



**EHS**  
**EXCHANGE**

biotechnology  
pharmaceutical  
medical device

challenges • strategies • solutions

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**EH&S CONSIDERATIONS FOR BIOTECH FACILITIES START-UPS**

**CAL STATE UNIVERSITY EAST BAY**

**TUESDAY, OCTOBER 25, 2016**

## EH&S Considerations for Biotech Facilities Start-ups



EH&S is an essential component that starts early in the process and can define a tenant improvement project. Effectively navigate requirements for biotech facility start-ups by understanding the interdependencies of construction, design, schedules, and safety to successfully deliver complex and time-sensitive projects.



## Agenda

- Tenant Improvement (TI) Design Through Construction
- Relocation Readiness
- Destination Preparation
- Origin Preparation
- Site Closures
- Lessons Learned

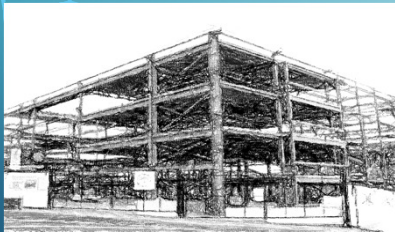
# TI Design Through Construction

## Key Stakeholders



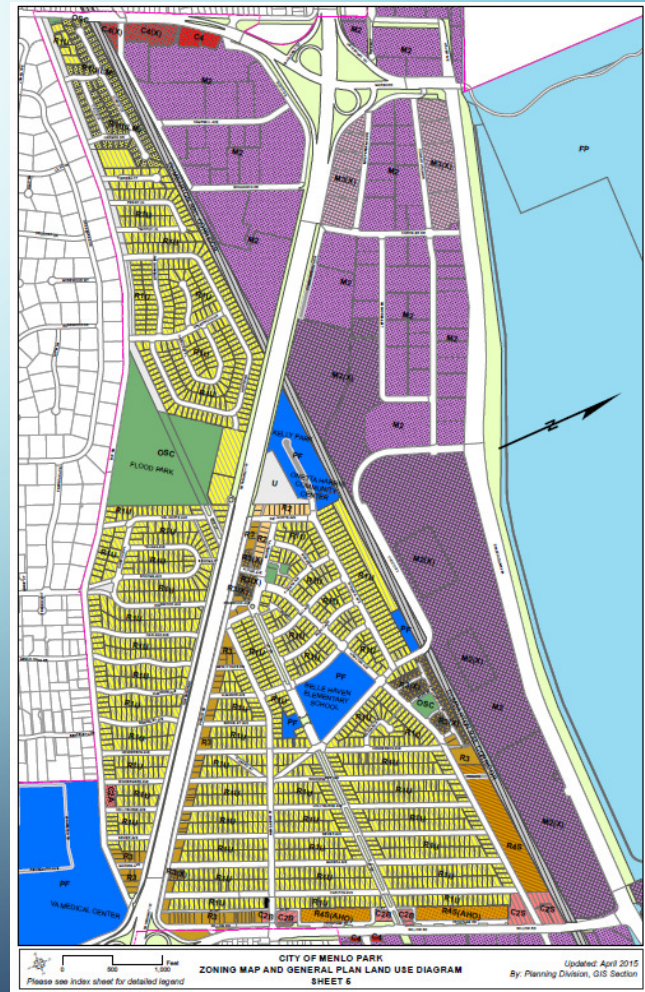
- Executive Management
- Investors
- Users
- Real Estate Executive

## Define Requirements and Site Selection



- Location – Employee Base & Similar
- Building (Feasibility, MEP and Accessibility)
- Property Management
- Identify Proper Zoning

# TI Design Through Construction



## CITY OF MENLO PARK ZONING DISTRICT AND GENERAL PLAN LAND USE DESIGNATION CORRESPONDENCE TABLE

Zoning District	General Plan Land Use Designation	
R-E	Residential Estate District	Very Low Density Residential
R-E-S	Residential Estate Suburban District	Very Low Density Residential
R-1-S	Single Family Suburban Residential District	Low Density Residential <sup>1,2</sup>
R-1-S (FG)	Single Family Suburban Residential District (Felton Gables)	Low Density Residential <sup>1</sup>
R-1-U	Single Family Urban Residential District	Low Density Residential
R-2	Low Density Apartment District	Medium Density Residential
R-3	Apartment District	Medium Density Residential
R-3-A	Garden Apartment Residential District	Medium Density Residential
R-3-C	Apartment-Office District	Professional and Administrative Offices <sup>3</sup>
R-4	High-Density Residential District	High Density Residential
R-4-S	High-Density Residential District, Special	High Density Residential
R-4-S(AHO)	High-Density Residential District, Special, Affordable Housing Overlay	High Density Residential
R-4-U	Retirement Living Units District	High Density Residential
C-1	Administrative and Professional District, Restrictive	Professional and Administrative Offices
C-1-A	Administrative and Professional District	Professional and Administrative Offices
C-1-C	Administrative, Professional and Research District, Restrictive	Professional and Administrative Offices
C-2	Neighborhood Shopping District	Retail/Commercial
C-2-A	Neighborhood Shopping District, Restrictive	Retail/Commercial
C-2-B	Neighborhood Commercial District, Restrictive	Retail/Commercial
C-2-S	Neighborhood Commercial District, Special	Retail/Commercial
C-4	General Commercial District	Retail/Commercial
M-2	General Industrial District	Limited Industry
M-3	Commercial Business Park	Commercial Business Park
SP-ECR/D	El Camino Real/Downtown Specific Plan	El Camino Real/Downtown Specific Plan
OSC	Open Space and Conservation District	Parks and Recreation
P-F	Public Facilities District	Public Facilities
PP	Flood Plain District	Non-Urban <sup>4</sup>
P	Parking District	Retail/Commercial
H	Historic Site District	Medium Density Residential <sup>5</sup>
AAGP	Allied Arts Guild Preservation District	Other
X	Conditional Development	n/a <sup>6</sup>
U	Unclassified	n/a

# TI Design Through Construction

## Design

- Architect with Applicable Experience
- Generate Block Plans for Utilization and Adjacencies
- Facilities Conducts Due Diligence
- Programming to Develop Basis of Design (BOD)
- Schematic Drawings (SDs)
  - Site plan, floor plans, sections, elevations, renderings
- Design Drawings (DDs)
  - Floor plans with full dimensions, door and window details and materials
- Construction Drawings (CDs)
  - All pertinent information required to price and build





# TI Design Through Construction

## Planning & Architectural Considerations for EHS

- Determine Control Zones for Constructability
  - \*\*\*Coordinate with Multi-Tenant Buildings
- Identify Use and Generate Hazardous Materials Inventory Statement (HMIS)
- Validate Applicable Use Requirements (ie Biological, Chemistry, Radiation, Vivarium, NMR)
- Constructed Safety Components
  - Eyewash & Safety Showers
  - Fire Extinguishing Including Sprinklers, Preaction, Class D
  - Chemical Fume Hoods or Vented BSCs
  - Waste Station Collection Areas
  - Egress & Assembly Area Identification
  - Seismic Requirements





# TI Design Through Construction

## Construction Drawings (CDs) and Permits

- Client Awards Project to General Contractor
- Architect Submits Permit Set Drawings To City
- Plan Check & Review Comments
  - \*\*\* Allow 4-6 Weeks Based on Project Value
  - \*\*\* Expeditor Available in some Jurisdictions
- Let's Start Building!!

## Construction

TI Project – Allow 12-20 Weeks for Physical Construction and Longer for New Construction



***EHS Professionals Are Critical to  
Minimize Business Disruption!!!***



# Relocation Readiness

## Define Scope of Work - Preparing for the Relocation

- Inspections with Regulatory Agencies
- Pre-Move Meetings with Staff – Be Available
- Request Minimizing Chemical Orders
- Identify Locations and Collect Obsolete Waste
- Solicit Vendor to Lab Pack, Inventory and Move or Dispose of Hazardous Chemicals Support Equipment & Lab Decontamination
- Identify Strategies for Biologicals/ Live Cells
- Cold Storage Items (ie Cold Room, Freezers)



# Relocation Readiness



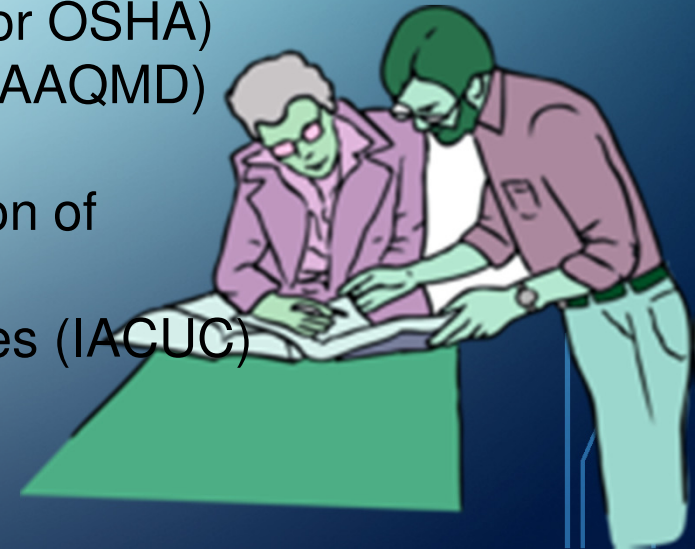
OSHA and other Regulatory Compliance, which may include:

- Injury & Illness Prevention Program (IIPP)
- Emergency Action Plan (EAP)
- Fire Prevention Program (FPP)
- Chemical Hygiene Program (CHP)
- Bloodborne Pathogen Program (BBP)
- Department of Transportation (DOT)

# Relocation Readiness

## Permits

- Certified Unified Program Agency (CUPA)
- City or County Wastewater
- Fire Department
- Nuclear Regulatory Commission (NRC)
- Drug Enforcement Agency (DEA)
- Department of Occupational Health (DOSH or OSHA)
- Bay Area Air Quality Management District (BAAQMD)
- Environmental Protection Agency (EPA)
- Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC)
- Institutional Animal Care and Use Committees (IACUC)



# Relocation Readiness

## Site Preparation



- Hazard Communication at Labs and Buildings
- Identify and Train to Assembly Areas
- Post Emergency Contacts
- Generate and Post Evacuation Plans
- Procure and Stock First Aid Kits & AEDs
- Ensure Fire Extinguishers Are Available and Charged
- Confirm Safety Showers/ Eyewash Stations are Clear of Obstacles, Serviceable and Maintained

# Relocation Readiness

Safety Glasses, Gloves & Lab Coats Required



## CAUTION

Hazards May Be Present In This Room



## REQUIREMENTS FOR THIS ROOM

- \*Authorized Personnel Only / Solamente Personal Autorizado
- \*Personal Protective Equipment (PPE) Required
- \*No Smoking, Eating, Drinking, Application of Cosmetics and Lip Balm, Manipulation of Contact Lenses, & Mouth Pipetting

## EMERGENCY CONTACTS

Lab Contact: [REDACTED]  
Facilities: Sandra Jamme 650.400.2051 cell

## EMERGENCY SUPPORT SERVICES

Call **911** for Life Threatening Emergency  
Address is [REDACTED], Redwood City  
Cross Street is Galveston Dr.

EH&S On-Site Contact:	[REDACTED]	[REDACTED]
EH&S Consultant:	[REDACTED]	[REDACTED]
Haz Waste Vendor:	ACT	408.538.5050
Occupational Health:	US HealthWorks	650.556.9460
Hospital:	Sequoia	650.369.5800
Hospital:	Kaiser	650.299.2000





# Origin Preparation

- Identify Landlord Turn-Over Requirements
- Pre-Move Inspection To Confirm Testing and Other Requirements
- Develop Closure Plan to Comply With Requirements
- Submit Closure Plan to County & Landlord
- Implement Equipment and Lab Decontamination Plan
- Relocate and Remove Chemical and Biological Products
- Receive Sample Results and Waste
- Submit Closure package
- Essential to Timely Turn-Over



## Site Closure

- Confirm Turn-Over Date
- Identify Landlord Exit Requirements
- Ensure All Chemicals Removed, Site Decontaminated, Tested and Results Received
- Turn-Over Closure Report
- Avoid Costly Hold-Over Costs – Allow Time





## Summary

- Define the Tenant Improvement (TI) Process
- Tips for Preparing for your Relocation
- How to Prepare the Destination
- Wrap Up Origin & Site Closures

# *The* **TAKEAWAY**™

- Engage with Senior Management Early In Project
- Clearly Communicate Schedule and Expectations
- Manage Internal & External Resources
- Be Aware of Schedule Changes
- Talk with Local Agencies for Requirements/ Alliance
- Speak Up, Honest, Clear
- Be Involved with Regular Construction Teams
- Engage Employee Safety Teams



# Questions

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