IDC ARCHITECTS

Electronics

Client
Korea Advanced Institute of Science and Technology (KAIST)

Location
Taejeon, Korea

Korea Advanced Institute of Science and Technology Research Facility Design

Project Description

IDC Architects, an affiliate of CH2M HILL, provided conceptual design and schematic design services, in conjunction with a local Korean architect/ engineering firm, for the Korea Advanced Institute of Science and Technology (KAIST) Nanotechnology Research Facility located in Taejeon, Korea. Of primary interest was the creation of Class 100T/ 10,000 cleanrooms on two levels, each having their own subfab as a result of site constraints.

The cleanroom supports EUV and beam-based lithography, metrology, thin films, device physics, diffusion, and etching processes. The six-story office component was designed to be expandable to eight stories in the future. Private offices and open offices are combined with conference and collaboration spaces.

Laboratories complete with basic utilities, fume hoods, and wet sinks also occupy this volume. A separate central utility building houses process support utilities, mechanical systems, and electrical equipment.

The driving design criteria were two fold; provide vibration control and electromagnetic interference (EMI) control. A portion of the lower cleanroom performs to the National Institute of Science and Technology (NIST) 'A' criterion in order to support the latest beam-based process manufacturing and metrology equipment.

Based on a 10-year empirical database, IDC Architects developed structural concepts and systems designs that equally met the tool manufacturer's requirements. The net result is a state-of-the-art facility that meets the key criterion.

Building Statistics:

- 165,000 SF
- October 2004 Completion
- Steel Frame/Metal Panel/Curtain Wall Systems
- Design/ Build "Fast Track"

Program Elements:

- Offices 89,400 SF
- Laboratories
- Cleanrooms & 51,000 SF Class
- 100T/10,000
- Conference
- Collaboration Space
- Utility Building(s) 54,000 SF