

Facility and Equipment Design

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Basis for Facility Design

- *Good Facility Design requires extensive coordination among many technical disciplines*
 - Process, Production, Architectural, Piping, Mechanical, Electrical, Automation, Structural, Plumbing, Fire Protection, Environmental, Health and Safety, Quality, Facilities, Maintenance, Security, etc...



Know the Process

- Understand full scope of the process, including support functions and utility requirements
 - PFD's
 - Equipment List
 - Required Production Capacities
- Assess adjacencies and flow paths
 - What functions need to be near each other
 - Strive for uni-directional flow paths



Develop Design Strategies

- HVAC room classifications
- Gowning areas and locker rooms
- Product containment
- Strategy for material transfers
- Decontamination, cleaning
- Waste handling
- Updating site drawings



Extra considerations

- Staging areas for clean and dirty equipment
- Access for maintenance activities
- Automation servers, monitoring rooms
- QC sampling and testing equipment
- Code requirements: egress, flammables, firewater containment
- Janitorial closets
- Spill response supplies, PPE



Room and Equipment Layout Considerations

- Portable equipment
- Access for maintenance and testing
- Utility drops locations
- Heating jackets and insulation on tanks
- Packaged systems: accessories & cabinets
- Clearances for installation
- Number of staff needed for process and support functions

