

Microsystems Fabrication Laboratory- New Class 100 Cleanroom Completed and Certified



Glenn's new Microsystems Fabrication Laboratory.

A new Microsystems Fabrication Laboratory (MFL), a Class 100 cleanroom fabrication facility, was completed and certified in 2002 at the NASA Glenn Research Center. This facility, to be used by Glenn's Instrumentation and Controls Division, was designed and built as part of the NASA Construction of Facilities Program. The design, construction, and certification phases were managed by personnel from Glenn's Facilities and Test Engineering Division. Because of time constraints and the need for specialized cleanroom expertise, this 1000 ft² laboratory was completed using a design-build procurement. Facility Planning & Resources (Pittsburgh, PA) was selected as the prime contractor and provided the architectural design and project management. A major subcontractor, AdvanceTEC, LLC (Richmond, VA), provided the mechanical and electrical design and performed the construction services. Throughout this fast-track project, Facilities and Test Engineering Division personnel provided overall project management and worked closely with the contractors to ensure that the customers' needs were addressed and that the impact of the project implementation was minimized.

The new Microsystems Fabrication Laboratory is vital in expanding and improving the fabrication facilities and capabilities of Glenn's Instrumentation and Controls Division, which conducts research and development in sensing concepts, sensor technology, high-temperature electronics, and related areas such as electronic materials, electronic materials processing, and nanotechnology. Emphasis is on developing advanced capabilities for measuring and controlling aerospace propulsion systems, particularly in harsh

environments and for safety applications. The new facility provides improved environmental conditions (cleanliness, temperature, and humidity) in comparison to the existing fabrication facilities. The layout features a new photolithography area, a thin-film deposition area, a thermal oxidation area, and support areas. The Microsystems Fabrication Laboratory will be used in fabricating thin-film sensors, growing electronic-grade oxides, and supporting the expected future growth in high-temperature and harsh-environment microelectromechanical systems (MEMS) research.

Find out more about this research:

Instrumentation and Controls Division <http://www.grc.nasa.gov/WWW/ictd/>
Sensors and Electronics Technology Branch

<http://www.grc.nasa.gov/WWW/sensors/>

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Programs/Projects: Propulsion and Power, GMI, ASTP, AvSP, UEET, NEPP