



When experience, knowledge and innovation matter most... let us show you the IES Advantage.



EXPERIENCE KNOWLEDGE INNOVATION



# OUR VISION

To be considered a premiere engineering design firm that offers a creative and innovative approach to engineering design, combined with superior service, that will exceed expectations and bring the highest value to our clients.

# OUR MISSION

Design and build large-scale facilities with complex design and operational systems within the semiconductor, Green Tech, biotechnology and pharmaceutical industries, while leading our clients through the complex and challenging landscape of technology advancements for manufacturing processes.



# OUR SERVICES

- MEP—Mechanical, Electrical, Plumbing Engineering
- Chemical and Process Engineering
- Hazardous Materials Storage, Handling, Use; Abatement and Treatment
- Commissioning and Qualification
- Code Compliance, Site Assessment, and Environmental Health & Safety

## ABOUT US

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Founded in Silicon Valley in 1995, Integrated Engineering Services is an engineering and design firm specializing in innovative designs for the Microelectronics, Green Tech, and Life Sciences industries. Our experienced team of professionals provide cost-effective and timely solutions that meet our clients' engineering and business objectives—from project inception through completion and on-going operations.

## THE IES ADVANTAGE

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Whether you have a specialty project or require a turnkey solution, IES delivers a versatile service to address each step of the process. From initial planning and design through construction and installation — IES provides the confidence and assurance to exceed customer expectations.

- Skilled team of specialists possessing in-depth industry knowledge and experience
- Experts in planning, design, construction and operations
- Innovative, reliable, cost-effective and timely solutions
- Authority on code compliance and current regulations
- Significant reduction in the plan review and permitting cycle through quality design
- Hands-on facilities and operational expertise
- Dedicated to meeting our clients' business objectives

## We Support Our Clients Through Each Phase of the Project



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# MEP – MECHANICAL, ELECTRICAL AND PLUMBING ENGINEERING

With expertise that spans a variety of industries including high technology, manufacturing, commercial, education, government and life sciences facilities, the IES team of experts provide in-depth knowledge of the most recent code requirements, and standards – ensuring project compliance. Our state-of-the-art designs help our clients fulfill their engineering requirements with cost-effective, creative, design solutions.

## MECHANICAL ENGINEERING

### Heating and Air Conditioning

- Central Utility Plant Design
- Chilled and Hot Water Systems
- General Office and Facility Air Conditioning

### Cleanroom Design

- Class 1 through 10,000
- Modular Cleanrooms
- Mini-Environments
- Raised Floor, Sub-fab, or Low Side Wall Return Designs

### Industrial and Laboratory Ventilation

- Corrosive Fume Exhaust and Scrubbers
- Solvent Exhaust and VOC Abatement
- Flammable and Pyrophoric Exhausts
- Toxic Air Contaminants and Treatment
- Particulate and Dust Capture Control Systems
- General Ventilation
- Point-of-use Exhaust
- Laboratory Fume Hoods
- Process Ventilation
- Exhausted Enclosures

### Cannabis Growing Operations

- Environment Controls
- Humidity Controls
- Carbon Dioxide (CO<sub>2</sub>) addition, monitoring & control
- Integrated Pest Management

## ELECTRICAL ENGINEERING

### Lighting Systems

- Interior Lighting
- Exterior Lighting
- Automatic Lighting
- Title 24 energy usage compliance
- Grow Lighting

### Power Distribution Systems

- Medium voltage radial distribution
- Low voltage power distribution (less than 600V)
- Cleanroom Class 1 through 10,000
- Uninterruptible Power Supply
- Harmonic mitigating equipment
- Data Center power systems
- Grounding systems

### Standby Emergency Power

- Power essential for life safety
- Legally required and optional standby system

### Low Voltage Systems

- Fire Alarm Systems
- Hazardous Materials Monitoring Systems
- Telephone/Data support systems
- Clock and paging, intrusion and controlled access systems for educational and general facilities
- Nurse call systems

## PLUMBING ENGINEERING

- Sanitary Sewer, drain and vent
- Domestic hot and cold water systems
- Utility Systems

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# CHEMICAL AND PROCESS ENGINEERING

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Our engineering staff's experience in the design, construction and operation of manufacturing facilities, and their knowledge of the latest codes and regulations, constitute the basis for successful process systems' designs.

## Specialty and Toxic Gas Distribution Piping

- High Purity Gas Applications
- Flammable and Pyrophoric Gases
- Toxic and Highly-Toxic Gases
- Specialized and Developmental Process Materials

## Process & Bulk Chemical Distribution Systems

- Corrosive & Aggressive Fluids
- Flammable Fluids
- Fermentation
- Chemical Delivery Systems
- Cryogenic Fluids
- "House" Systems—such as N<sub>2</sub>, H<sub>2</sub>, O<sub>2</sub> etc.
- Chemical Synthesis, Separation and Purification

## Industrial and Laboratory Ventilation

- Corrosive Fume Exhaust and Scrubbers
- Solvent Exhaust and VOC Abatement
- Flammable and Pyrophoric Exhausts
- Toxic Air Contaminants and Treatment
- Particulate and Dust Capture Control Systems
- General Ventilation
- Point-of-use Exhaust
- Laboratory Fume Hoods
- Process Ventilation
- Exhausted Enclosures

## High Purity Water & Wastewater Treatment Systems

- Deionized Water
- W.F.I.
- Reclaim, Re-Use & Recycling
- Acid Waste Neutralization
- Waste Segregation
- Metals Recovery and Abatement

## Manufacturing and Utility Systems

- Clean Steam, CIP, SIP
- Oil Free and Clean, Dry Air
- Process Cooling Water
- Process Chilled Water
- House Vacuum, Wet House Vacuum and Process Vacuum

## Cannabis Processing

- Selective Cannabinoid extraction
- Terpene / Terpenoid extraction
- Butane, Isobutane, Propane and Naptha extraction
- Ethanol, oil and other organic solvent extraction
- Supercritical CO<sub>2</sub> extraction
- Solvent Remove & Purification
- Odor Control
- Combustible Dust Handling



# HAZARDOUS MATERIALS STORAGE, HANDLING, USE; ABATEMENT AND TREATMENT

Our staff of experienced Chemical Engineers, Certified Hazardous Materials Specialists, Inspectors and Plan Reviewers, and Environmental, Health and Safety Professionals ensure comprehensive compliance with the multiplicity of regulations governing the storage, handling and use of hazardous materials.

## Building Code

- Hazardous Occupancy & Special Uses
- Laboratory Planning & Development
- Allowable Area & Building Limitations
- Egress Requirements
- Smoke & Heat Venting
- Facility Design, Construction & Closures

## Fire Code

- Semiconductor Fabrication Facilities
- Hazardous Materials Storage, Handling & Use
- Toxic, Highly-Toxic & Flammable Gases
- Explosion Control Mitigation
- Product Conveying Exhaust Systems
- Hazardous Process Piping Systems

## Regulatory Compliance & Permitting

- CUPA Compliance
- Hazardous Materials Business Plans
- Risk Management Plans
- Spill Prevention Control & Countermeasures
- Air Quality Management District
- Wastewater Discharge Permitting
- Hazardous Waste Treatment Tiered Permitting



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## COMMISSIONING AND QUALIFICATION

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Commissioning has become an essential step to insure building systems are installed and operating properly, according to the design intent, before the building is occupied. In regulated industries like the pharmaceutical, biotechnology, and medical device industries, Commissioning and Qualification activities are the foundation for achieving regulatory compliance and for moving into the Process Validation stage. A well-planned and well-executed Commissioning and Qualification effort will accelerate the operation and production activities of the facility, leading to the ultimate goal of producing a marketable product.

### Commissioning Services

- Develop commissioning plans that support the overall project schedule
- Owner Project Requirements (OPR) and Design Reviews
- Commissioning schedule integrated with construction
- Participation in the RFI process
- Pre-functional checklists and Functional Performance Tests
- LEED Enhanced Commissioning
- Review of contractor training plans
- Conduct Seasonal Testing
- Develop Systems Manuals
- Preparation of final commissioning reports
- Execution of commissioning activities to allow leveraging into qualification activities

### Qualification Support

- User Requirement Specifications (URS)
- System Requirement Specifications (SRS)
- Validation Master Plans (VMP)
- Standard Operating Procedures (SOP)
- Impact Assessments (IA)
- Factory Acceptance Testing (FAT)
- Site Acceptance Testing (SAT)
- IQ, OQ, and PQ protocol development and execution
- Schedule integration

## CODE COMPLIANCE, SITE EVALUATION AND ENVIRONMENTAL HEALTH & SAFETY

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Whether you are building a new facility, remodeling an existing one, or doing a simple upgrade it is crucial that you are aware of the current and future code requirements and regulations that will impact the safety and compliance of your business operations.

### Code Compliance

- Building
- Fire
- Electrical
- Mechanical
- NFPA's

### Site Assessment

- Site Selection
- Due Diligence
- Facility Closure

### Environmental Health and Safety (EH&S)

- IIPP
- HazCom
- Emergency Response
- OSHA



Contact IES today and learn how we can help with your next  
MEP, Chemical and Process Engineering project.

**SANTA CLARA:**

70 Saratoga Avenue, Suite 200  
Santa Clara, CA 95051-7301  
408 261 3500

**ATLANTA:**

2 Ravinia Drive, Suite 1580  
Atlanta, GA 30346  
678 783 3016

**Visit Us at [IESEngineering.net](http://IESEngineering.net) for more information.**

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