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# UCLA GLOBAL BIO LAB

## WHAT IF IT DOESN'T WORK?:

**POST-CONSTRUCTION TROUBLESHOOTING**





# OVERVIEW

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- » Existing - California Nano Sciences Institute
- » Opened in 2006
- » 188,000 GSF
- » Six Stories
- » Vinoly Architects

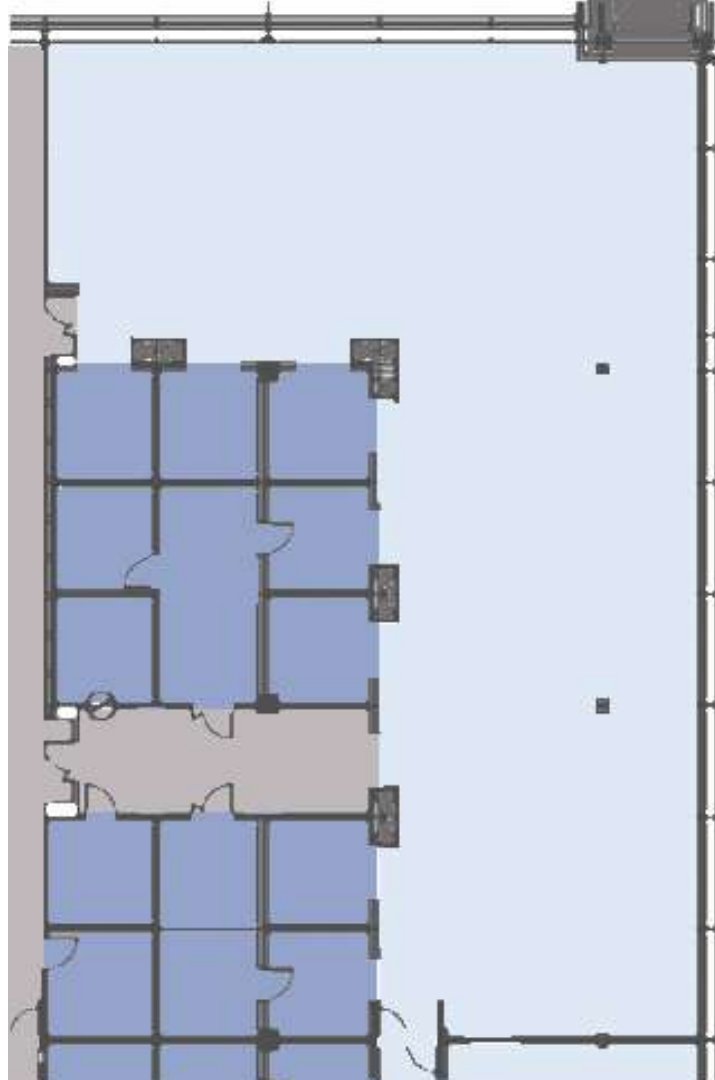


# EXISTING

FACILITY



# EXISTING FACILITY



# DESIGN

V1.0



# EXISTING LABORATORY

# EXISTING LABORATORY







# EXISTING LABORATORY



**EXISTING**  
ROOF

# SCHEDULE

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- » Original Building Opening - 2006
- » Global Bio Lab Design Phase – 2006-2008
- » Construction – 2008-2009
- » Facility Accepted by UCLA September 2009 “Substantially Complete”

# PROJECT TEAM

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- » Internationally Respected Experts
- » Randy Kray – Laboratory Planner
- » Lee Thompson – Biosafety Consultant
- » Barbara Johnson – Peer Review
- » Etc...

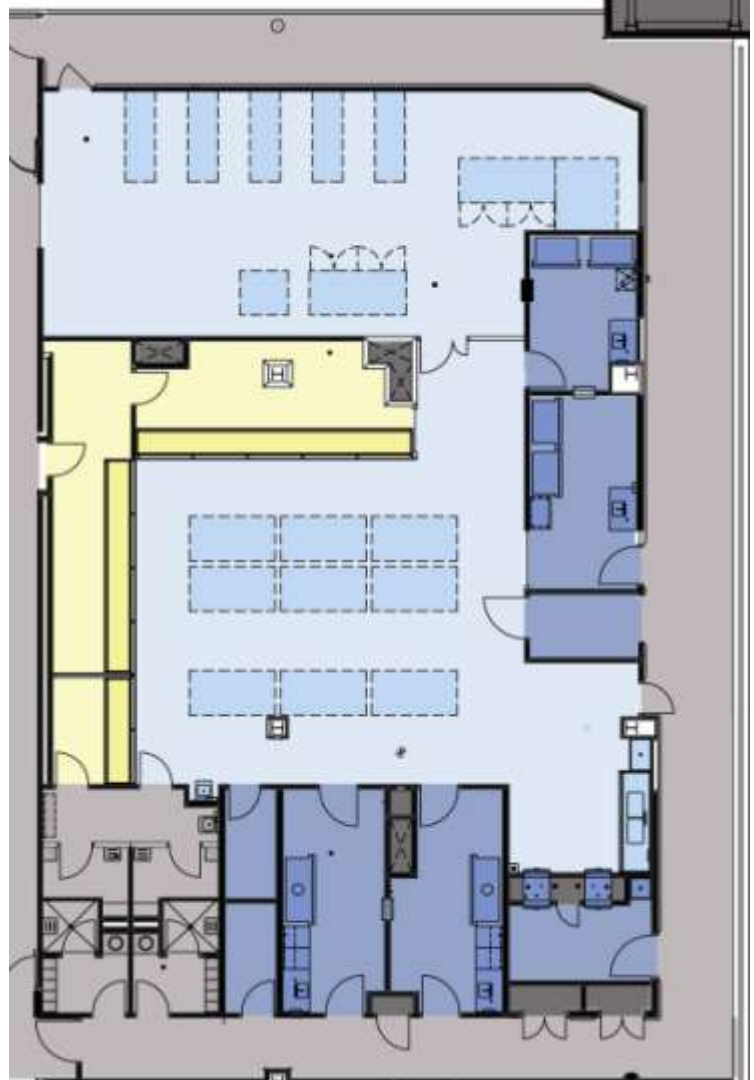
# DESIGN

V2.0



# DESIGN

V3.0





123

FLEX  
LABS

BSL-3

# BALLROOM







**ARCHIVE**  
**ROOM**



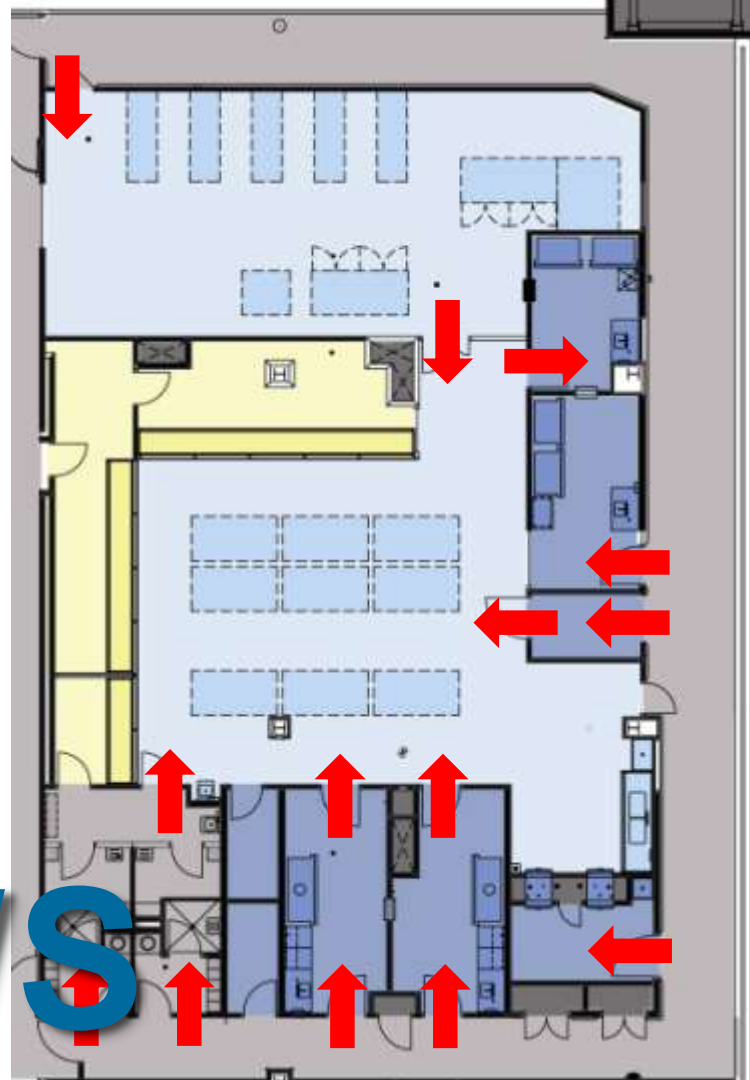
**WASTE**  
**DECON**



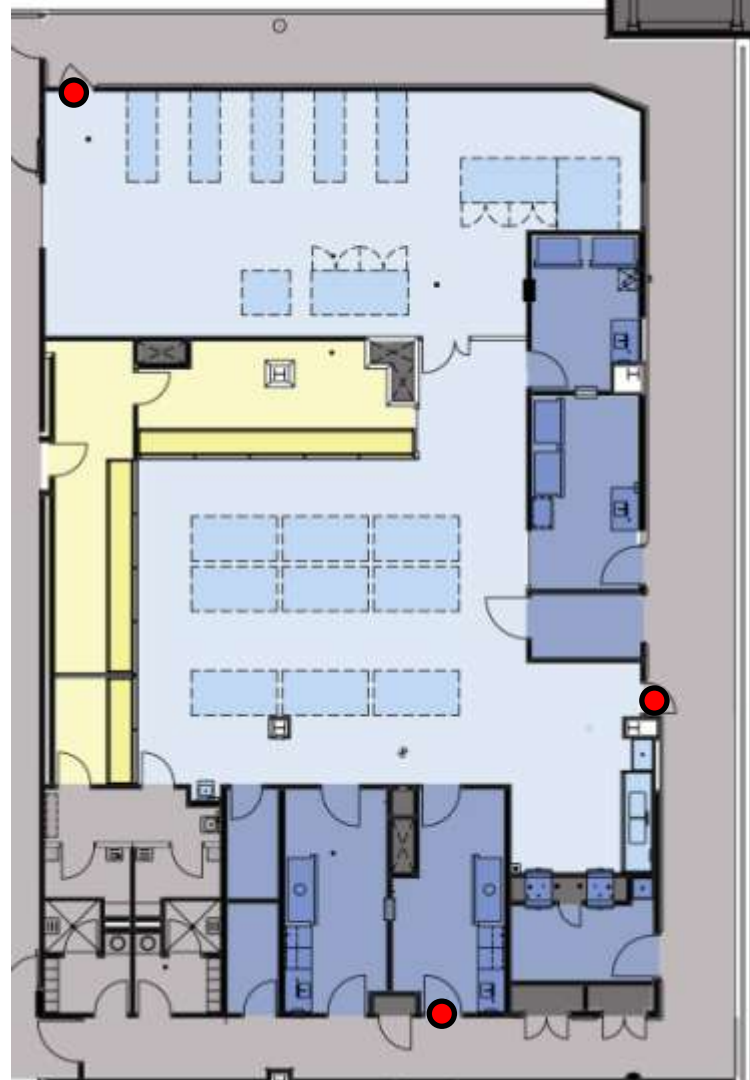
**BUT...**  
It didn't work.

**DESIGN**

**AIR FLOWS**



# FAILED COMMISSIONING





**JANUARY**  
**2013**



THE  
CALL

# CONSTRUCTION ACTIVITIES

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- » Submittals?
- » RFI's?
- » Change Orders?
- » Substitutions?
- » As-Builts?



# REMEDIATION TEAM

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- » Sergio Sanchez
- » Bill Zavatkay
- » Roy Sandoval
- » Sarah Sweeney
- » Tommy Lane
- » Carl Newth

# POST-CONSTRUCTION REMEDIATION

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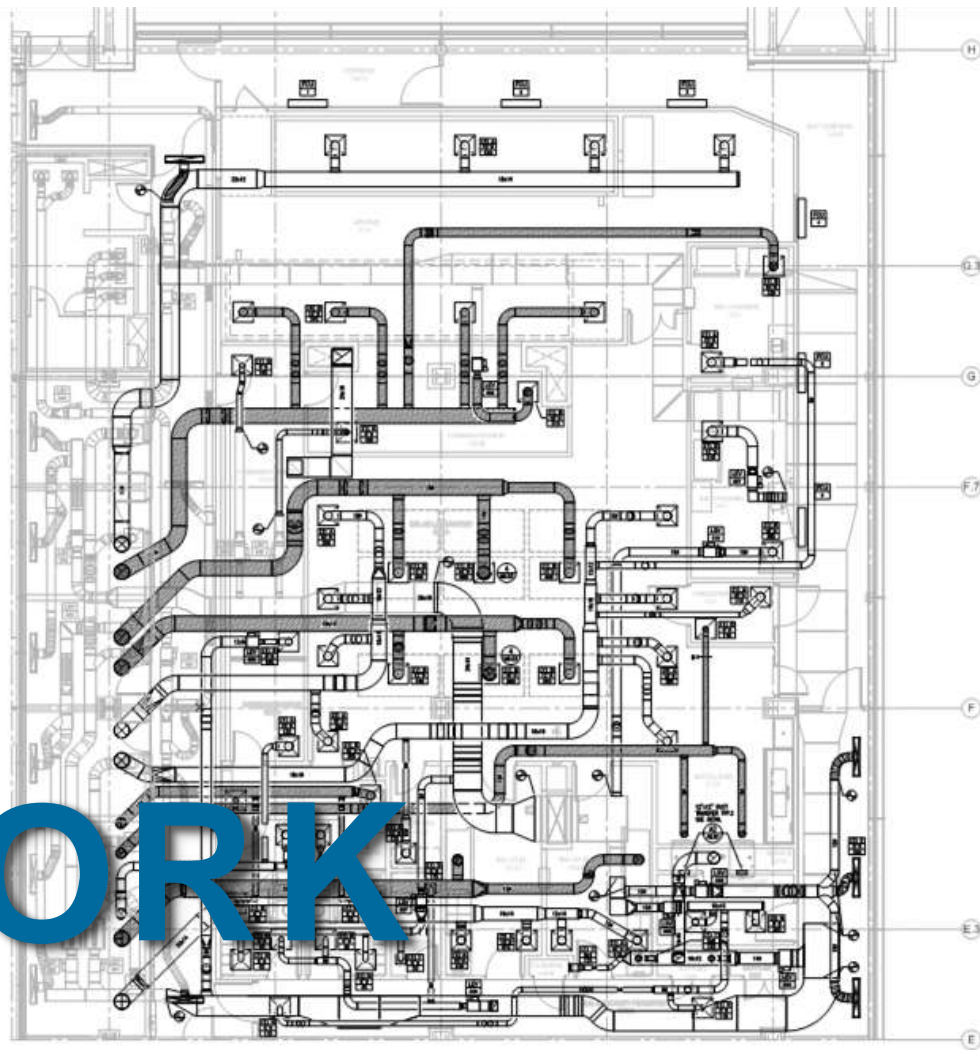


- » Architectural
- » HVAC
- » Plumbing



**HVAC**  
**SYSTEMS**

# DUCTWORK



# DUCTWORK

- » Extra Turns Increase Static Pressure
- » Increased Ceiling Congestion
- » Misinterpretation of Construction Documents



# SUPPLY VALVE

- » Vertical vs. Horizontal
- » Operating Static Pressure
- » 12" Valves vs. 14" Valves





**SUPPLY**  
**VALVE**



## SUPPLY VALVE

- » Cone Orientation
- » Static Pressure Required Between 0.6" – 3.0"
- » Actual Pressures
  - » 0.2" for 14" Valves
  - » 4.3" for 12" Valves

2013/04/05 10:16:51



# SUPPLY

BEFORE



# FLEX DUCT?

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6310L

**SELECTIVE**

**DEMOLITION**

# SUPPLY

## AFTER



# SUPPLY

## AFTER



# SUPPLY

## AFTER





## EXHAUST VALVES

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- » Factory vs. Field
- » Vertical to Horizontal Transition
- » Limited Vertical Clearance

## OPPOSING BLADE DAMPERS?

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# AHU

## MOUNTING



- » ...
- » ...
- » ..
- » ..

# AHU

## MOUNTING





## CONNECTION?

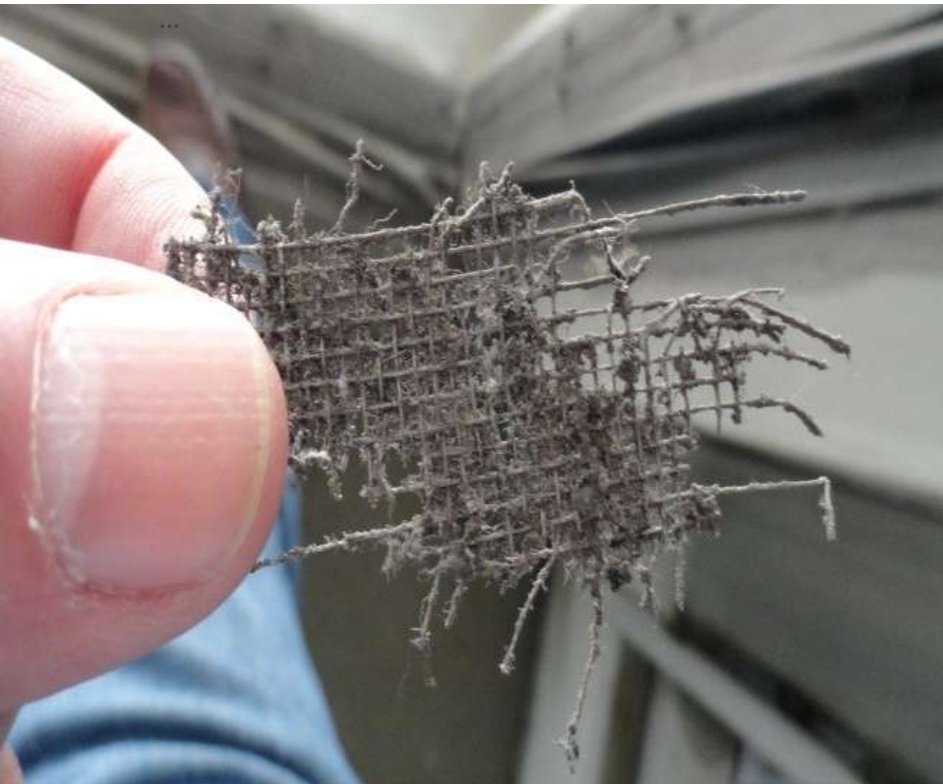
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- » Welded Diffusers
- » Welded Stainless Ducts
- » Flanged Connection?

# INSECT SCREEN

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VS. BIRD SCREEN



# EXHAUST

## DUCTWORK

- » Fabrication Labels
- » Misalignment

# SUPPLY DUCTWORK

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BEFORE



# SUPPLY

## DUCTWORK





**PLUMBING**  
SYSTEMS






LOW-TEMP

**SPRINKLERS**

» ...  
» ...  
» ..  
» ..

A close-up photograph of a stainless steel shower stall. The stall has a brushed metal finish. On the left side, there is a blue control knob with a red indicator light. The floor of the stall is made of a dark, speckled material and features a circular, brown, gridded drain cover. A metal pipe or rod is visible on the floor near the drain. The background is a plain, light-colored wall.

**CANOPY**

**CONDENSATE**



- » Tripping Hazard
- » Copper Piping
- » Cast Iron Drain

**FAN COIL**

**CONDENSATE**

- » Porous Insulation
- » Shut Off Valves
- » Chilled Water Penetration

# FAN COIL UNIT





**LIGHT**  
**SHOW**



**ARCHIVE**  
**ROOM**

# LIGHT

## FIXTURES OR...



» ...

» ...

» ..

» ..

# LIGHT

## SHOW?

- » Remove & Reinstall?
- » Seal From Above?
- » Seal From Below?



# FACILITY REDESIGN

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- » Additional BSL-2 Space
- » Automation Equipment
- » Bypass EDS
- » Relocated Casework



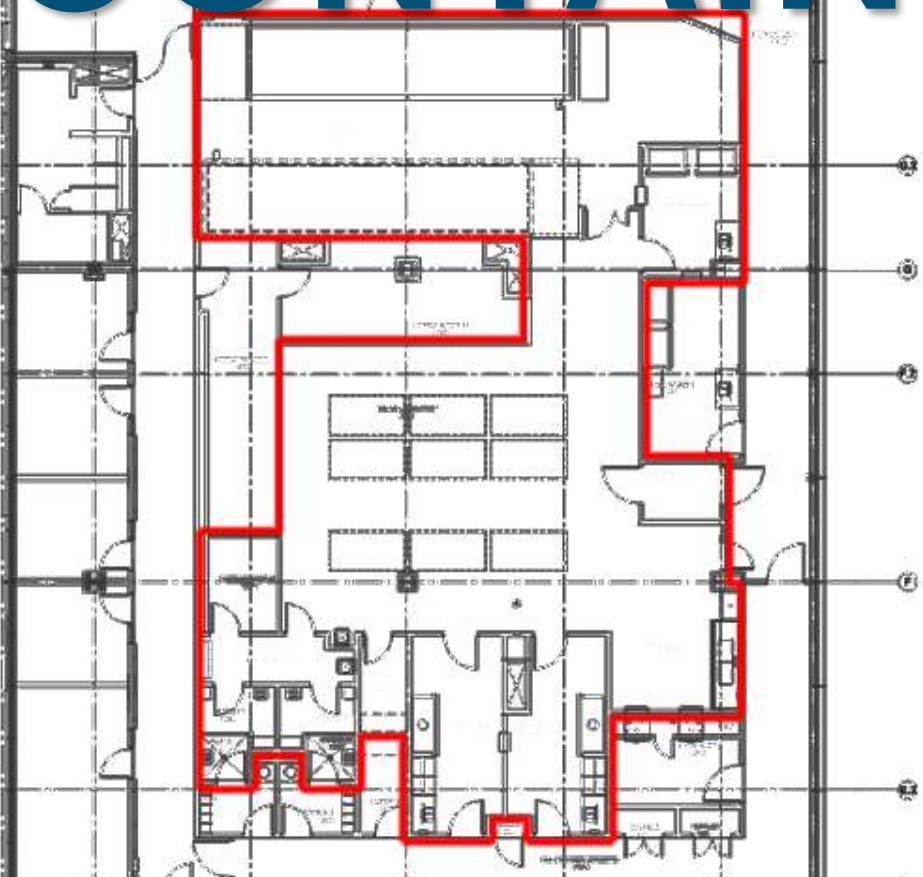
# DESIGN

V4.0

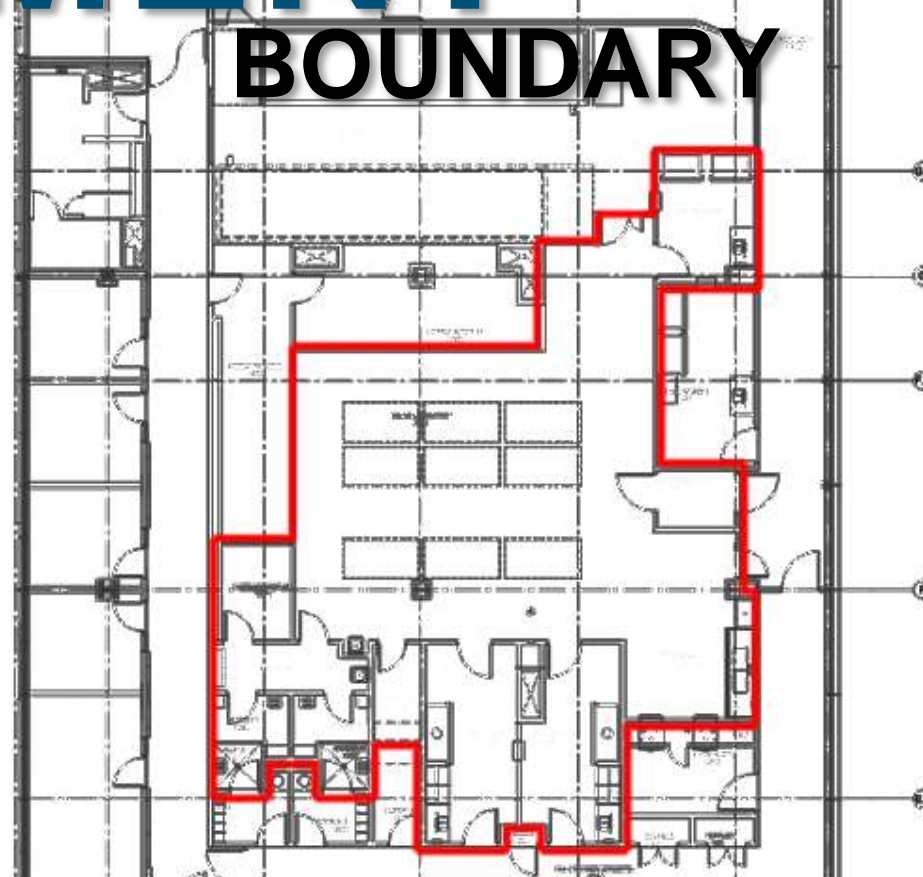
**NEW**  
**AIR FLOW**



# CONTAINMENT



# BOUNDARY



# LABORATORIES

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## MECHANICAL ROOM

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## MS. POPULAR

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# BUSINESS

CASUAL...





# DISCLAIMER:

*The views and opinions expressed in this presentation are those of the presenter(s) and do not necessarily reflect...*

**HDR**