A PRIMER ON LAB FACILITIES AND RELATED COST CONSIDERATIONS
For Developers, Investors, Real Estate Professionals and Life Science Executives

TUESDAY, JUNE 8, 2021  |  1:00 PM - 2:30 PM
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Hands-on Workplace Safety
## Office to Lab Comparison Guidelines

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Office Building</th>
<th>Laboratory Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Zoning</td>
<td>Most Commercial and Mixed Use Districts</td>
<td>Limited To Specific Zones, Depends On Local Regulations. Examples In New York City: C2, C4, C5, C6, C8, M1, M2, M3 In Los Angeles: CM, MR1, M1, MR2, M2, M3</td>
</tr>
<tr>
<td>Maximum Building Height</td>
<td>Limited based on local zoning only.</td>
<td>Typical Maximum 4-6 Stories, Depending On Local Zoning, Hazardous Chemical Usage, Shaft Limitations.</td>
</tr>
<tr>
<td>Slab-to-Slab Heights</td>
<td>13'-14'</td>
<td>15'-16' Preferred</td>
</tr>
<tr>
<td>Structural Column Spacing</td>
<td>Varies</td>
<td>Columns Typically At 22' Or 33' Intervals To Support 11' Lab Module</td>
</tr>
<tr>
<td>HVAC Airflow (CFM/Sqft)</td>
<td>1.0-1.5 (CFM/Square feet)</td>
<td>1.5 - 2.5 (CFM/Square Feet)</td>
</tr>
<tr>
<td>Typical HVAC Ventilation Strategy</td>
<td>Recirculating VAV with Economizer, plenum return</td>
<td>Once-Through Ventilation, Ducted Supply And Exhaust</td>
</tr>
<tr>
<td>Typical Mechanical Cooling Load</td>
<td>250-300 Square Feet/Ton</td>
<td>150-250 Square Feet/Ton</td>
</tr>
<tr>
<td>Electrical Design Power Density (W/sqft) - Excluding Mechanical</td>
<td>5-7 (W/Sqft)</td>
<td>15-30 (W/Sqft)</td>
</tr>
<tr>
<td>Plumbing Waste</td>
<td>Sanitary</td>
<td>Sanitary And Acid Waste</td>
</tr>
<tr>
<td>Plumbing Water</td>
<td>Cold, Hot, Hot Water Return</td>
<td>Cold, Hot, Hot Water Return, RO Or RO/DI</td>
</tr>
<tr>
<td>Plumbing Gases (non-heating)</td>
<td>None</td>
<td>Compressed Air, Vacuum, Nitrogen, CO2</td>
</tr>
</tbody>
</table>
Typical Lab Plan, and Ceiling Considerations

Typical Lab Floor Plan

Sample Mechanical Section

Ceiling Zoning Section

Typical Lab Section

Hypothetical Lab Layout

Legend:
- LAB SUPPORT
- MECHANICAL
- OPEN LAB AREA

Architecture / Branding+Digital / Interior Design / Strategic Action
Multi-Tenant Laboratory Concerns

Shared Laboratory Function Considerations

LAB TENANT A

LAB SPECIFIC
- Fume Hood
- Tissue Culture
- Bio Safety Cabinets
- Exhaust
- Lab Benches
- Chemical Storage
- Lab Support

LAB SPECIFIC
- Fume Hood
- Tissue Culture
- Bio Safety Cabinets
- Exhaust
- Lab Benches
- Chemical Storage
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SHARED
- Desk Space
- Storage
- Office Space
- Collaboration Area

LAB TENANT B

BUILDING COMMON
- Entrances
- Conference Room
- Café/Lounge
- Collaboration Space

LAB SPECIFIC
- Fume Hood
- Tissue Culture
- Bio Safety Cabinets
- Exhaust
- Lab Benches
- Chemical Storage
- Lab Support

LABORYATORY UTILITY
- Freezer Farm
- Cold Room
- Microscopy
- Glass Wash / Autoclave

SHARED
- Desk Space
- Storage
- Office Space
- Collaboration Area

BUILDING UTILITY
- Mechanical
- Electrical
- Janitorial
- IT

Shaft Distribution Per Floor Zoning

Potential Floor Zoning
Major cost drivers
• HVAC systems
• Plumbing systems
• Electrical systems
• Lab architecture
• Lab equipment and casework
Lab vs. Office Pricing Considerations

Lab Construction (Greenfield)
$/SF Range by Major Building System

% of Total Cost by Major Building System

Key
- Superstructure
- Building Envelope
- Interior Construction
- Mechanical and Plumbing Systems
- Electrical Systems
- Equipment/Casework (Excluding Furniture)

Medians (examples)
Lab vs. Office Pricing Considerations – cont’d

Office Construction (Greenfield/Open Concept)
$/SF Range by Major Building System

New York, NY
Boston, MA
RTP, NC
Northern California

% of Total Cost by Major Building System

Key
- Superstructure
- Building Envelope
- Interior Construction
- Mechanical and Plumbing Systems
- Electrical Systems
- Equipment/Casework (Excluding Furniture)
- Median (examples)
Skanska Metriks™

Sample of Metriks Dashboard