



# CLEANROOM DESIGN

OVER 100 CLEANROOM PROJECTS COMPLETED IN THE LAST 5 YEARS



## EXPERTISE

- Aseptic cleanrooms
- Assembly and packaging cleanrooms
- Cleanroom system solutions
- Custom chambers
- "H" occupancy environments
- Start-up and commissioning
- Tool install
- Ultrapure water, chemical, and gas distribution systems

With over 30 years of experience in cleanroom design and installation for clients in the manufacturing, pharmaceutical, and semiconductor industries, SSOE provides an economical, energy-efficient option for complete cleanroom services.

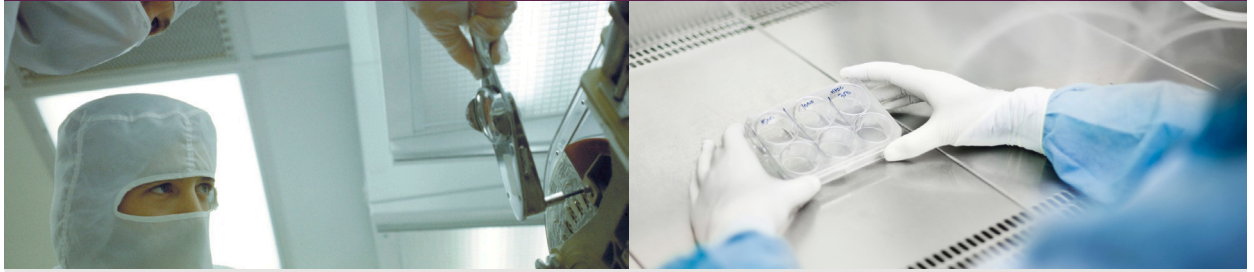
We are committed to presenting you with clear, comprehensive options in accordance with stringent, demanding cleanroom standards. We understand that from the design phase through to commissioning, upgrades to cleanrooms and production facilities must not impact manufacturing. We offer either modular or stick-built solutions, depending on your needs. In addition, we have specialized experience with the design of hazardous group "H" occupancy environments and expertise with the limitations, constraints, and challenges that manufacturing in "H" occupancies can present.

SSOE's knowledgeable team of architects and engineers are experienced in the design of a variety of enclosures and rooms that have included Programmable Logic Control (PLC) control systems, HVAC systems, and HEPA / ULPA filtration. We have successfully completed projects for cleanrooms on any scale and type including sterile cleanrooms – from 3,000 SF to more than 150,000 SF and cleanliness classes from ISO 3 (Class 1) to ISO 8 (Class 100,000). Our multidiscipline, integrated team can assist in layout development, value engineering, facility design, and construction and understands the unique challenges cleanroom projects present.



## SERVICES WE PROVIDE

- Architectural design
- Feasibility studies
- Renovation / upgrades
- Layout development
- Tool installation
- Code compliance
- Engineering solutions
- Life Safety
- Start-up and commissioning
- Data / Fire / Security
- Construction management
- 3D visualization / BIM modeling



## SELECTED EXPERIENCE

### **Dynetics High-Tech Prototyping Facility, Huntsville, Alabama - ISO 7 Cleanroom Design**

SSOE provided specialized cleanroom engineering design services including contamination control flooring, a cleanroom crane, and special doors. The room is conditioned by a double wall rooftop air handler consisting of final filters, hot water coil, chilled water coil, and in-line humidifier in conjunction with a dedicated outside air unit that distributes pre-conditioned outside air into the mixing section of the rooftop air handler. Conditioned air is then ducted to individual 2'x4' HEPA-filtered supply diffusers recessed in the ceiling. Piped utilities from exterior sources are routed through the wall from an adjacent mechanical area through access pass-through panels in the wall.

### **Advanced Technology Group, Hillsboro, Oregon - ISO 5 / 6 Cleanroom Installation**

Process flow planning, gown room design, cleanroom and clean storage areas, and design and specification of the HVAC and process piping systems including a compressed air and ultra-pure water system for an ISO 5/6 cleanroom in an existing building shell.

### **Chemical Client, Midwest USA – Design of Four Clean Rooms**

SSOE designed four cleanrooms for a chemical manufacturing facility that allowed the client to process and package larger volumes of product using less manpower. A total of 16,500 SF of cleanroom space, at ISO 5 and ISO 7 was installed.

### **Pharmaceutical Client, Midwest USA – Sterile Filling / Lyophilizing**

SSOE was responsible for facility design of a 120,000 SF renovation and addition to a pharmaceutical manufacturing facility. The facility includes two modules for housing sterile filling lines with barrier isolators, a transfer cart corridor, freeze dryer area, and an ISO 7 cleanroom.