboratory has the capability to create any climatic environment in the world. This facility is available for use by:

- Department of Defense agencies
- All other government agencies
- Private industry

## Climatic Lab Overview

Testing weapons systems under extreme environmental conditions is a vital necessity for improving system reliability. The capabilities of the McKinley Climatic Laboratory help engineers ensure maximum reliability and operational capability of our ever-more-complex systems as our global operational theaters continue to impose harsh environments.

For many agencies of the DoD, environmental testing at the Climatic Lab is an essential step in establishing a proven military capability to meet our global commitments. The results obtained from the vast array of aircraft and equipment tested at the McKinley Climatic Laboratory have been a major factor in maintaining the position of the United States as the world's leading military power.

The Climatic Lab also tests numerous items for private industry. Aircraft airframe, aircraft engine, automobile, and tire manufacturers are just a few of the many types of commercial products successfully tested at this facility.

## Major Test Areas

The Climatic Lab has five specialized testing chambers:



- **Main Chamber (MC):** This chamber is the largest of the testing chambers at the McKinley Climatic Laboratory and is the largest environmental chamber in the world. It is approximately 252 feet wide and 260 feet deep and 70 feet high. The immense size allows testing of very large items and complete systems. The MC has accommodated the B-2 bomber and the C-5 Galaxy, the largest aircraft in the U.S. inventory.



- **Equipment Test Chamber (ETC):** This chamber was originally designed to test jet engines. While the chamber is not large enough to accommodate most aircraft, engines not mated to an airframe can be tested quite easily. In addition, small vehicles and equipment such as trucks, turbine-driven ground power units, and many others are frequently tested in this chamber. The ETC is approximately 130 feet long, 30 feet wide, and 25 feet high.
- **Sun, Wind, Rain and Dust (SWRD) Chamber:** The SWRD Chamber produces ambient or hot types of test conditions. Wind blown rain at rates up to 25 in/hr and heavy sand and dust storms can also be created in this chamber.
- **Salt Fog (SF) Chamber:** Because of the corrosive nature of salt fog test conditions, the SF chamber was designed to provide an ambient test chamber that is away from other test chambers. The chamber has two steam-fed heat exchangers to create the temperature necessary to perform the salt fog test. The SF Chamber is approximately 55 feet long, 16 feet wide, and 16 feet high. The SF Chamber has no refrigeration capability.
- **Altitude Chamber:** This chamber can create pressure altitudes as high as 80,000 feet.

The test engineers at the McKinley Climatic Laboratory welcome technical questions concerning specific test procedures or capabilities of the individual testing chambers. Our staff can also answer questions concerning scheduling dates for tests or cost estimates.

## Points of Contact

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