

Axonometric of Org Chem and Gen Chem Labs and adjacent prep area looking northwest

**PHYSICAL SCIENCE  
LABORATORY SKETCHBOOK**  
Southwestern College  
Math, Science, & Engineering Building  
Design Development Phase  
2015 Aug 18



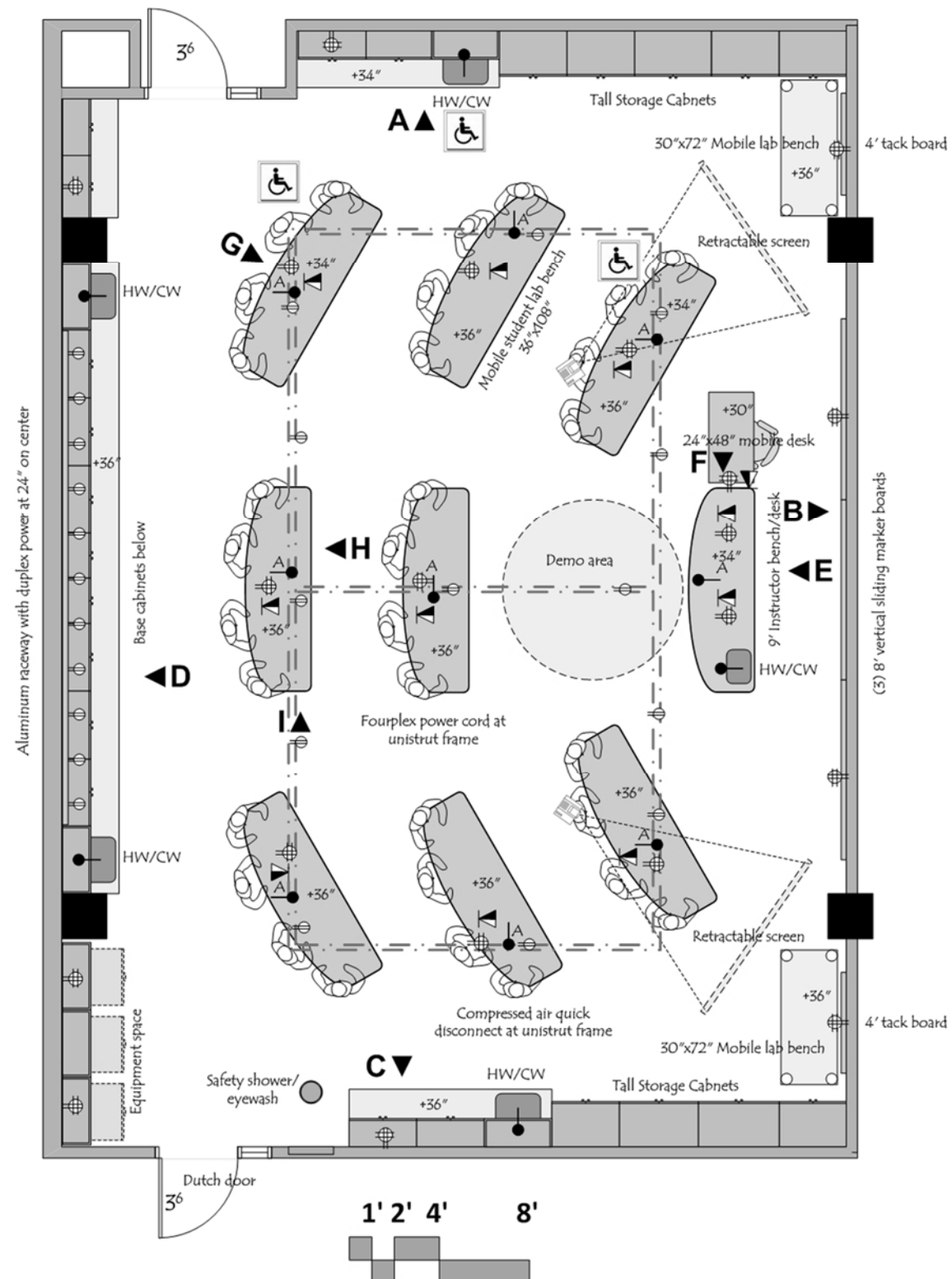
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Axonometric of Org Chem and Gen Chem Labs and adjacent prep area looking southwest

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# Introduction



This document is the third draft of the laboratory design sketchbook submitted in the design development phase of the new Science Math & Engineering Building at Southwestern College in Chula Vista, California. The purpose of this document is to illustrate design intent of the science labs and prep spaces.

All mechanical, plumbing, and electrical requirements for the labs are noted in this document. All plumbing and electrical outlets and points of service are noted on the plan drawings.

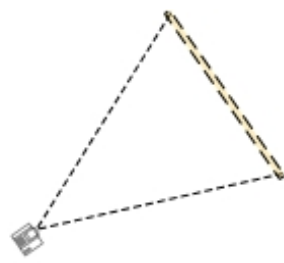

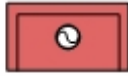





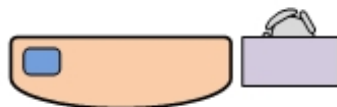
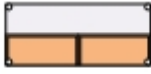
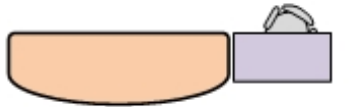

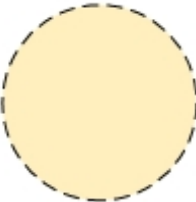

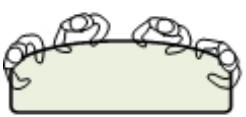




Interior laboratory elevations are included. Section details of typical casework configurations have been included.

Faculty comments received in the 2015 Jun 02 BUG teleconference are included in this document.

*Glen Berry*  
**Glen Berry, AIA**  
**Laboratory Planning Consultant**  
**designforscience@icloud.com**



# Symbol Legend

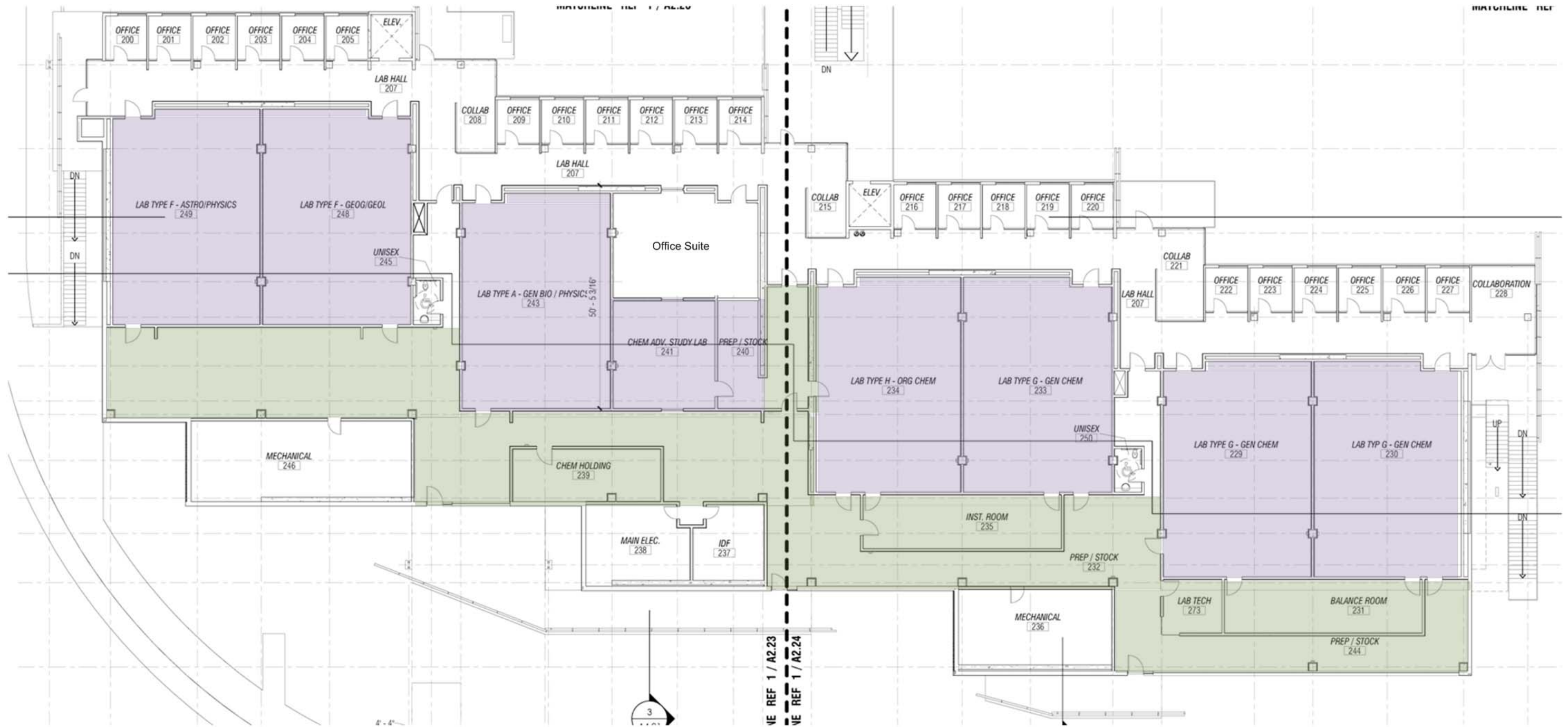
	Projector and screen		Fixed lab bench
	Chemical fume hood		Safety shower/eyewash
	Gas cylinder cabinet		Floor drain or floor sink
	Equipment space with 2 rows shelves above		Balance at balance room benchtop
	Instructor bench with sink with mobile desk at side		Mobile lab bench with integral shelves above
	Instructor bench without sink with mobile desk at side		Wall cabinet or tall storage cabinet
	Demo area in teaching lab		Open wall shelf or open tall storage cabinet
	Student island bench Some with sinks Some without sinks		Lab sink with drying rack and shelf above
		Mobile lab table	
			Flammable storage chemical cabinet

# MEP Criteria

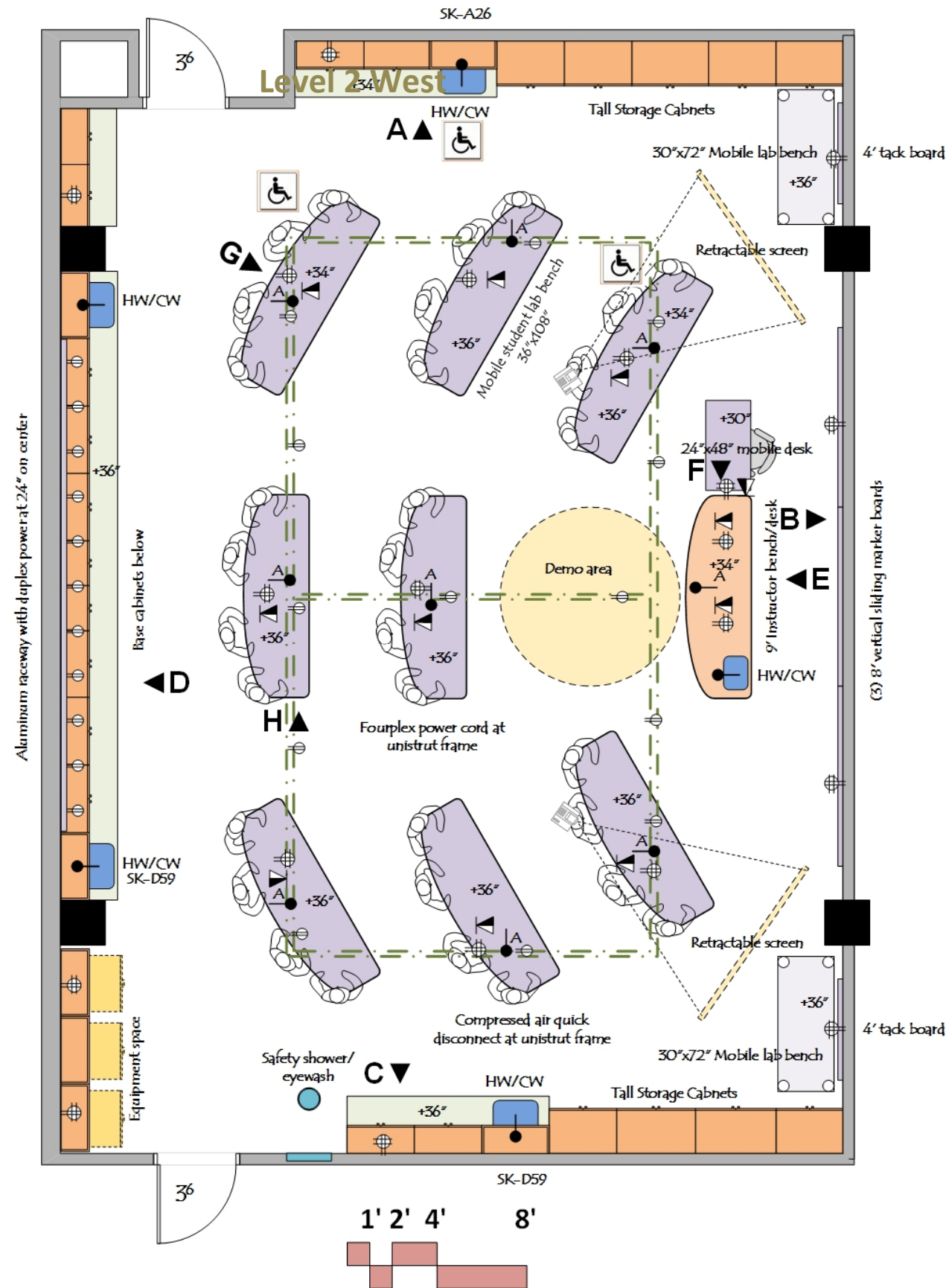
Mechanical	Electrical	Plumbing
<ul style="list-style-type: none"> <li>▪ 100% exhaust for all lab and prep areas</li> <li>▪ All lab and prep areas with negative pressure- except for lab tech workrooms located inside prep area shall have positive pressure</li> <li>▪ Standard air change rate is 6 air changes per hour- occupied</li> <li>▪ Unoccupied air change rate can be reduced to 4 air changes per hour- SWC to determine what defines "unoccupied"- it may be 10 pm to 6 am, plus weekends, plus holidays; or it may be based on occupancy sensor.</li> <li>▪ All labs on individual thermostat control- one thermostat per lab.</li> <li>▪ All prep areas on individual thermostat control- one thermostat per prep area (4 prep areas per floor).</li> <li>▪ All enclosed rooms within prep area on individual thermostat control.</li> <li>▪ Supply air to be pre-filtered at 30% and 95% efficiency.</li> <li>▪ Heat gain in labs: 25 btuh/sf for teaching labs; 50 btuh/sf for prep areas.</li> <li>▪ Fume hood exhaust system on emergency power.</li> <li>▪ All fume hoods to be variable air volume (VAV) with sash sensor controls.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Maximum of four duplex or two fourplex power outlets on same circuit anywhere in lab or prep areas.</li> <li>▪ Power outlets at equipment space on dedicated circuits.</li> <li>▪ Under counter washers in prep areas on 208v power.</li> <li>▪ Limited number of equipment space power outlets on 208v power.</li> <li>▪ Lighting control switches to be located at each lab door and at instructor bench at marker board wall.</li> <li>▪ Separate down lighting for marker board wall.</li> <li>▪ Dimmable or stepped lighting in teaching labs.</li> <li>▪ Aluminum raceways (single compartment) at lab walls where there are long runs of bench.</li> <li>▪ GFI outlets at General Biology/Botany Lab student islands.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Industrial water for hot and cold or vacuum breakers at each sink faucet.</li> <li>▪ Pure water on level 2 to be provide by central water polisher located in prep area- pure water to be distributed to 2nd floor lab sinks via recirculating loop with unpigmented polypropylene piping.</li> <li>▪ Piped services include hot water, cold water, pure water, gas, air, and vacuum.</li> <li>▪ Hard drain connection in wall for emergency eyewash stations with floor drains below safety showers.</li> </ul>

# Labs Level 2

Teaching Labs      Prep/Store



# Astronomy/Physics Lab



## ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3'6"x8'0" with window  
 Daylight: solatube at ceiling  
 Light attenuation: "black-out" curtains at all windows;  
 light tight seal at doors  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

## STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less  
 Unistrut frame at ceiling- 500 lb. point load capacity

## MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 -(4) air changes per hour occupied  
 -(2) air changes per hour unoccupied  
 Provide night set back to (2) air changes per hour from 11 pm to 6 am  
 Pressure: Negative  
 Humidity: Ambient

## ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Floor outlets and unistrut frame outlets  
 Data & Wireless data  
 Data in floor  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 Task lights below wall cabinets  
 Provide light switches at instructor's bench and at each door  
 Separate lighting for marker board wall

## PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Compressed Air at student benches at unistrut frame  
 Domestic cold water and drain at safety shower/eyewash

## CONTRACTOR FURNISHED EQUIPMENT

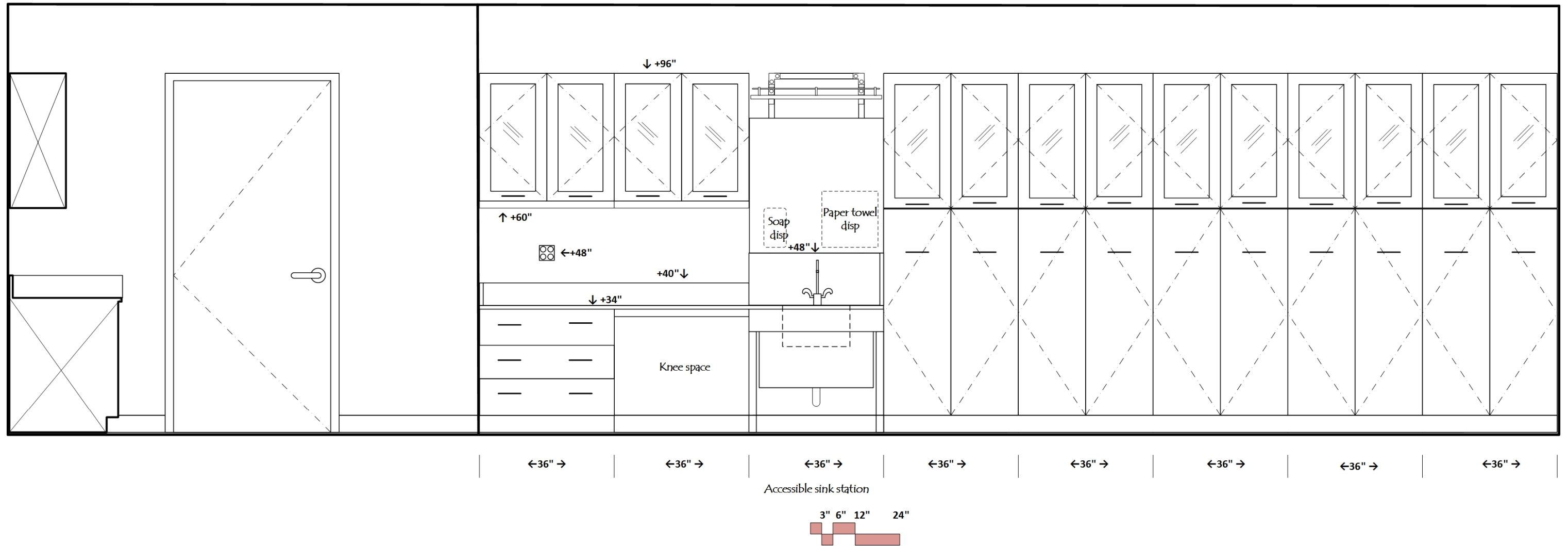
Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Tables  
 Resin tops and sinks  
 Faucets & fittings  
 marker boards  
 projector screens  
 Projection system

## COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchtop analytical instruments  
 Scientific equipment  
 paper towel dispensers; soap dispensers

# Astronomy/Physics Lab

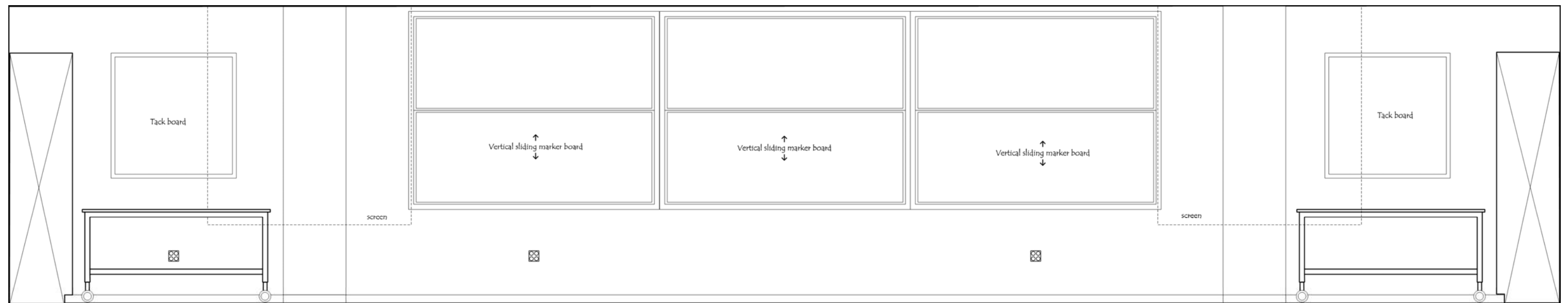
## Elevation A- North Wall





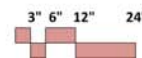
# Astronomy/Physics Lab

## Elevation B- East Wall



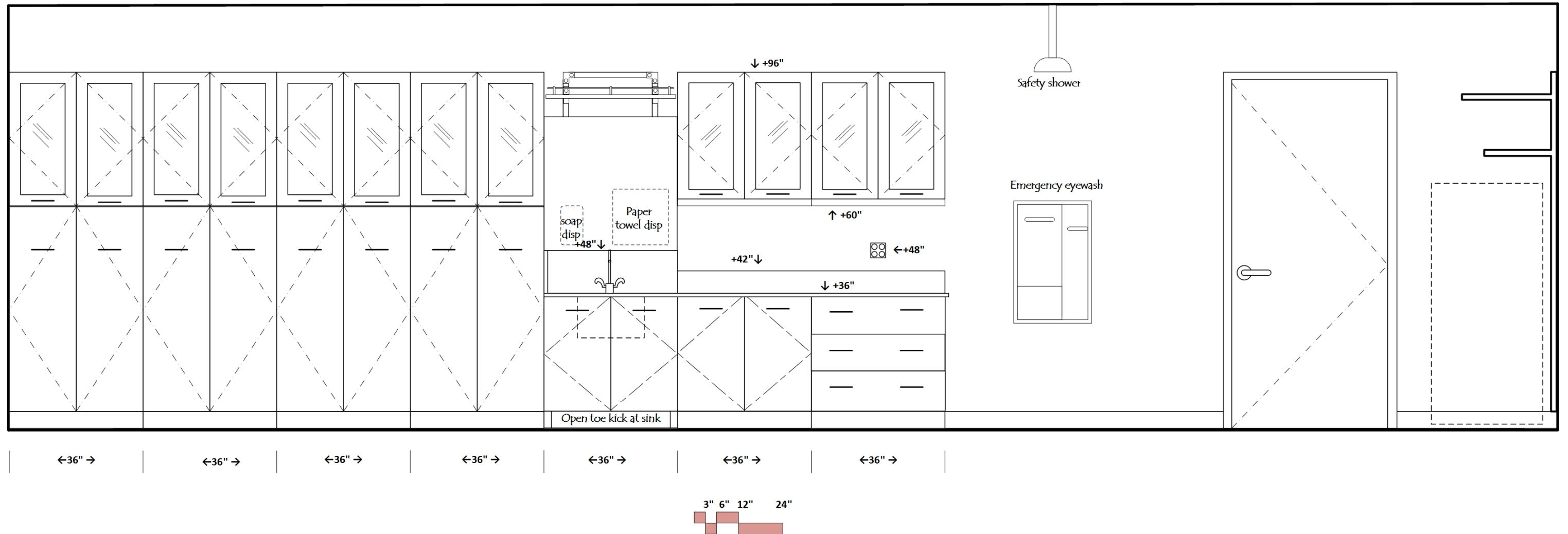
Mobile lab table- 30"x72"x30-40" adj height

Mobile lab table- 30"x72"x30-40" adj height



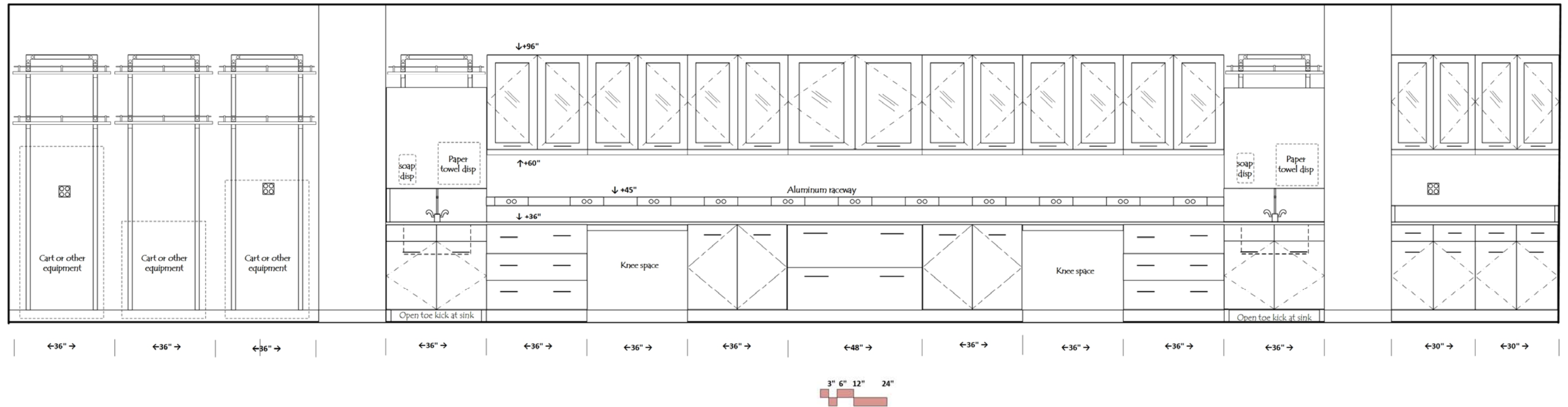
# Astronomy/Physics Lab

## Elevation C- South Wall



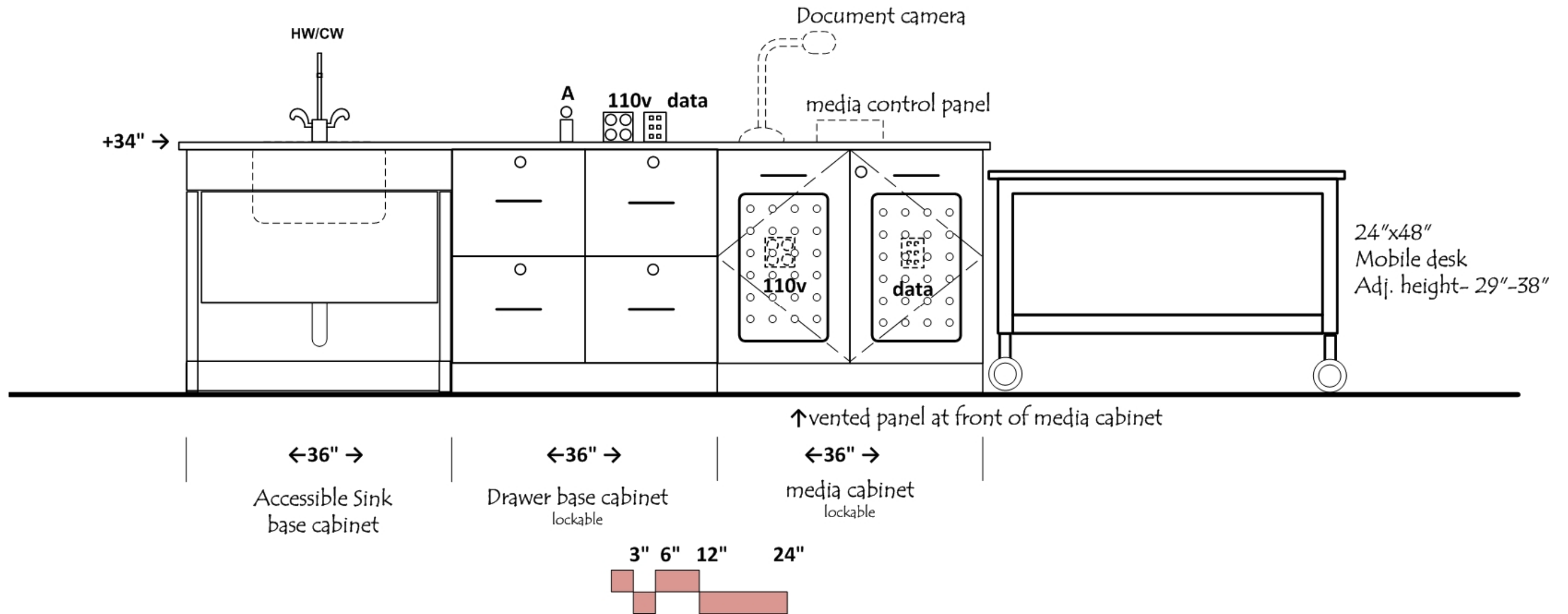
# Astronomy/Physics Lab

## Elevation D- West Wall



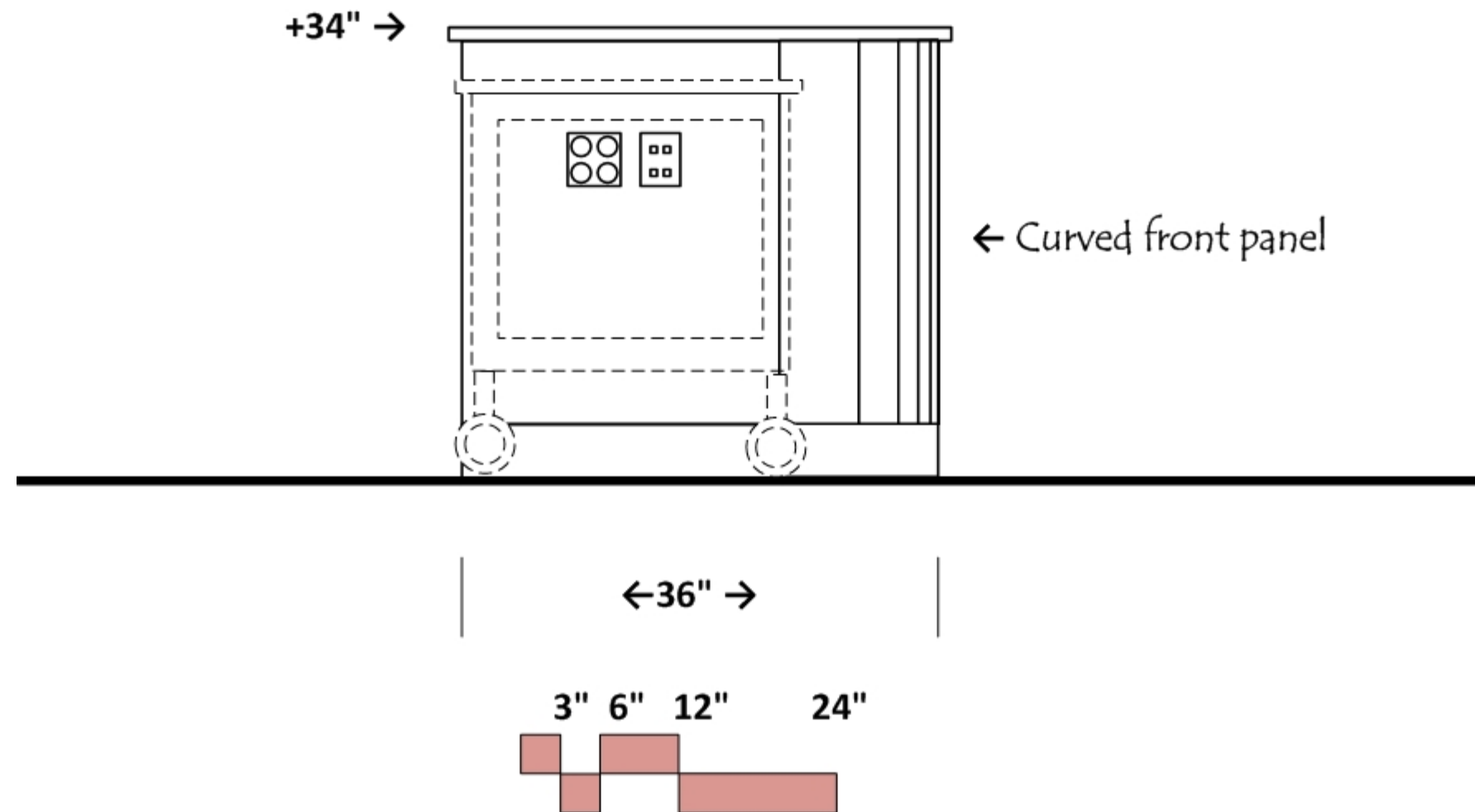
# Astronomy/Physics Lab

## Elevation E- Instructor Bench



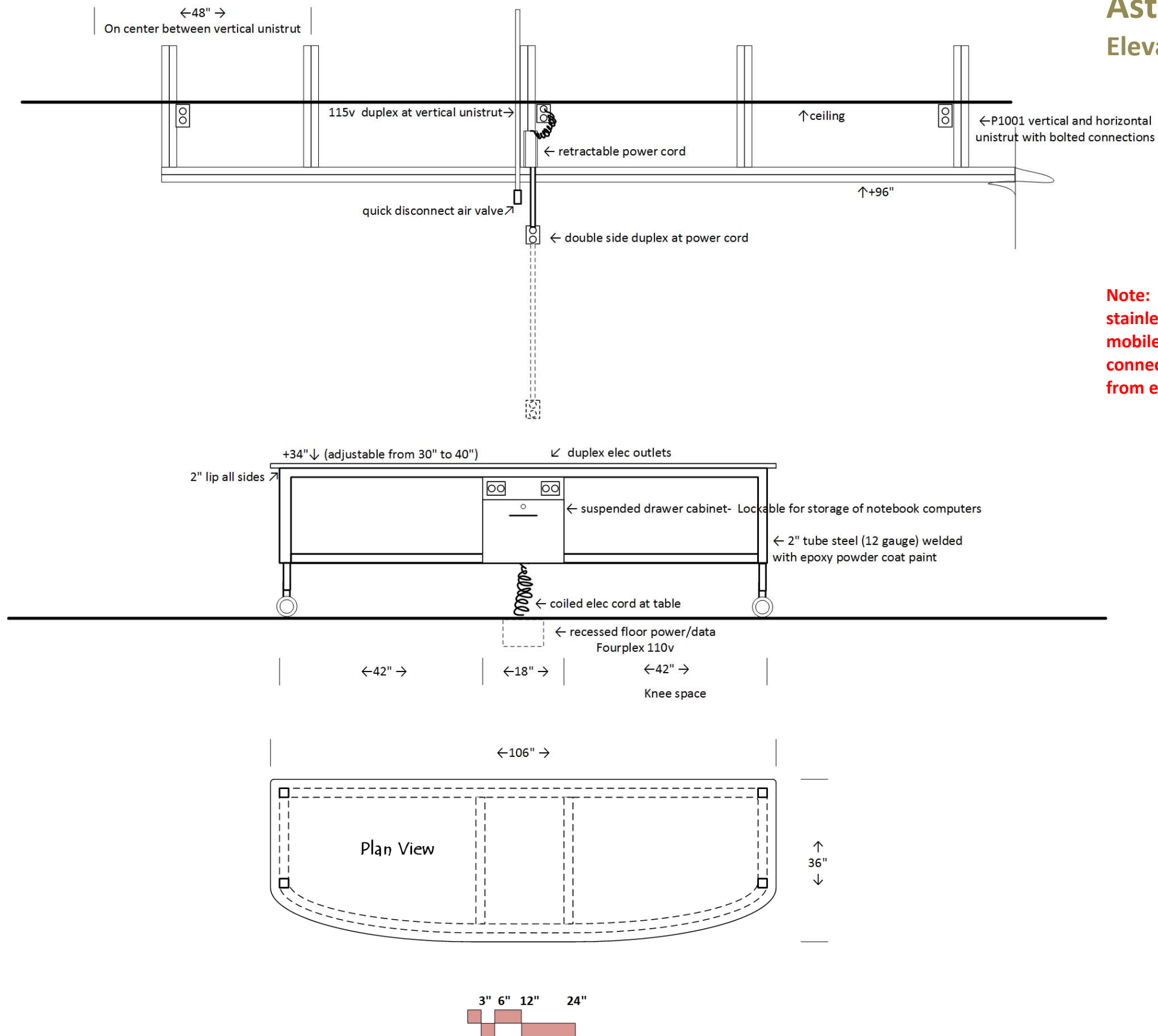
# Astronomy/Physics Lab

## Elevation F- Instructor Bench End



# Astronomy/Physics Lab

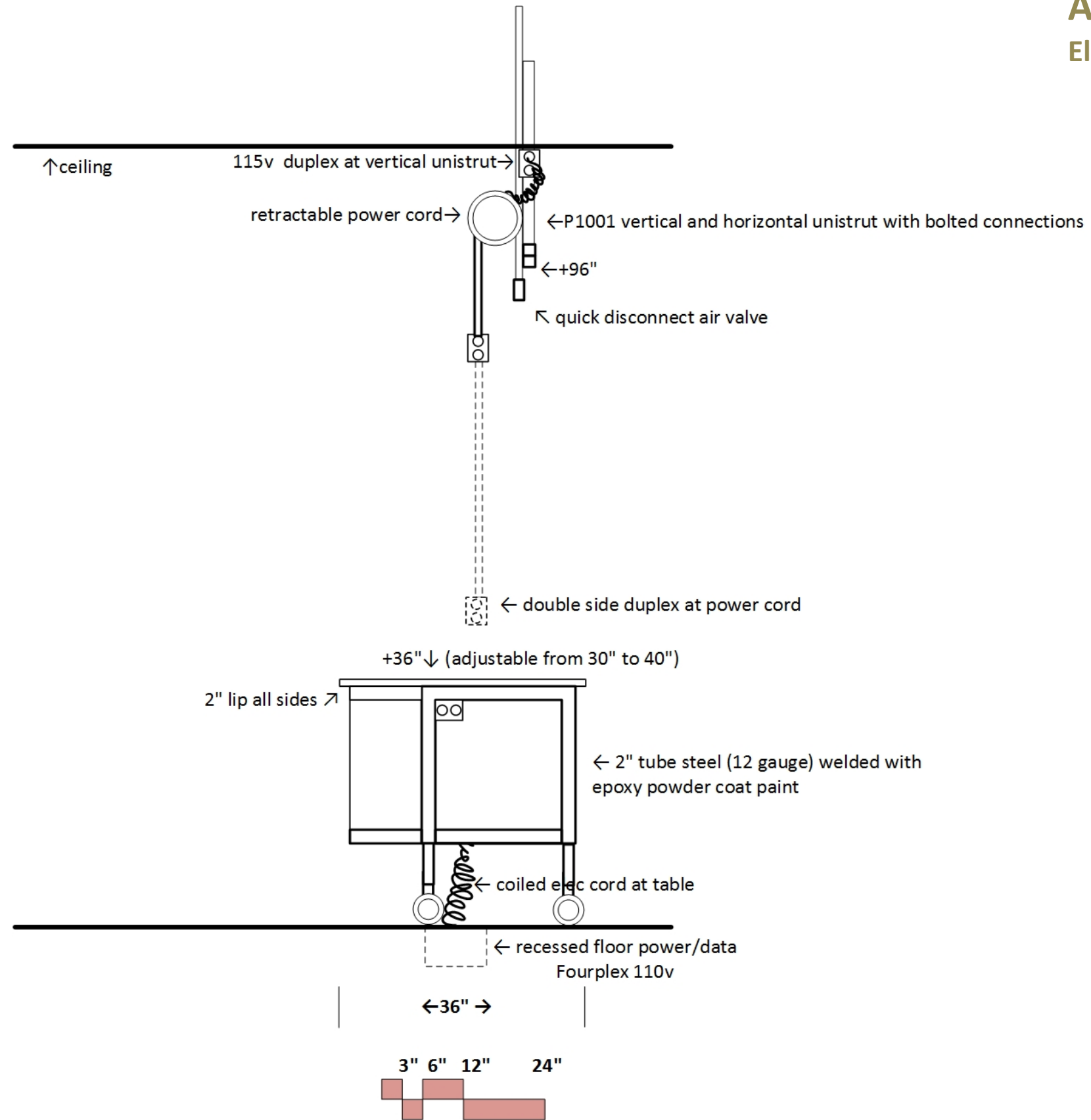
## Elevation G- Student Bench Front



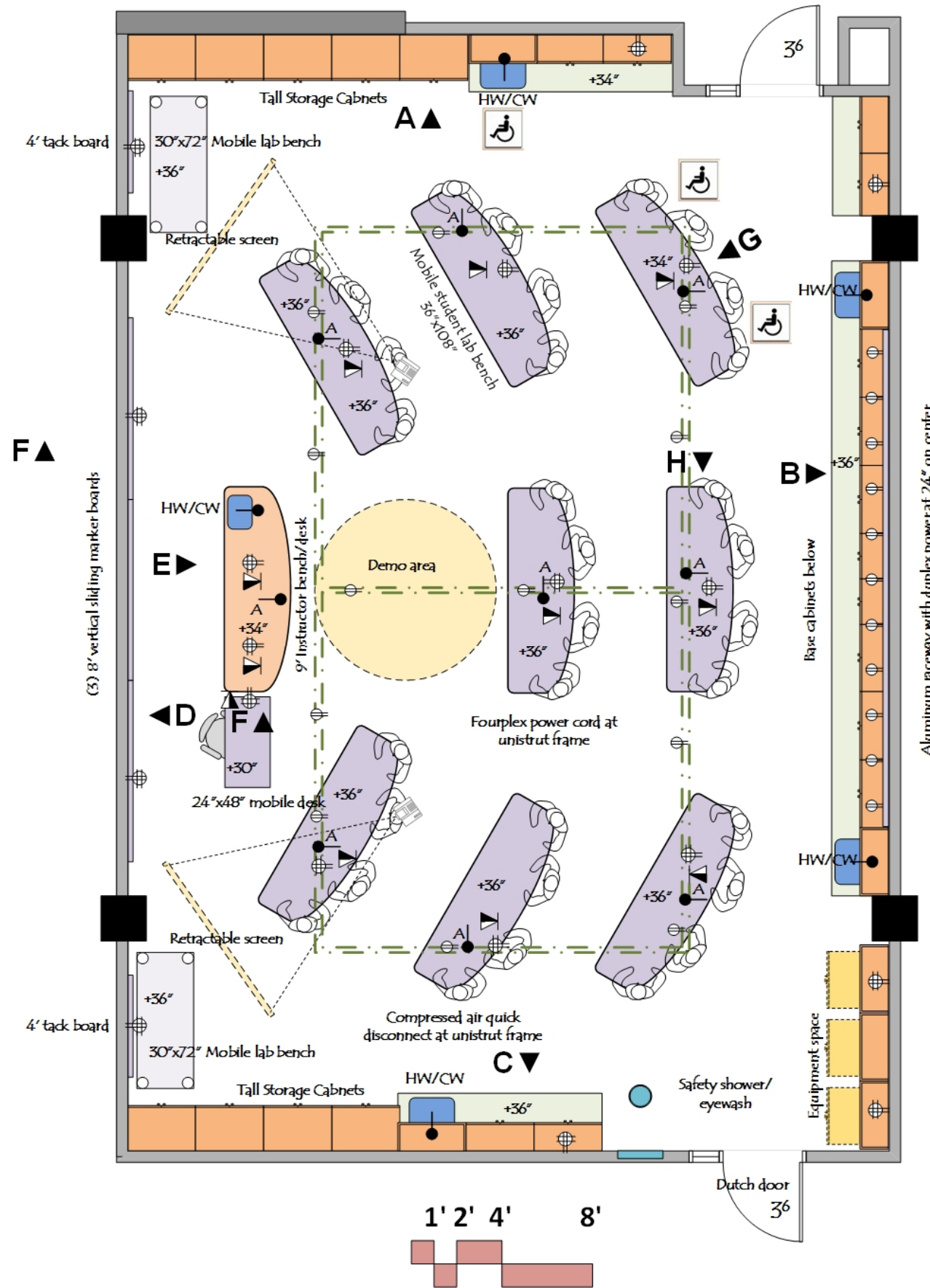
**Note: Provide 1/2" threaded connection with .5"x30" stainless steel vertical bar insert at each side of each mobile student lab bench. Locate each threaded connection at 12" from back edge of bench and 21" from each end.**

# Astronomy/Physics Lab

## Elevation H- Student Bench End



# Geology/Geography Lab Level 2 West



## ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3'6"x8' with window  
 Daylight: solatube at ceiling  
 Light attenuation: "black-out" curtains at all windows;  
 light tight seal at doors  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

## STRUCTURAL

Vibration attenuation: **2,000 micro inches/sec or less**  
 Unistrut frame at ceiling- 500 lb. point load capacity

## MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 -(4) air changes per hour occupied  
 -(2) air changes per hour unoccupied  
 Provide night set back to (2) air changes per hour from 11 pm to 6 am  
 Pressure: Negative  
 Humidity: Ambient

## ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Floor outlets and unistrut frame outlets  
 Data & Wireless data  
 Data in floor  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 Task lights below wall cabinets  
 Provide light switches at instructor's bench and at each door  
 Separate lighting for marker board wall

## PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Compressed Air at student benches at unistrut frame  
 Domestic cold water and drain at safety shower/eyewash

## CONTRACTOR FURNISHED EQUIPMENT

Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Tables  
 Resin tops and sinks  
 Faucets & fittings  
 marker boards  
 projector screens  
 Projection system

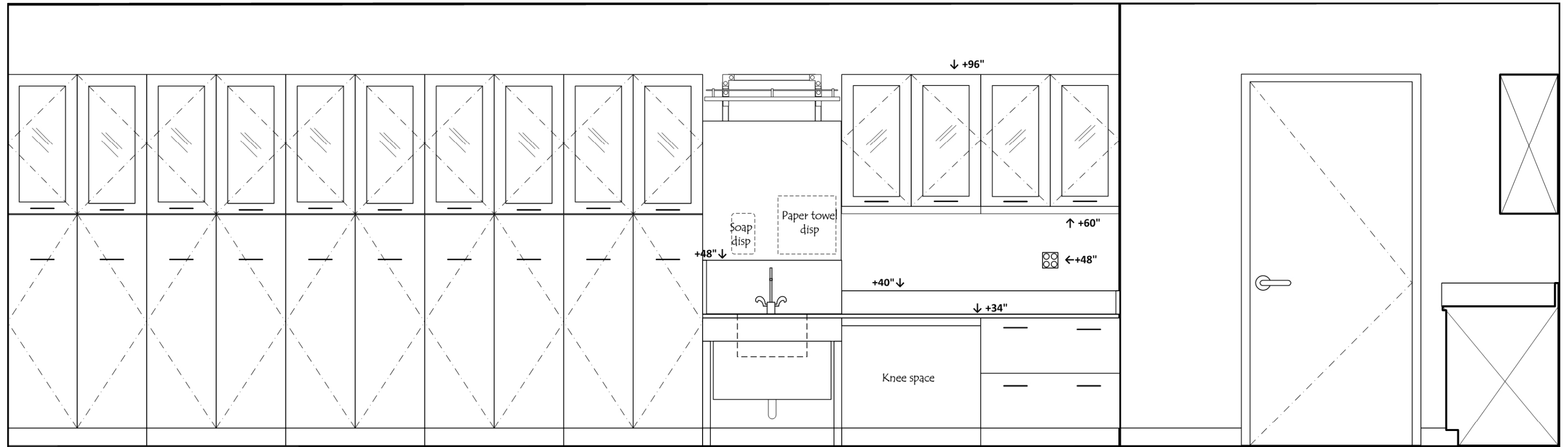
## COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchtop analytical instruments  
 Scientific equipment  
 paper towel dispensers; soap dispensers



# Geology/Geography Lab

## Elevation A- North Wall



←36" →

←36" →

←36" →

←36" →

←36" →

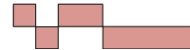
←36" →

←36" →

←36" →

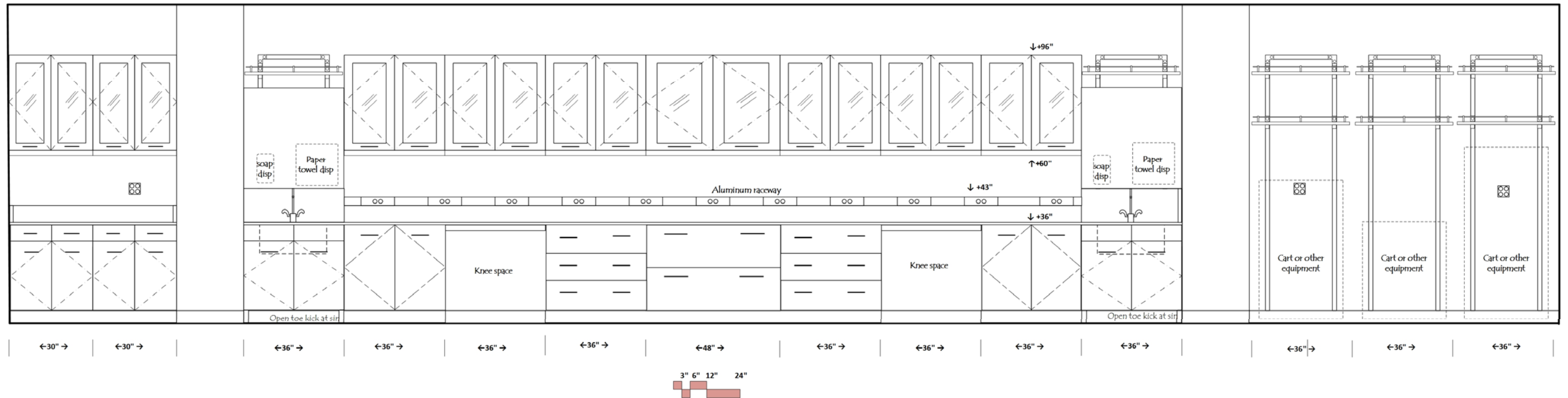
Accessible sink station

3" 6" 12" 24"



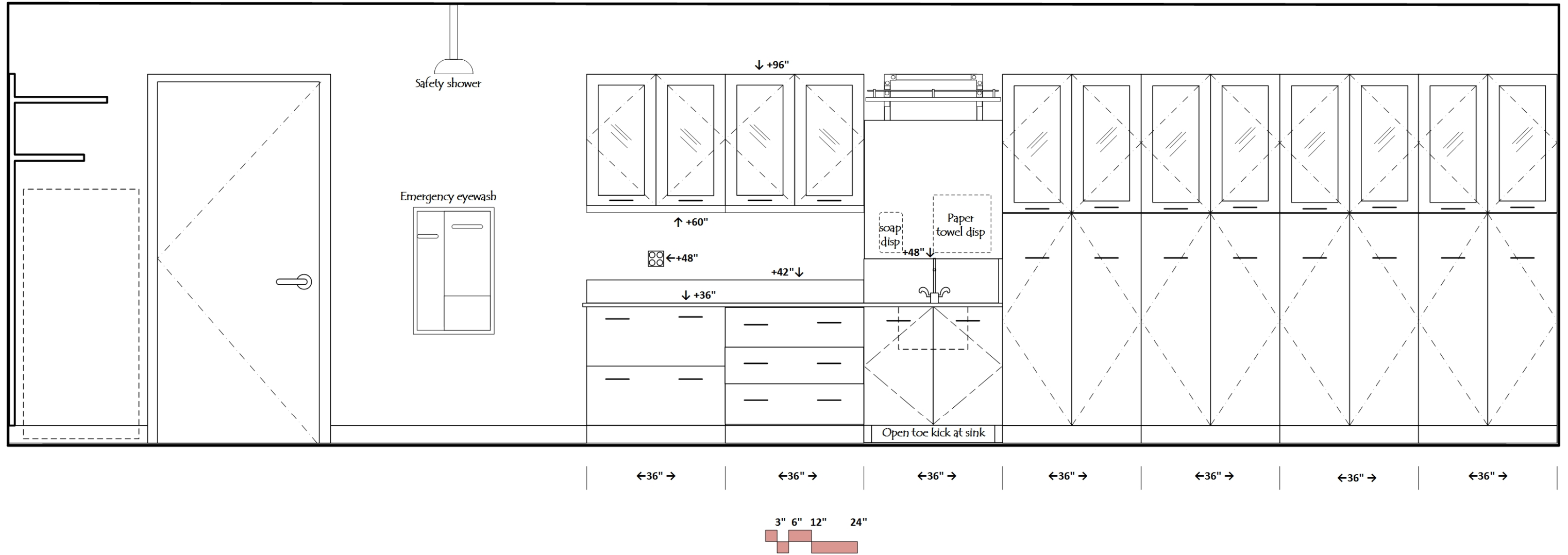
# Geology/Geography Lab

## Elevation B- East Wall



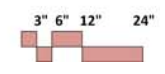
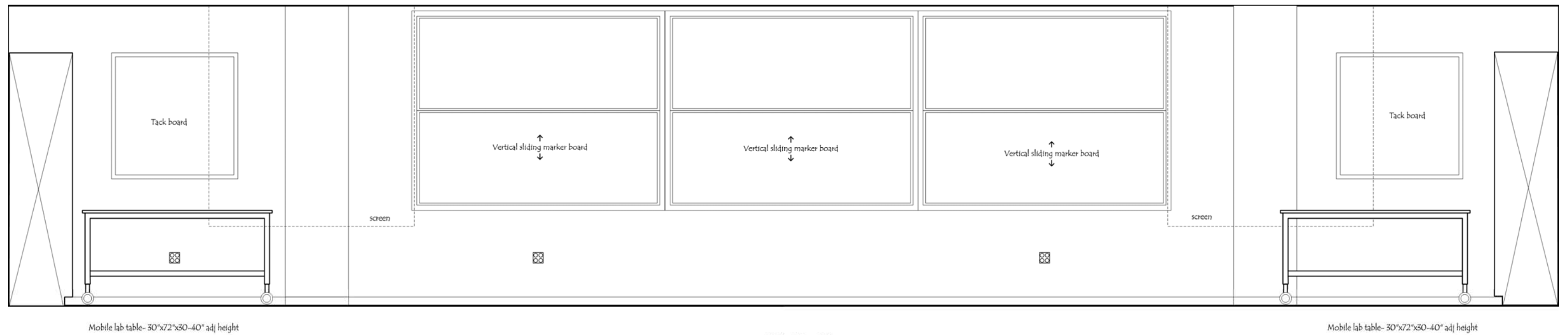
# Geology/Geography Lab

## Elevation C- South Wall



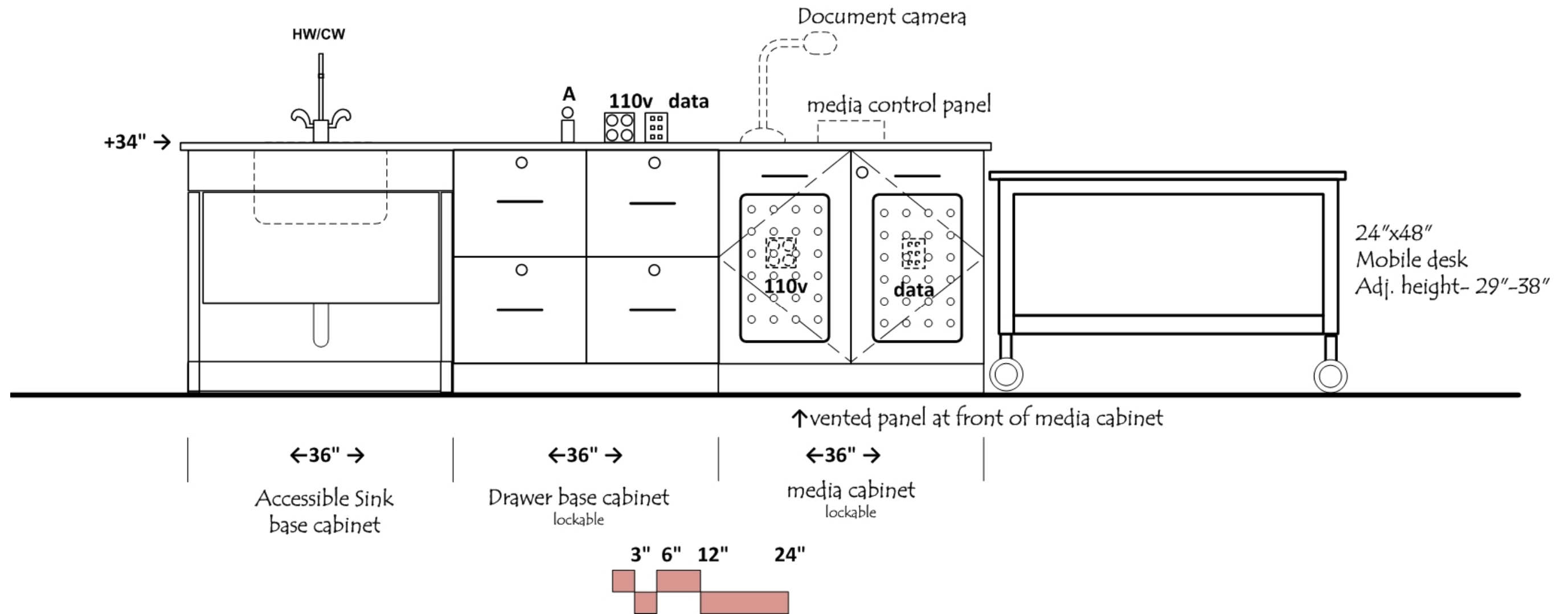
# Geology/Geography Lab

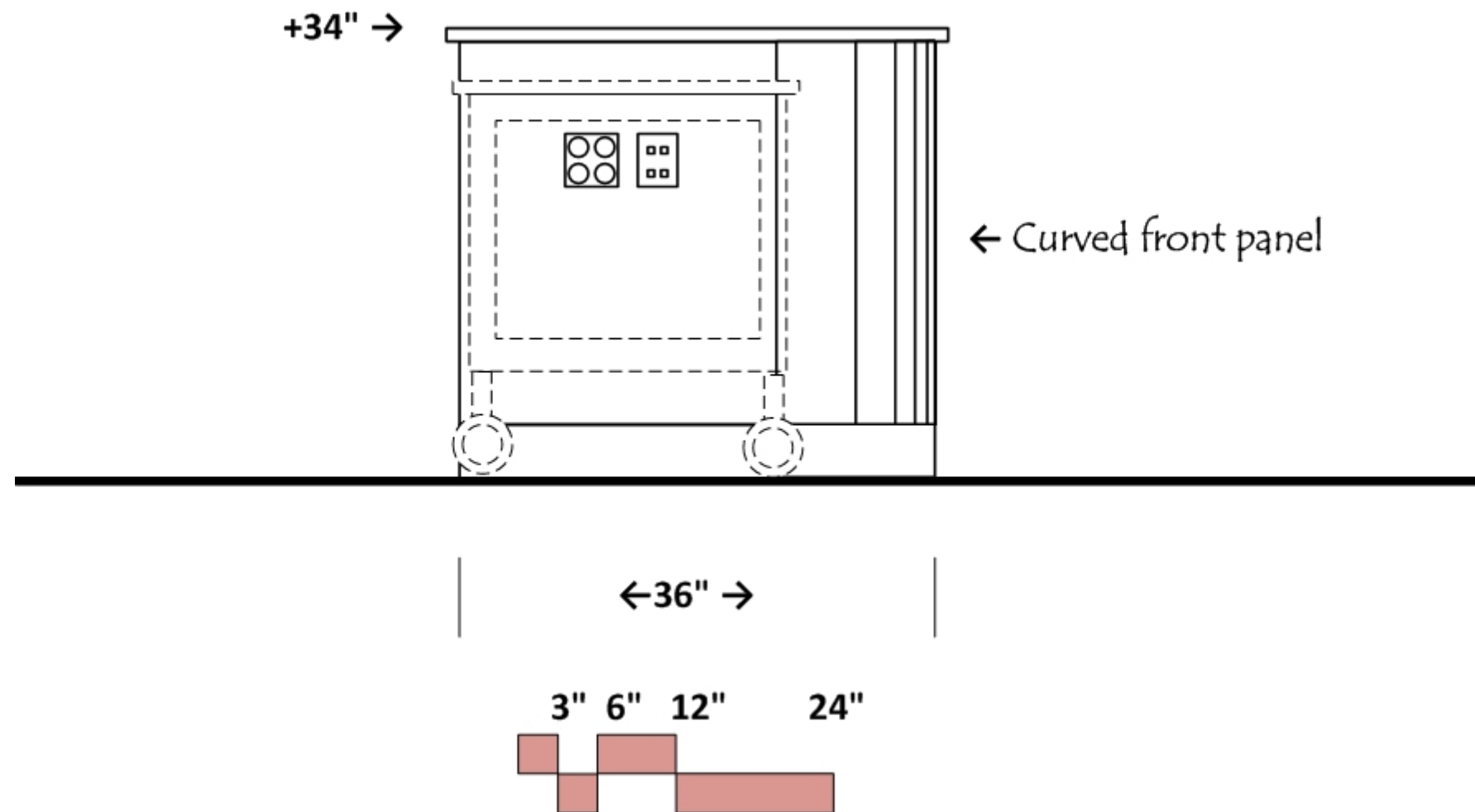
## Elevation D- West Wall



# Geology/Geography Lab

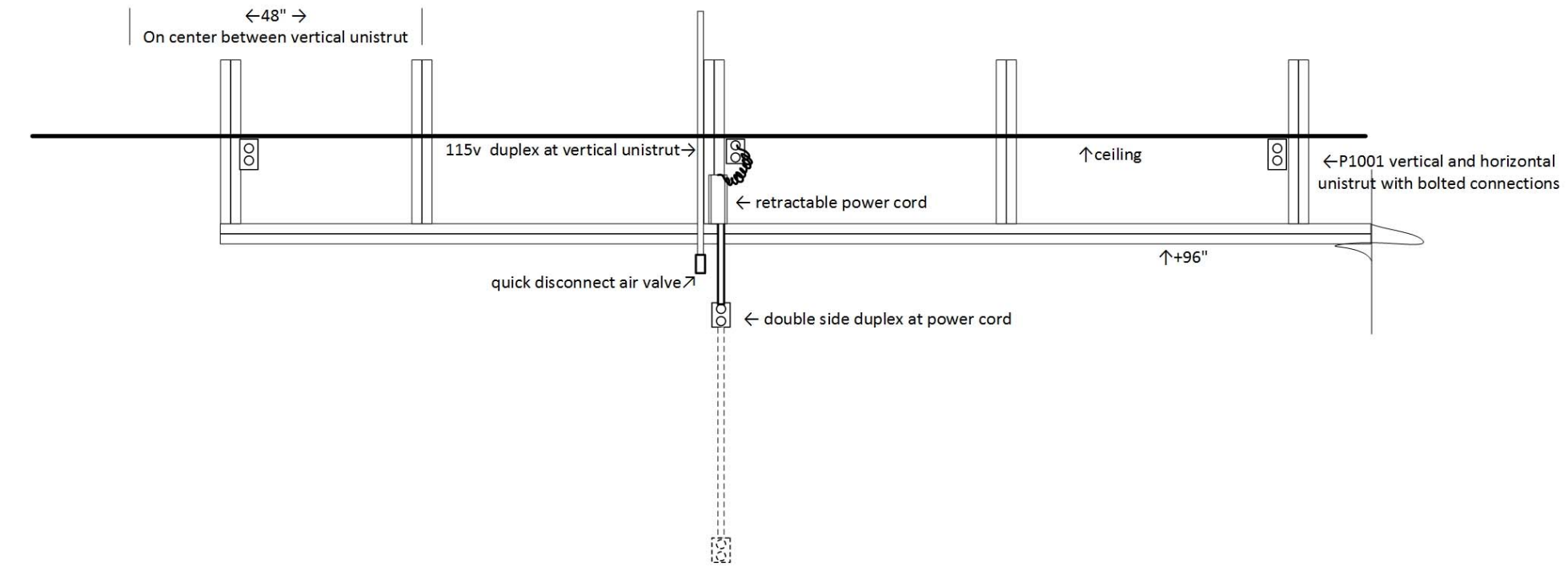
## Elevation E- Instructor Bench



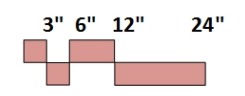
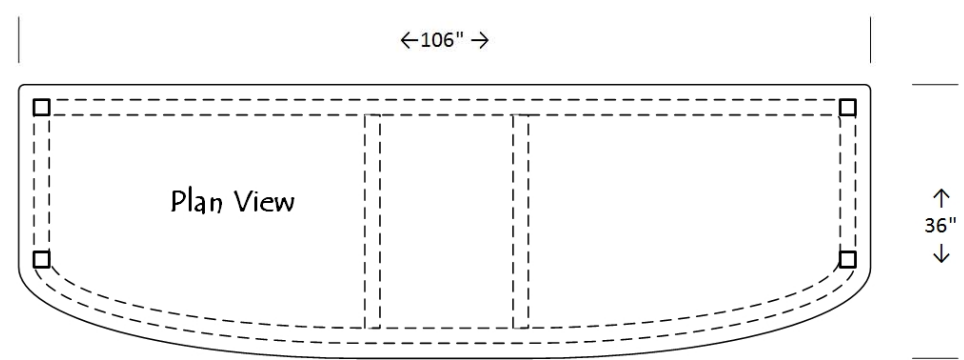
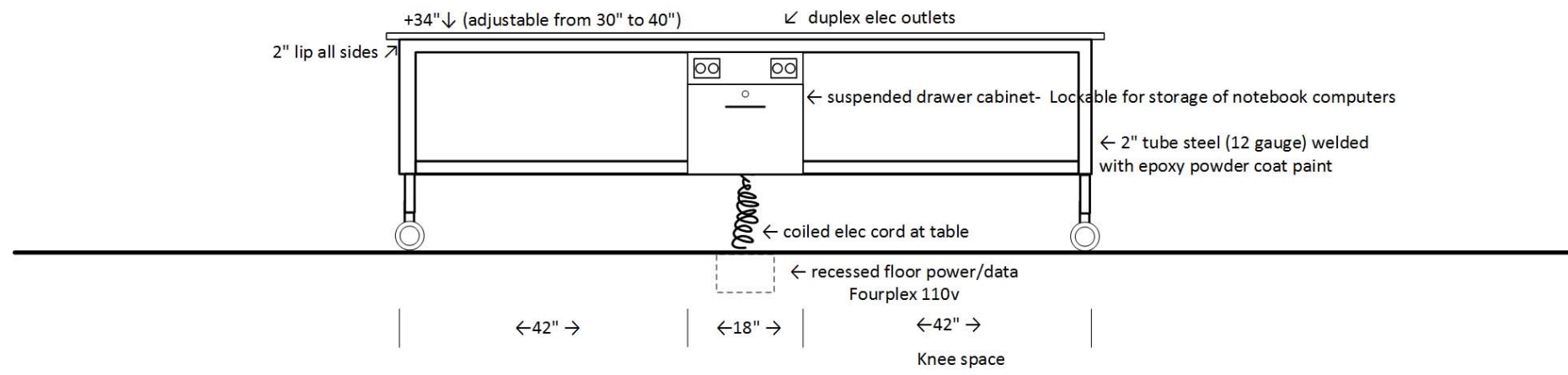


# Geology/Geography Lab

## Elevation G- Student Bench Front

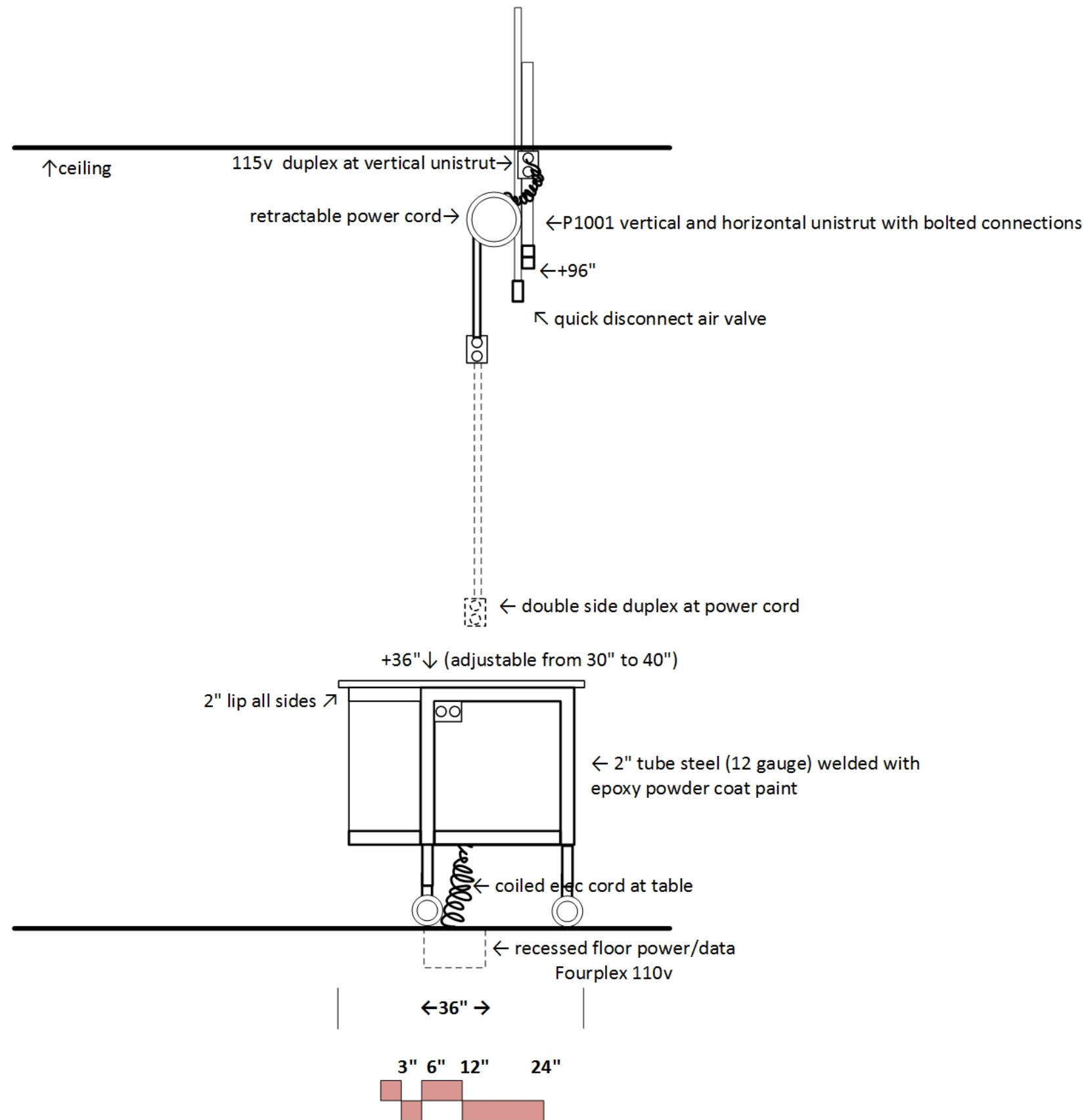


**Note: Provide 1/2" threaded connection with .5"x30" stainless steel vertical bar insert at each side of each mobile student lab bench. Locate each threaded connection at 12" from back edge of bench and 21" from each end.**



# Geology/Geography Lab

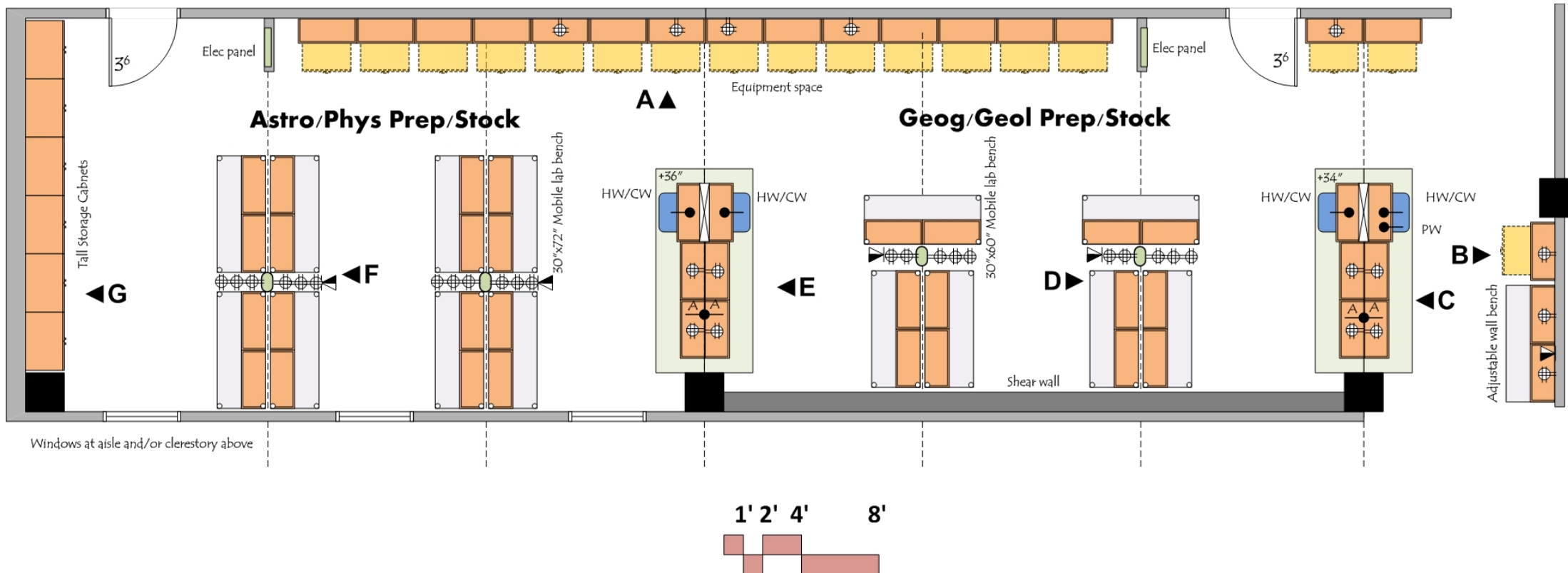
## Elevation H- Student Bench End





# Prep- Astronomy/Physics/Geography/Geology

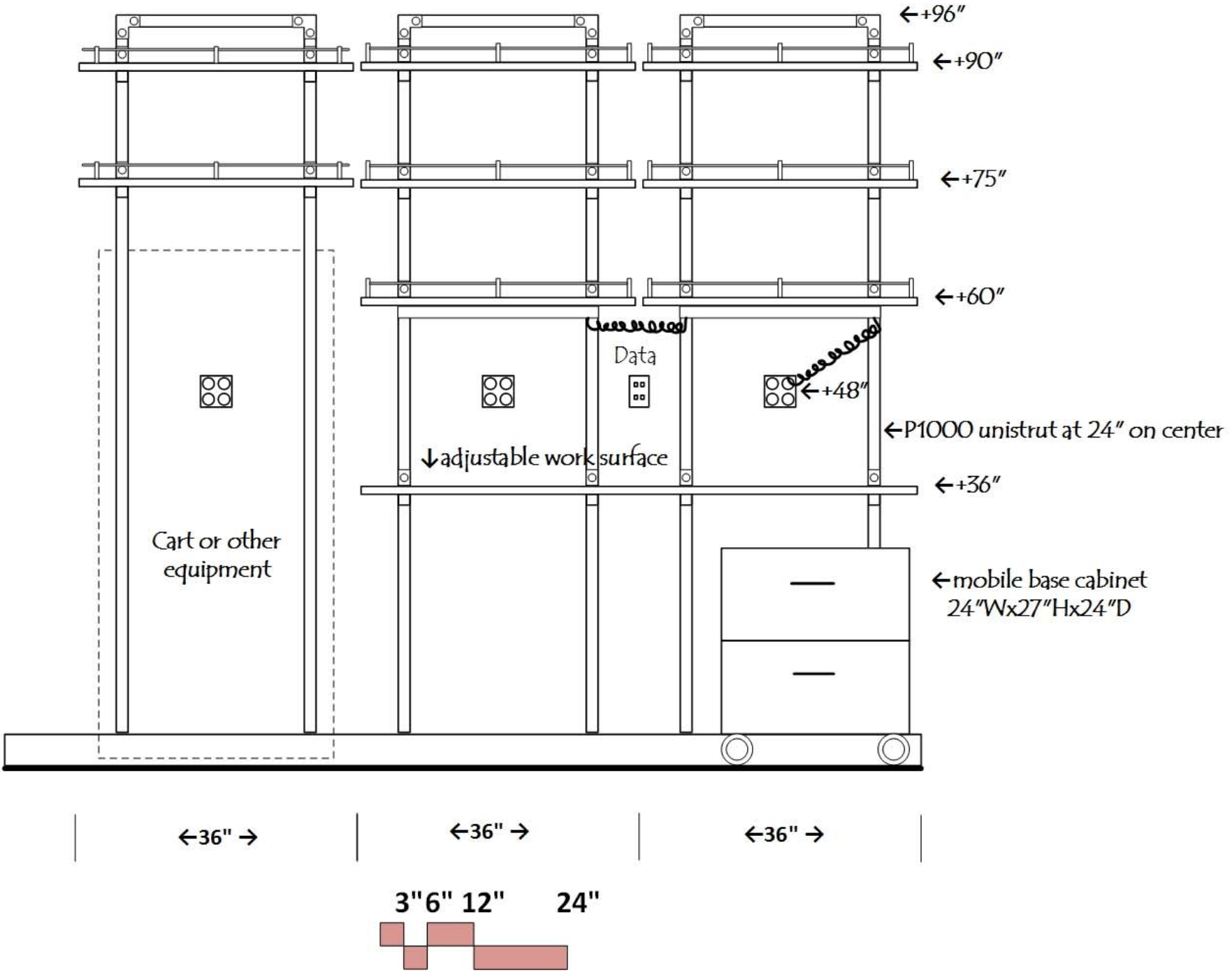
## Level 2 West



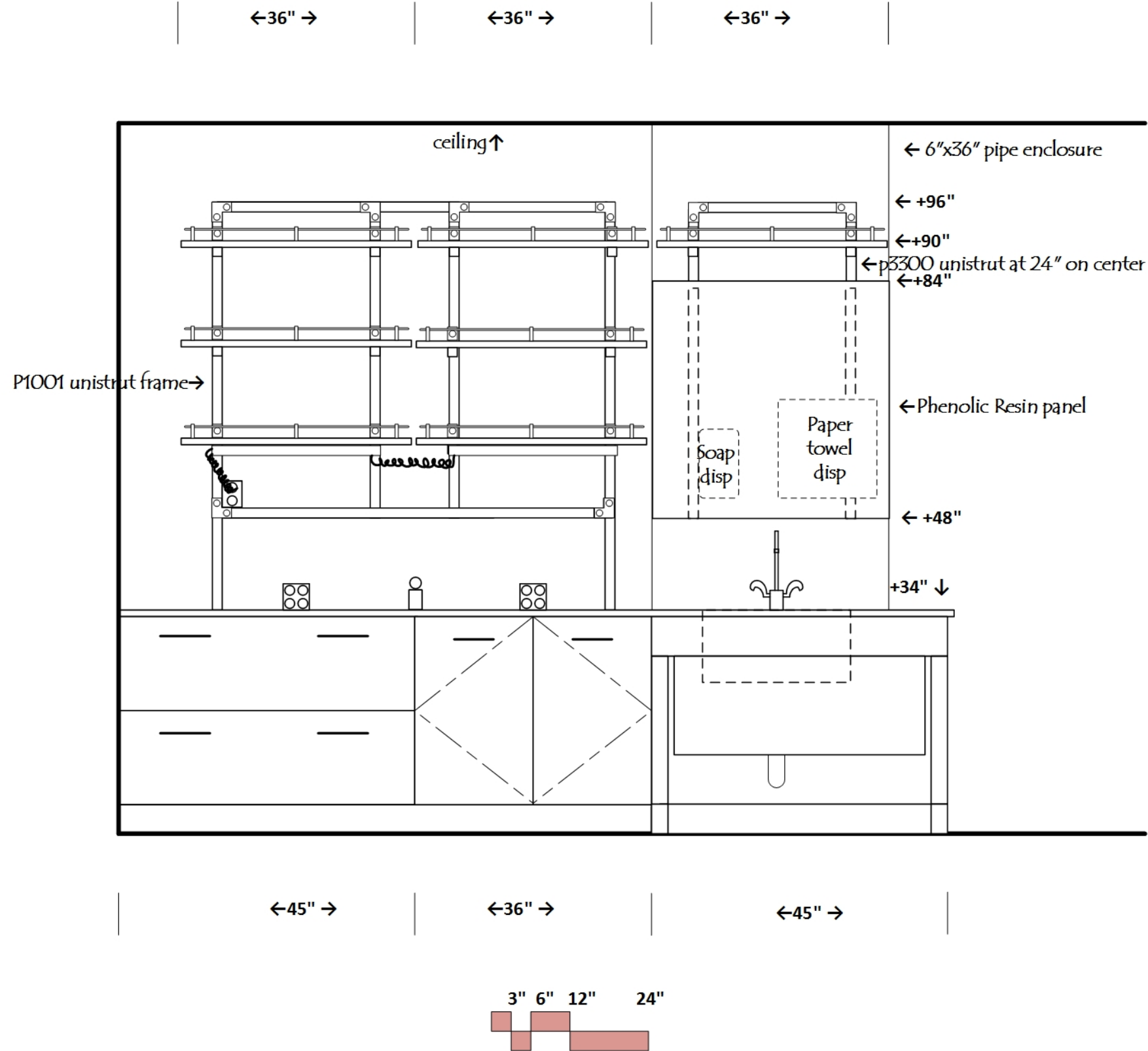
- ARCHITECTURAL**  
 Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-0" acoustic tile  
 Doors: 3'6"x8'0" with window  
 Daylight: Clerestory window and/or view windows  
 Light attenuation: shades at exterior windows  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access
- STRUCTURAL**  
 Vibration attenuation: 4,000 micro inches/sec or less
- MECHANICAL**  
 Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 -(4) air changes per hour occupied  
 -(2) air changes per hour unoccupied  
 Provide night set back to (2) air changes per hour from 11 pm to 6 am  
 Pressure: Negative; Humidity: Ambient
- ELECTRICAL**  
 110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Data & Wireless data  
 Lighting: indirect fluorescent @ 60 f.c.  
 Task lights below peninsula benches and wall benches
- PLUMBING**  
 Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at one sink  
 Compressed Air at peninsula benches
- CONTRACTOR FURNISHED EQUIPMENT**  
 Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Mobile lab benches  
 Resin tops and sinks  
 Faucets & fittings
- COLLEGE FURNISHED EQUIPMENT**  
 Lab stools  
 Benchtop analytical instruments  
 Scientific equipment  
 paper towel dispensers; soap dispensers



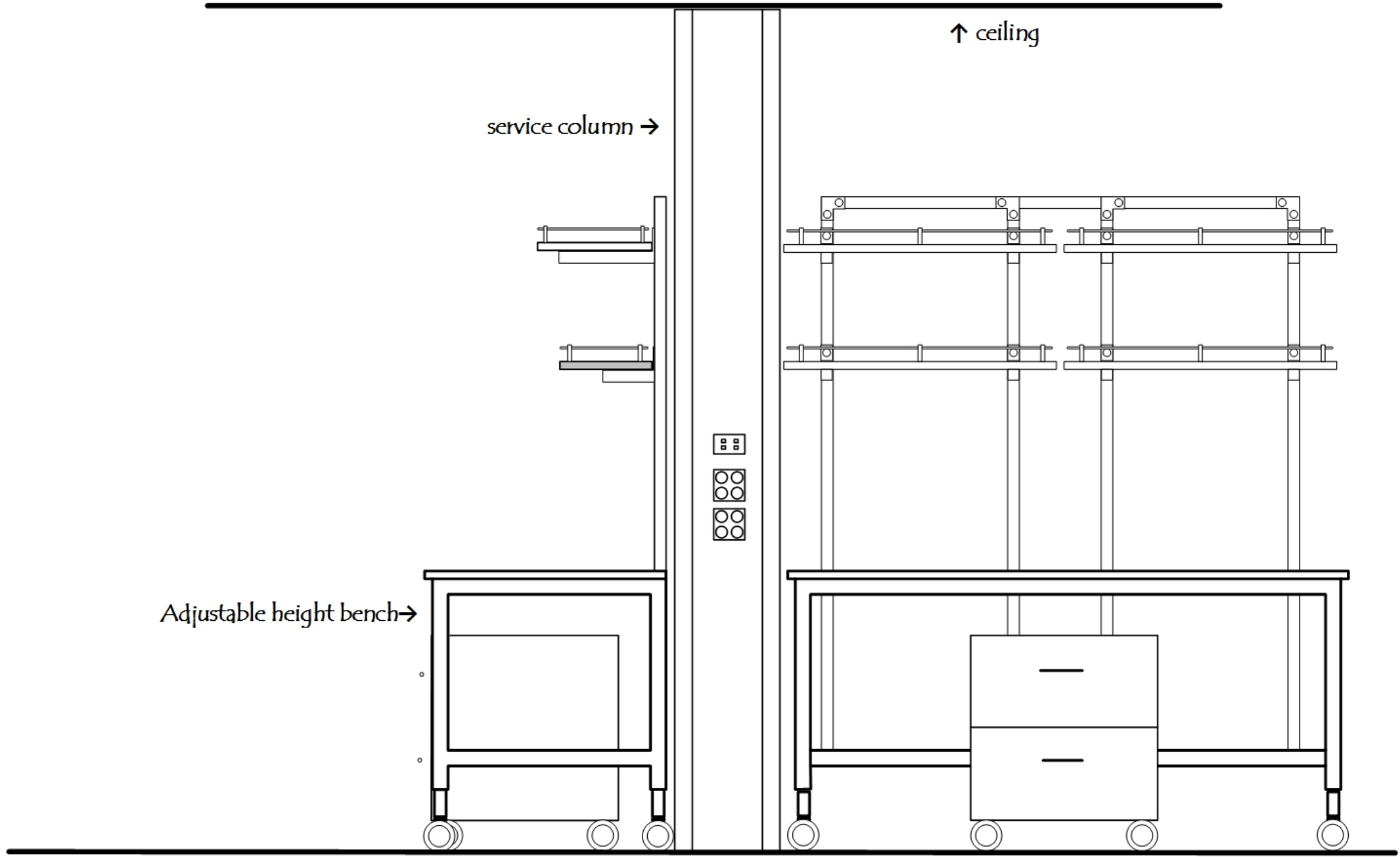
# Prep- Astronomy/Physics/Geography/Geology Elevation B



# Prep- Astronomy/Physics/Geography/Geology Elevation C



Prep- Astronomy/Physics/Geography/Geology  
Elevation D

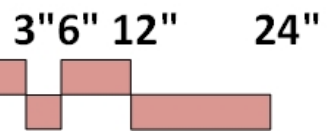


↑ ceiling

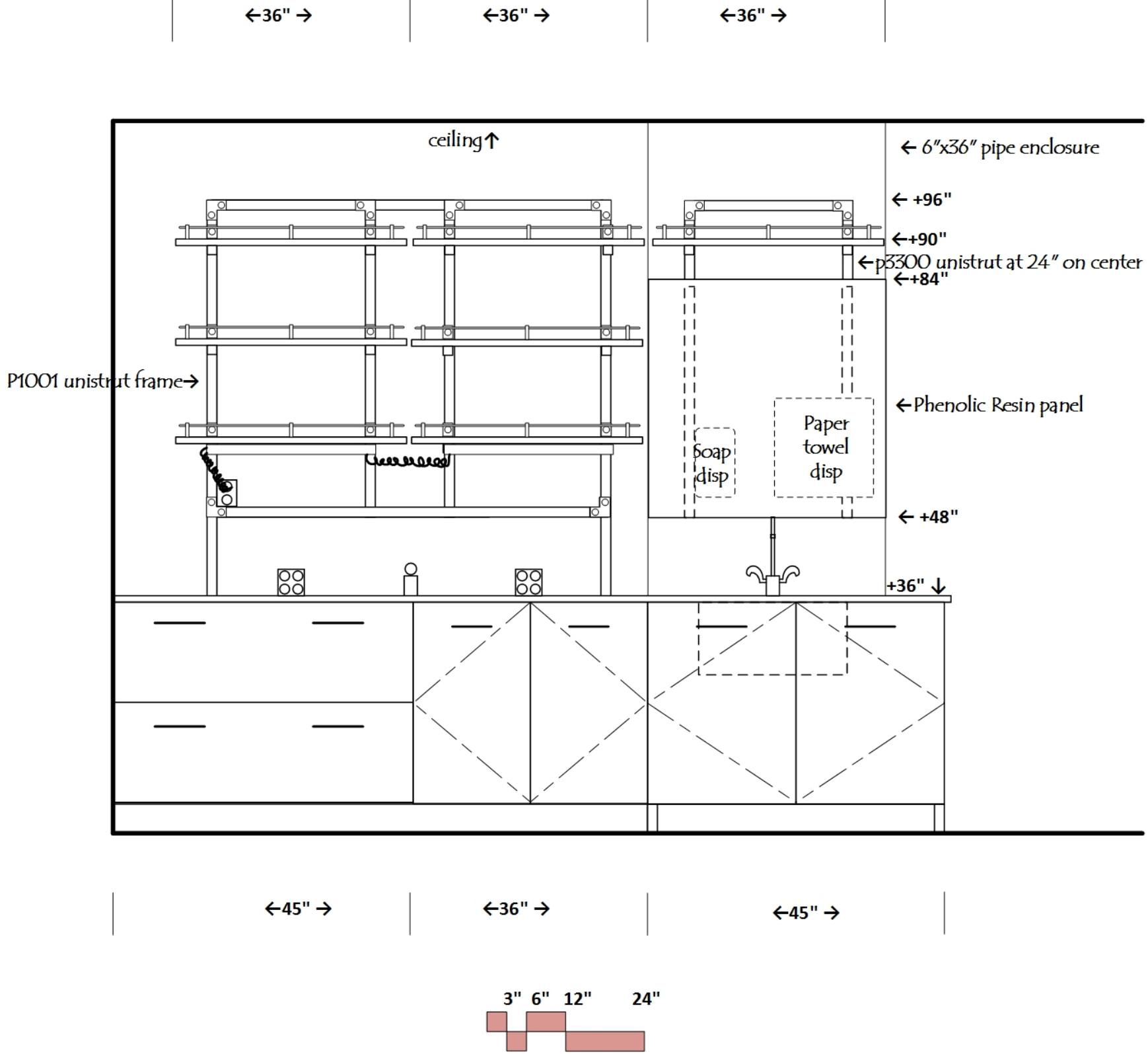
service column →

Adjustable height bench →

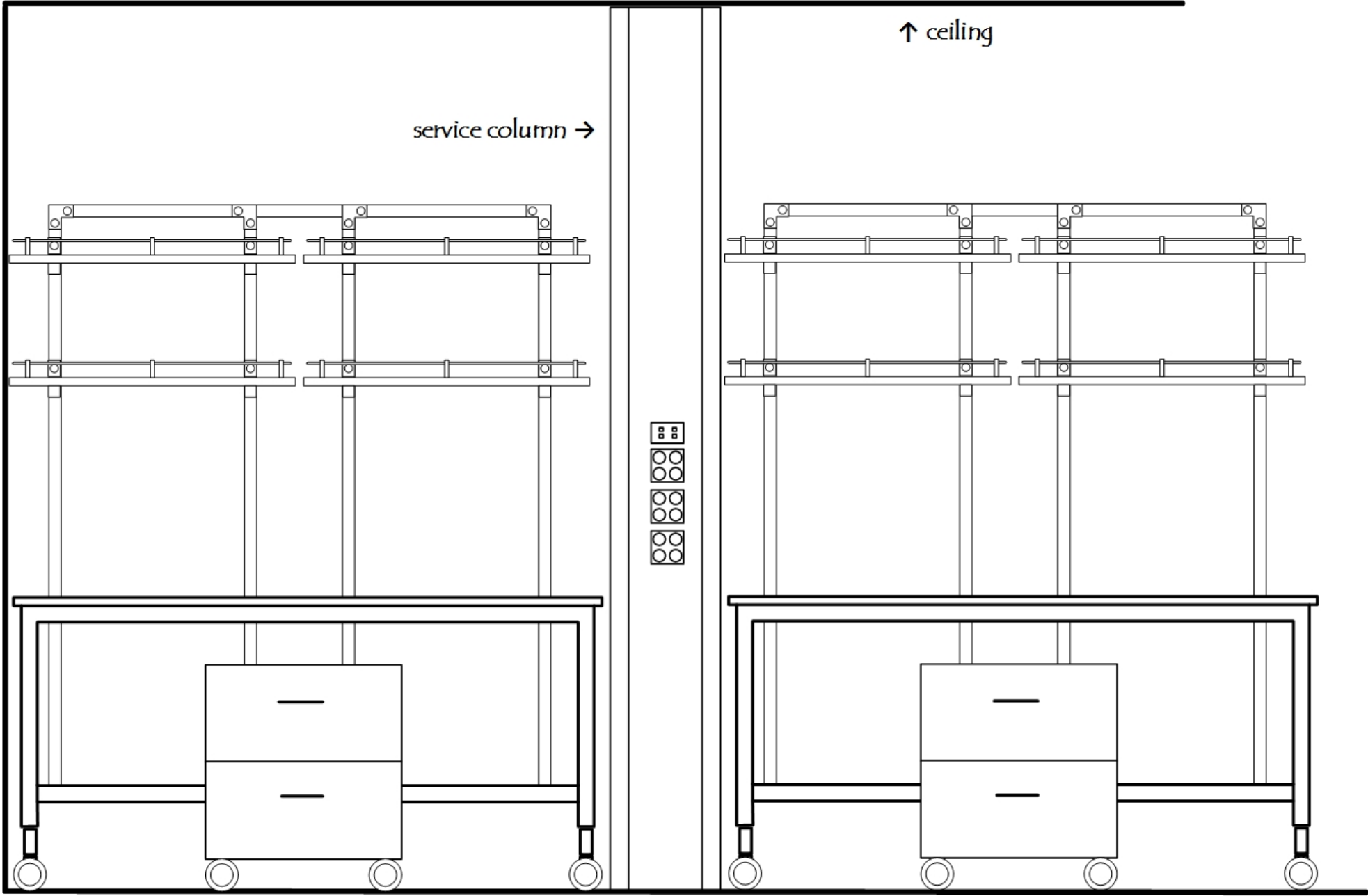
mobile base cabinet ↑  
24"Wx27"Hx24"D



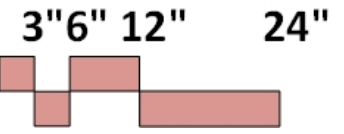
# Prep- Astronomy/Physics/Geography/Geology Elevation E



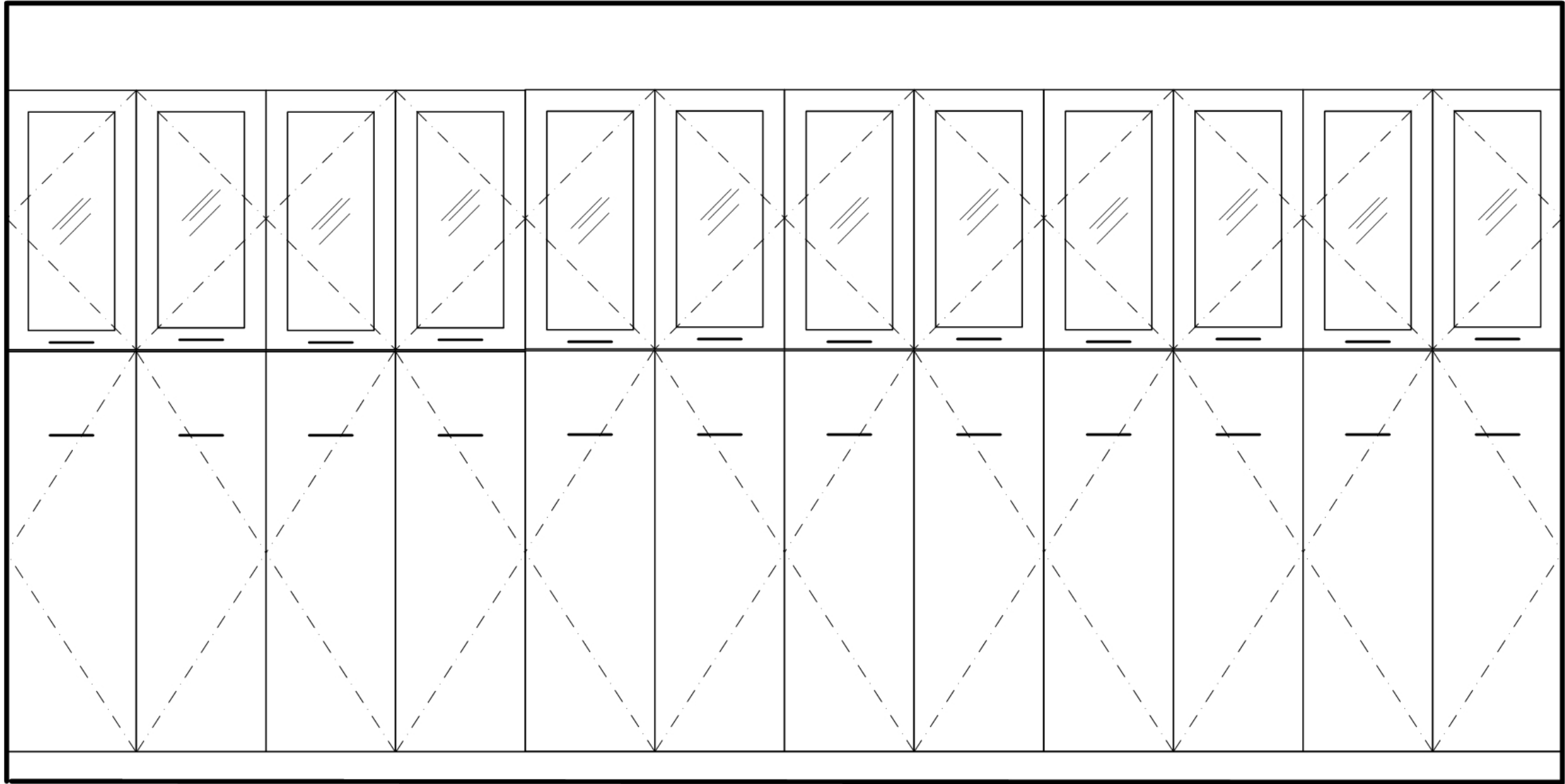
Prep- Astronomy/Physics/Geography/Geology  
Elevation F



mobile base cabinet ↑  
24"Wx27"Hx24"D



Prep- Astronomy/Physics/Geography/Geology  
Elevation G



←36" →

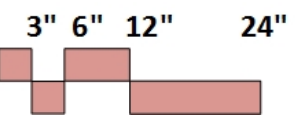
←36" →

←36" →

←36" →

←36" →

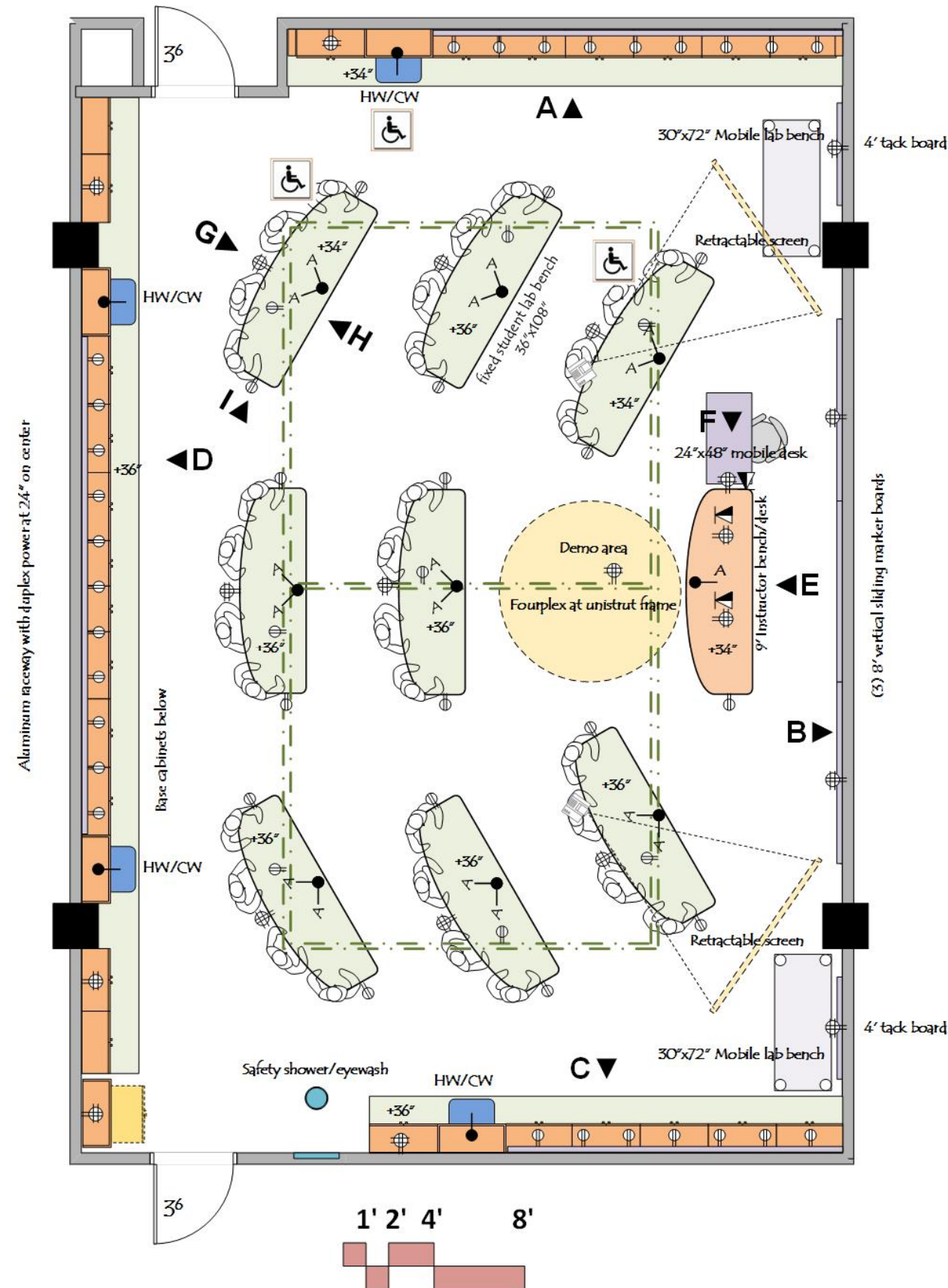
←36" →





# General Biology/Physics Lab

## Level 2 West Center



### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3'6"x8'0" with window  
 Daylight: solatube at ceiling  
 Light attenuation: "black-out" curtains at all windows;  
 light tight seal at doors  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less  
 Unistrut frame at ceiling- 500 lb. point load capacity

### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 -(6) air changes per hour occupied  
 -(4) air changes per hour unoccupied  
 Provide night set back to (4) air changes per hour from 11 pm to 6 am  
 Pressure: Negative; Humidity: Ambient

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Duplex power at unistrut frame  
 Data & Wireless data  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 Task lights below wall cabinets  
 Provide light switches at instructor's bench and at each door  
 Separate lighting for marker board wall

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Compressed Air at student benches  
 Domestic cold water and drain at safety shower/eyewash

### CONTRACTOR FURNISHED EQUIPMENT

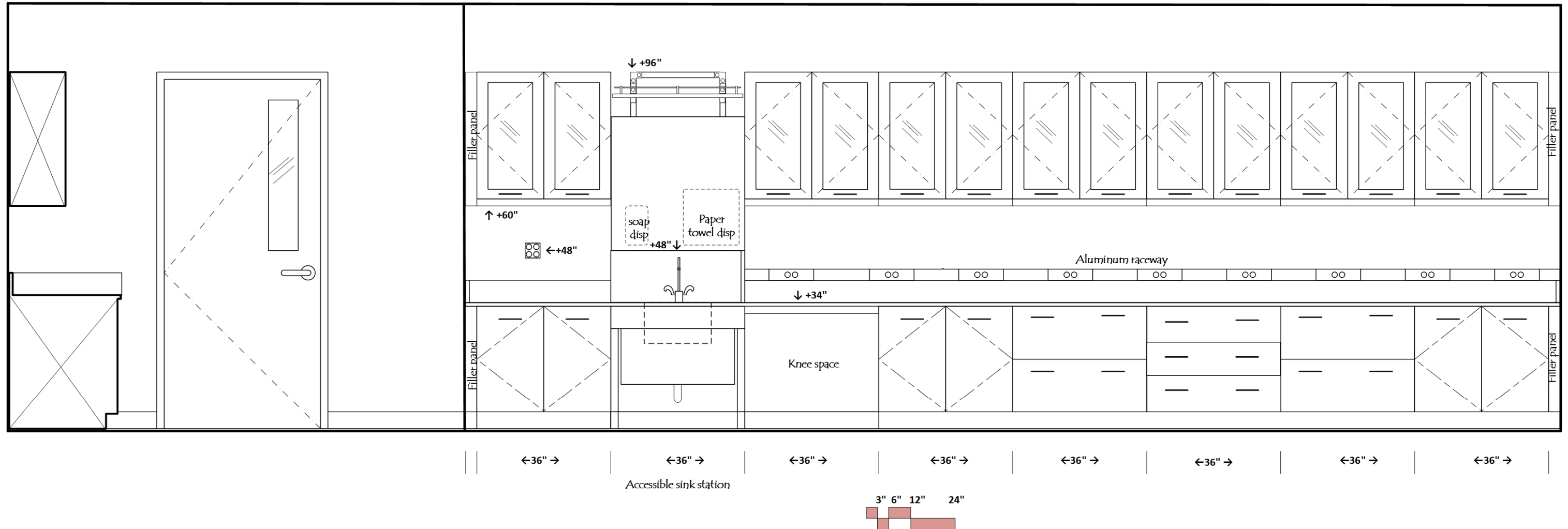
Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Tables  
 Resin tops and sinks  
 Faucets & fittings  
 marker boards  
 projector screens  
 Projection system

### COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchttop analytical instruments  
 Scientific equipment  
 paper towel dispensers; soap dispensers

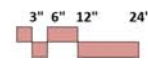
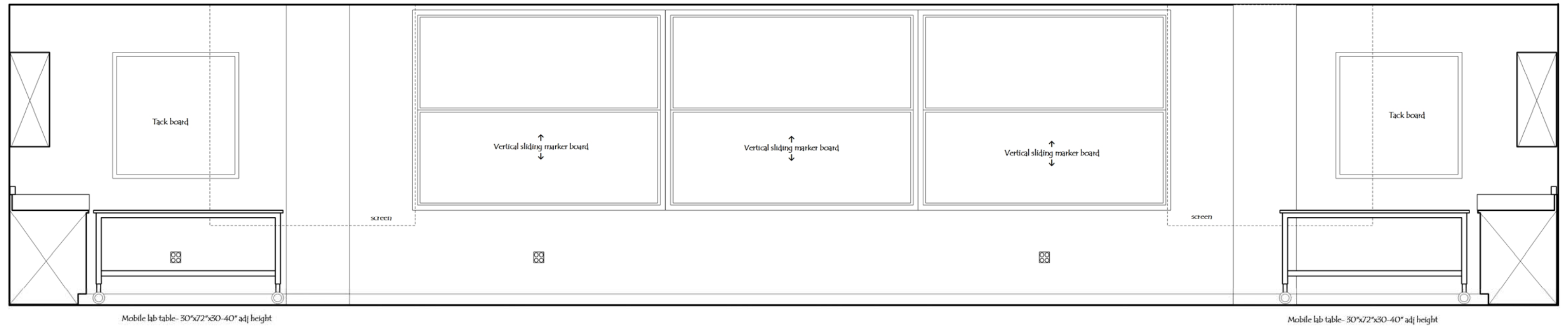
# General Biology/Physics Lab

## Elevation A



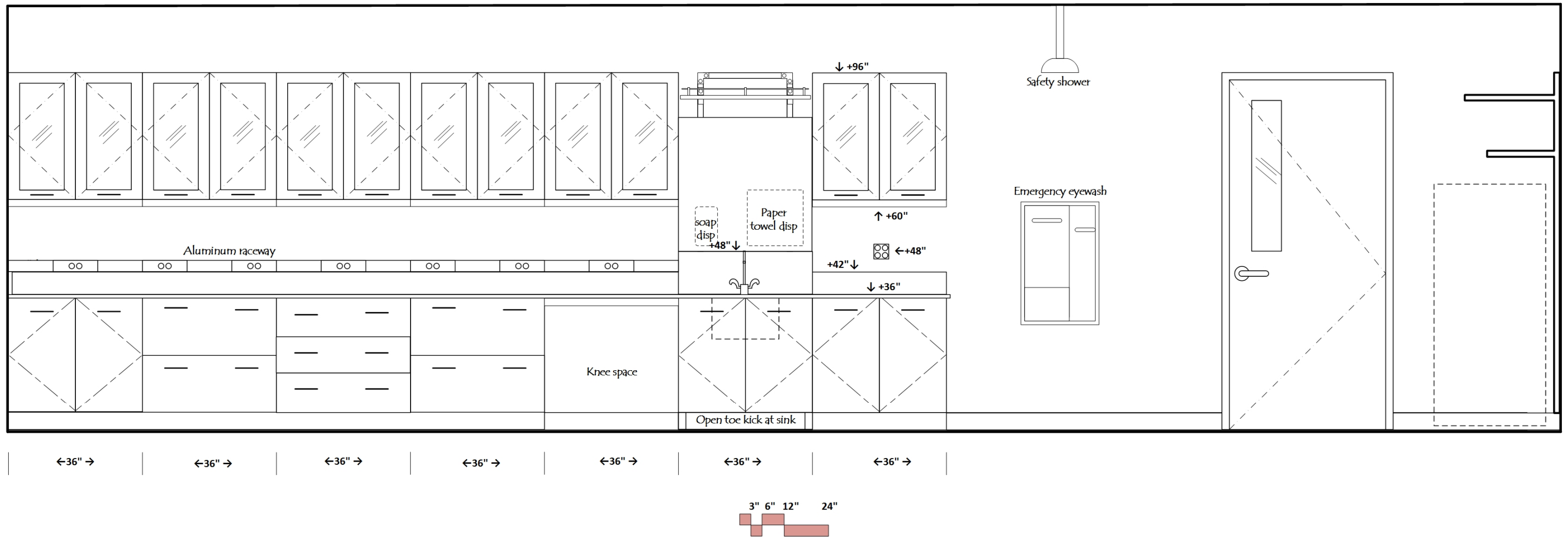
# General Biology/Physics Lab

## Elevation B



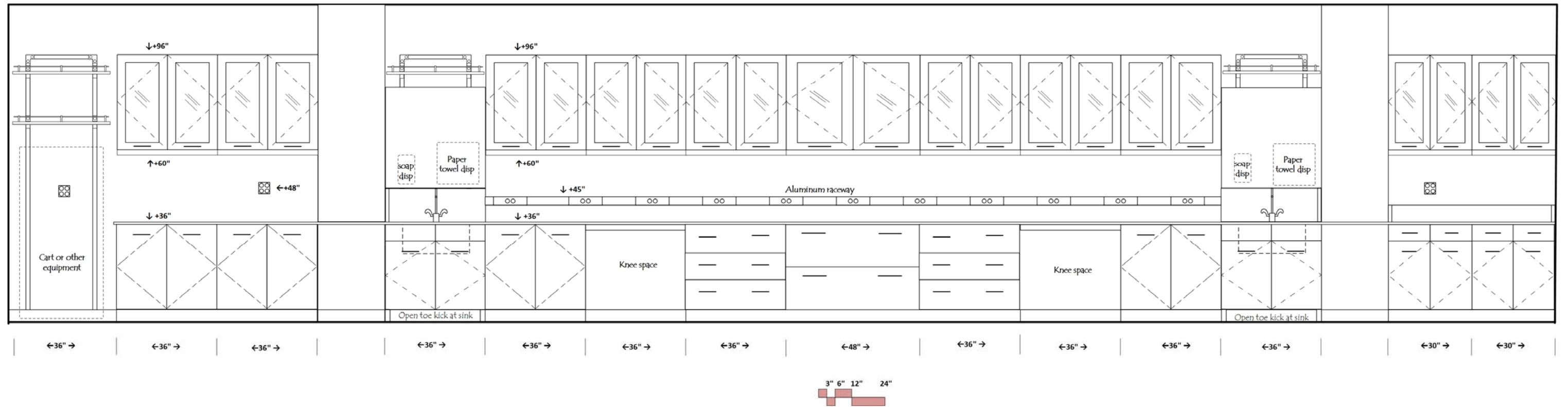
# General Biology/Physics Lab

## Elevation C



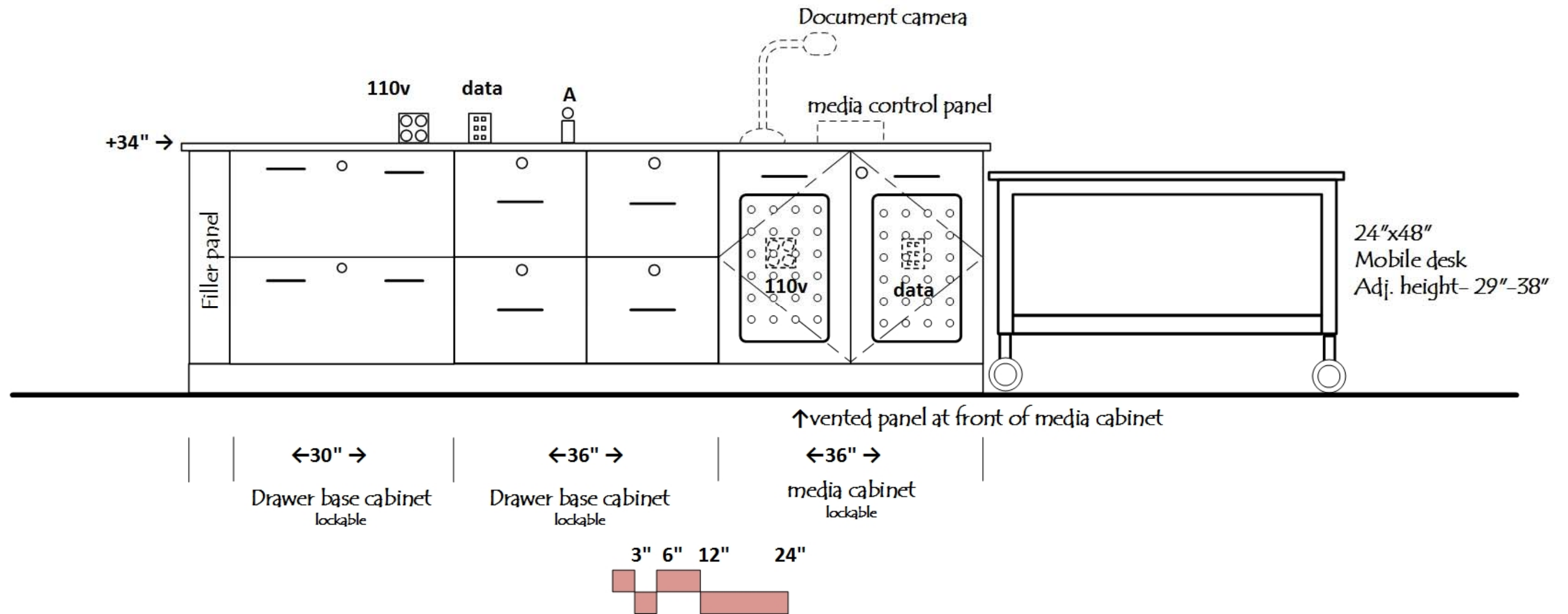
# General Biology/Physics Lab

## Elevation D

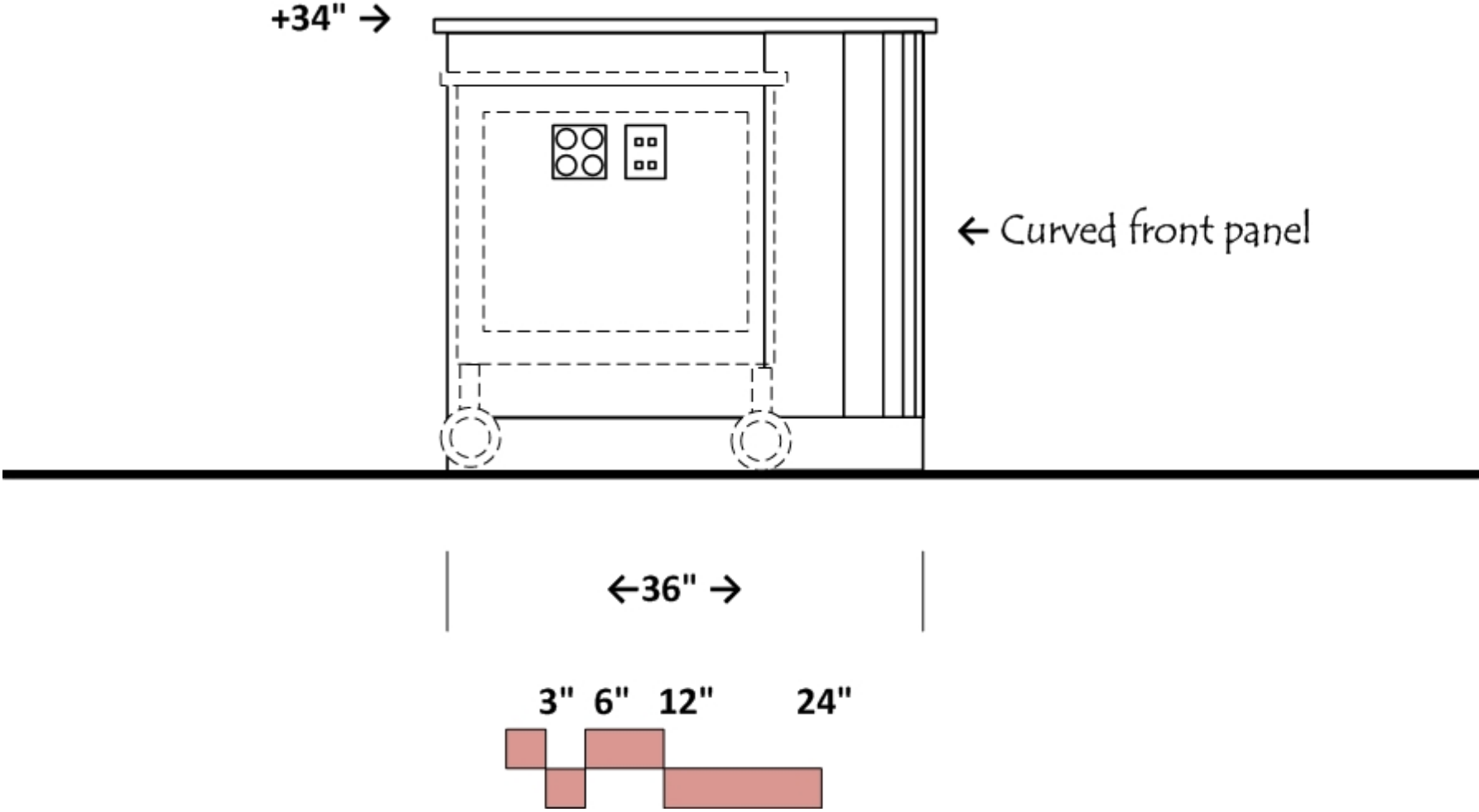


# General Biology/Physics Lab

## Elevation E



General Biology/Physics Lab  
Elevation F

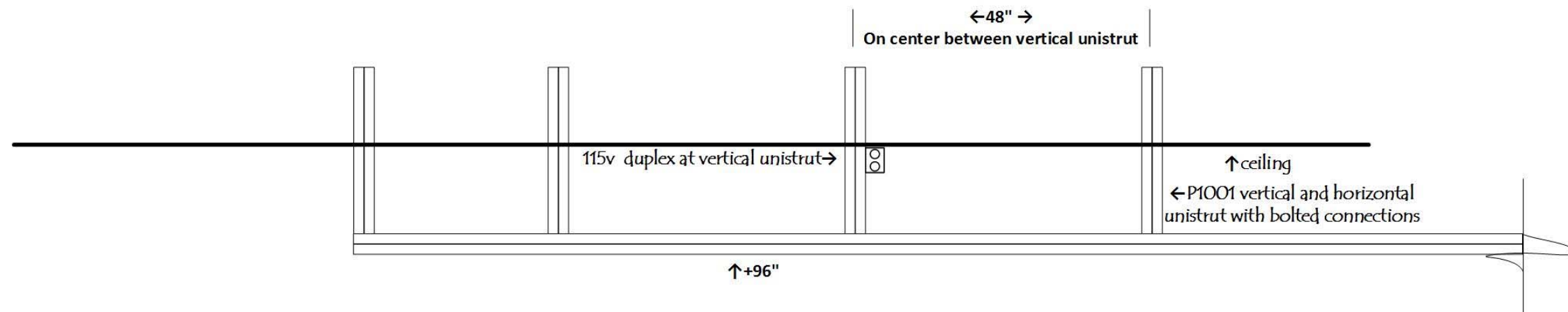


# General Biology/Physics Lab

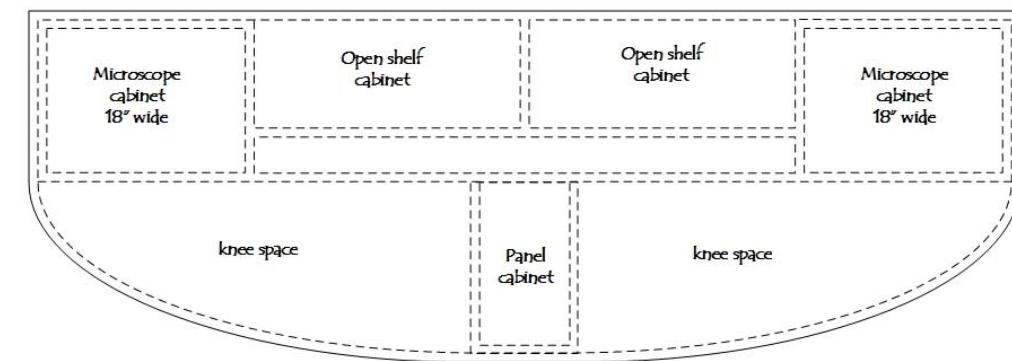
## Elevation G

Student bench front- accessible

Similar for 2 island benches

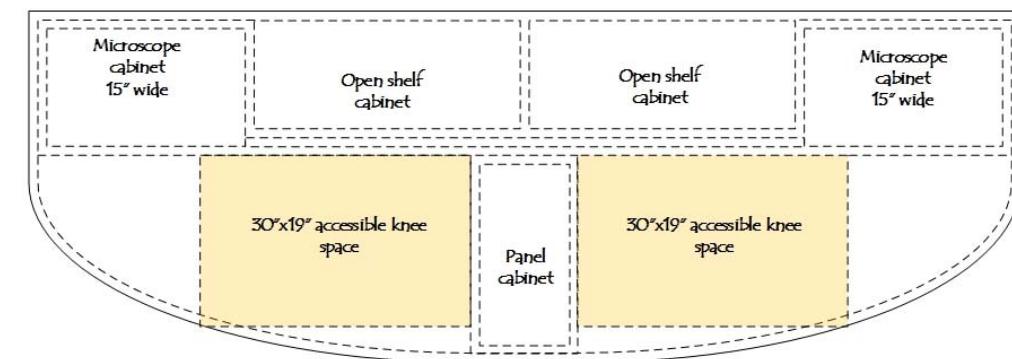


TOP VIEW



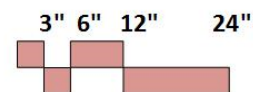
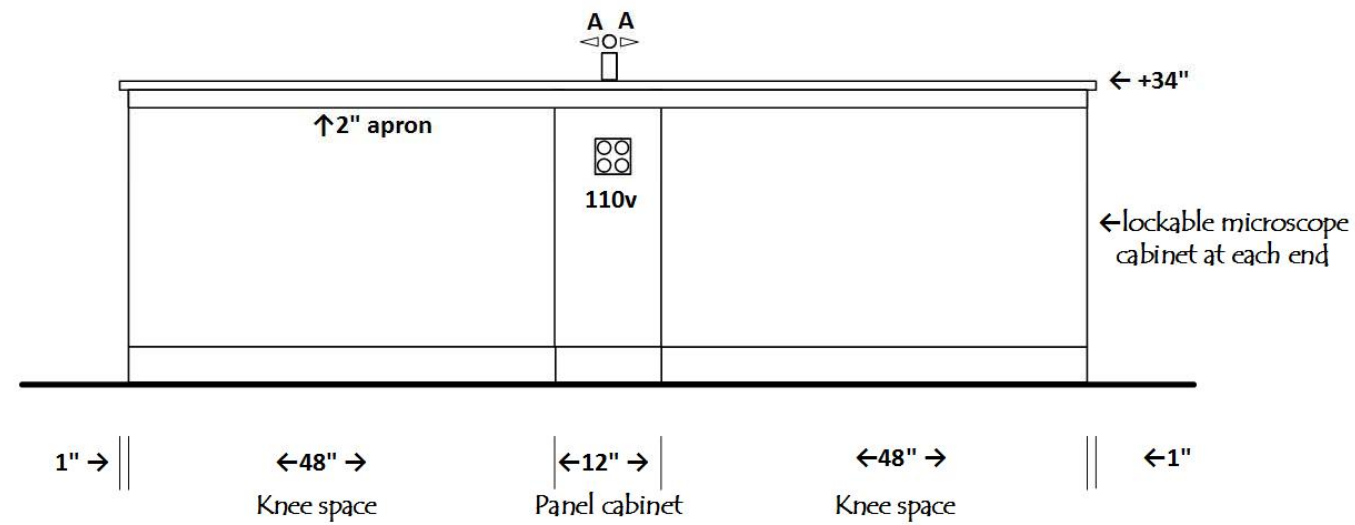
↑110" x 39" epoxy resin top

Standard island top- six per lab



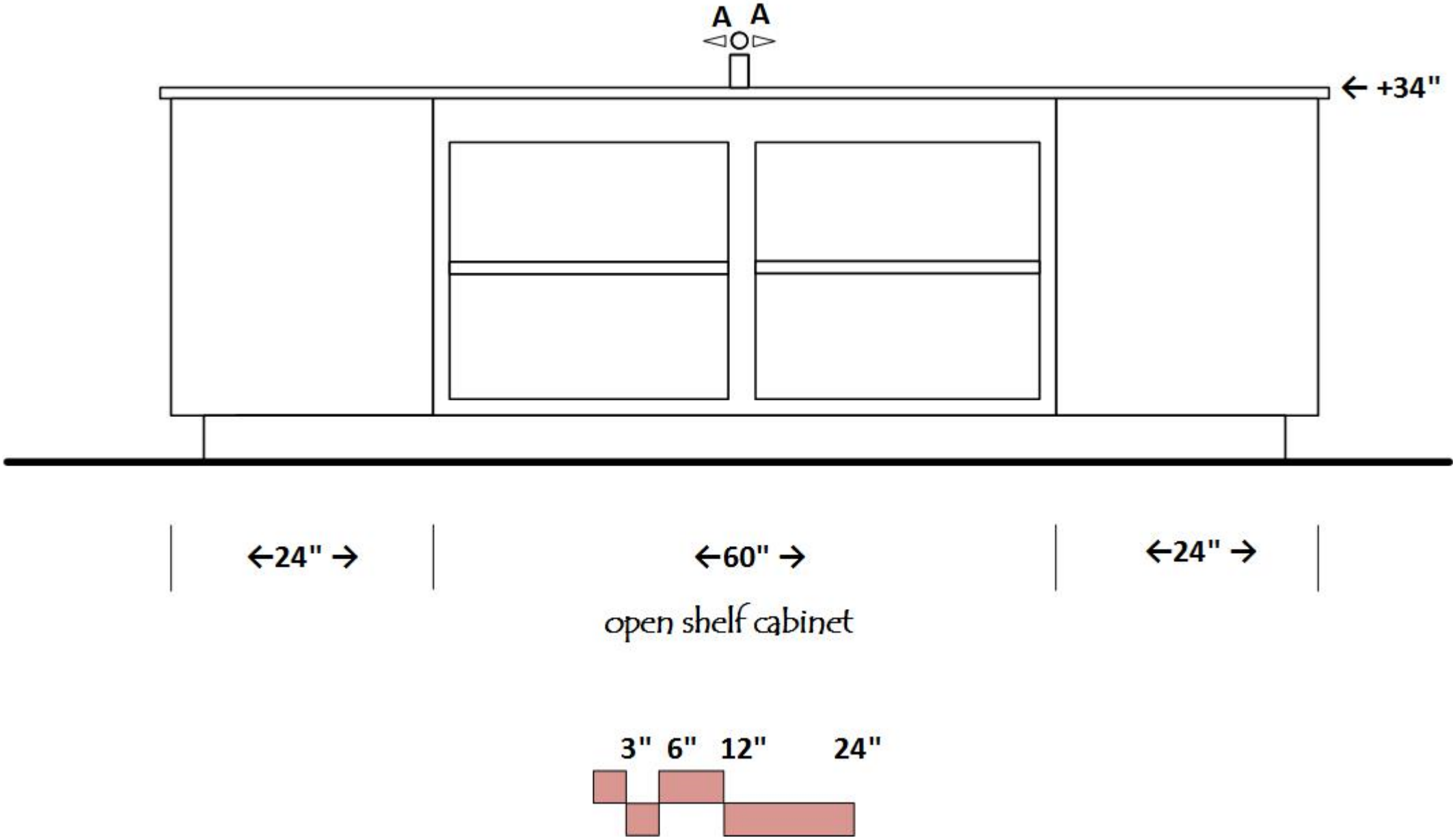
↑110" x 39" epoxy resin top

Accessible island top- two per lab

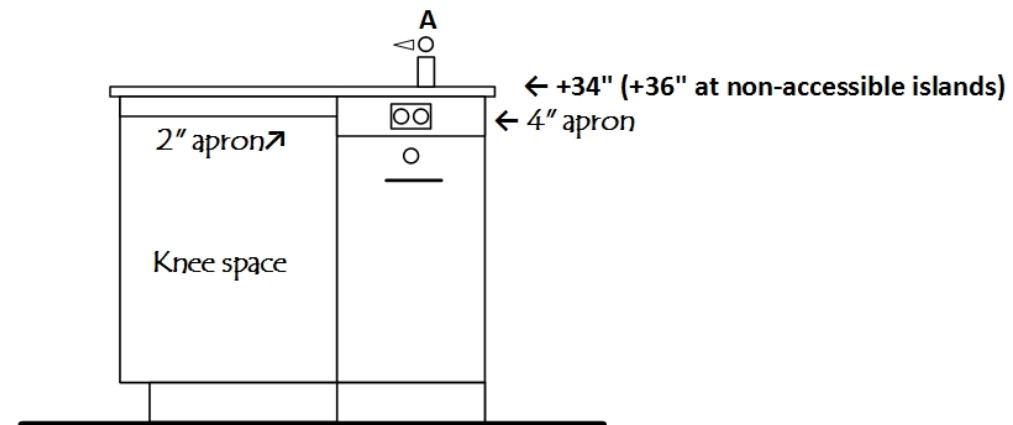
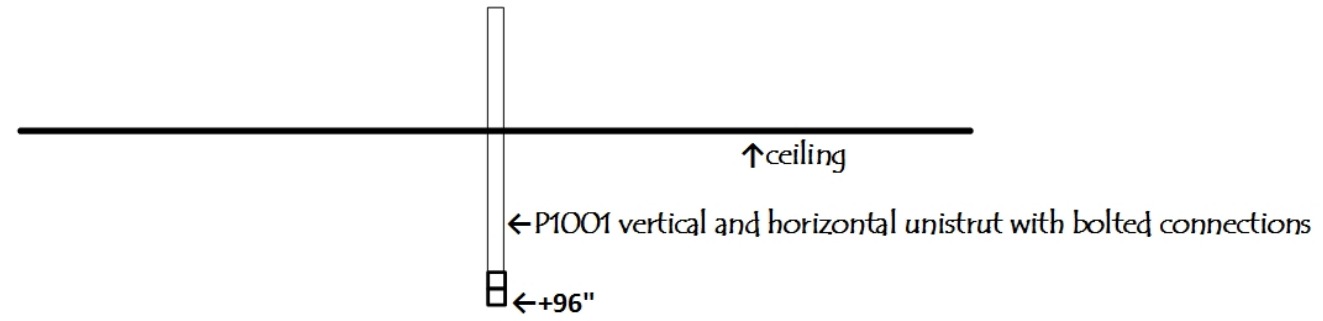




General Biology/Physics Lab  
Elevation H

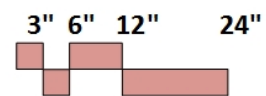


# General Biology/Physics Lab Elevation I



19" wide at non-accessible islands → | ← 22" → | ← 15" → | ← 18" wide at non-accessible islands

Microscope drawer  
base cabinet  
lockable



# Advanced Study Lab

## Level 2 West Center

### Includes Biotech Lab



#### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3<sup>6</sup>x8<sup>0</sup> with window  
 Daylight: solatubes at ceiling; view windows at corridor and lab walls  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

#### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

#### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Exhaust on emergency power supply  
 (6) air changes per hour occupied  
 (4) air changes per hour unoccupied  
 Provide night set back to (4) air changes per hour from 11 pm to 6 am  
 Pressure: Negative; Humidity: Ambient

#### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Emer power at fume hood exhaust  
 Data & Wireless data  
 Lighting: indirect fluorescent @ 60 f.c.  
 task lights below wall cabinets

#### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at one sink in each lab  
 Gas, Vac

#### CONTRACTOR FURNISHED EQUIPMENT

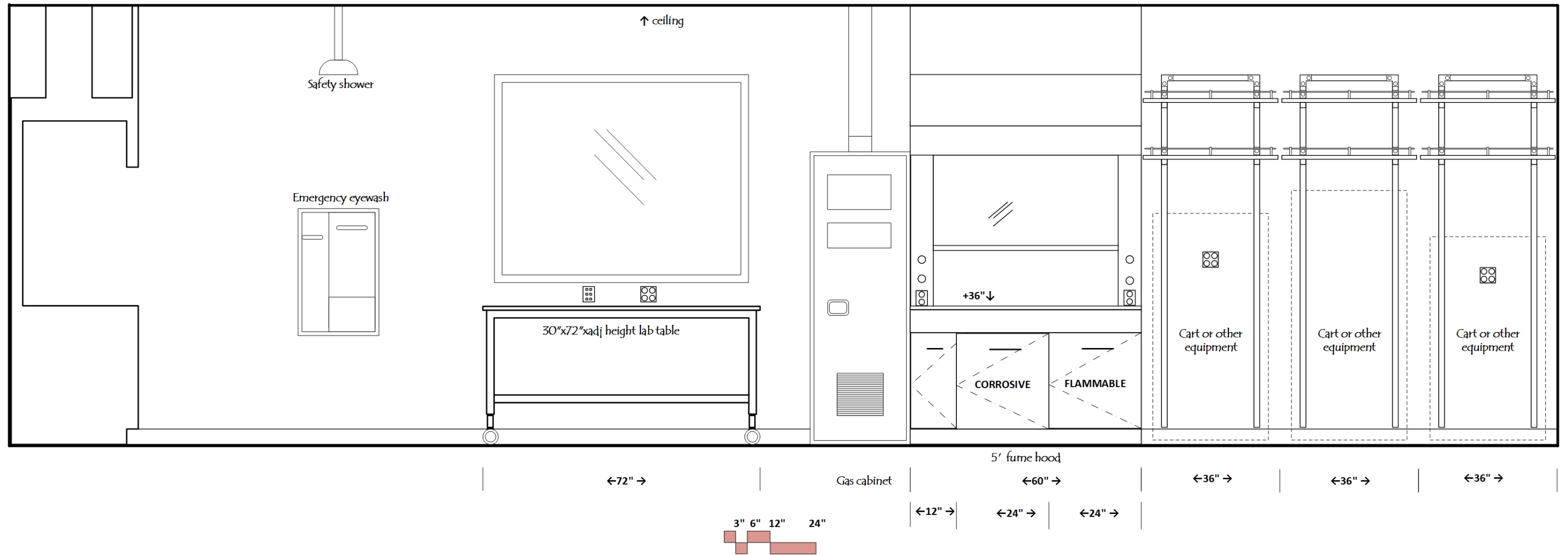
Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Tables  
 Resin tops and sinks; Faucets & fittings  
 Mobile lab tables  
 Adjustable wall bench  
 Chemical fume hoods- VAV

#### COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchtop analytical instruments  
 Scientific equipment  
 paper towel dispensers

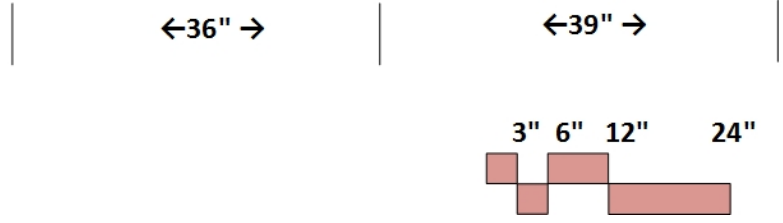
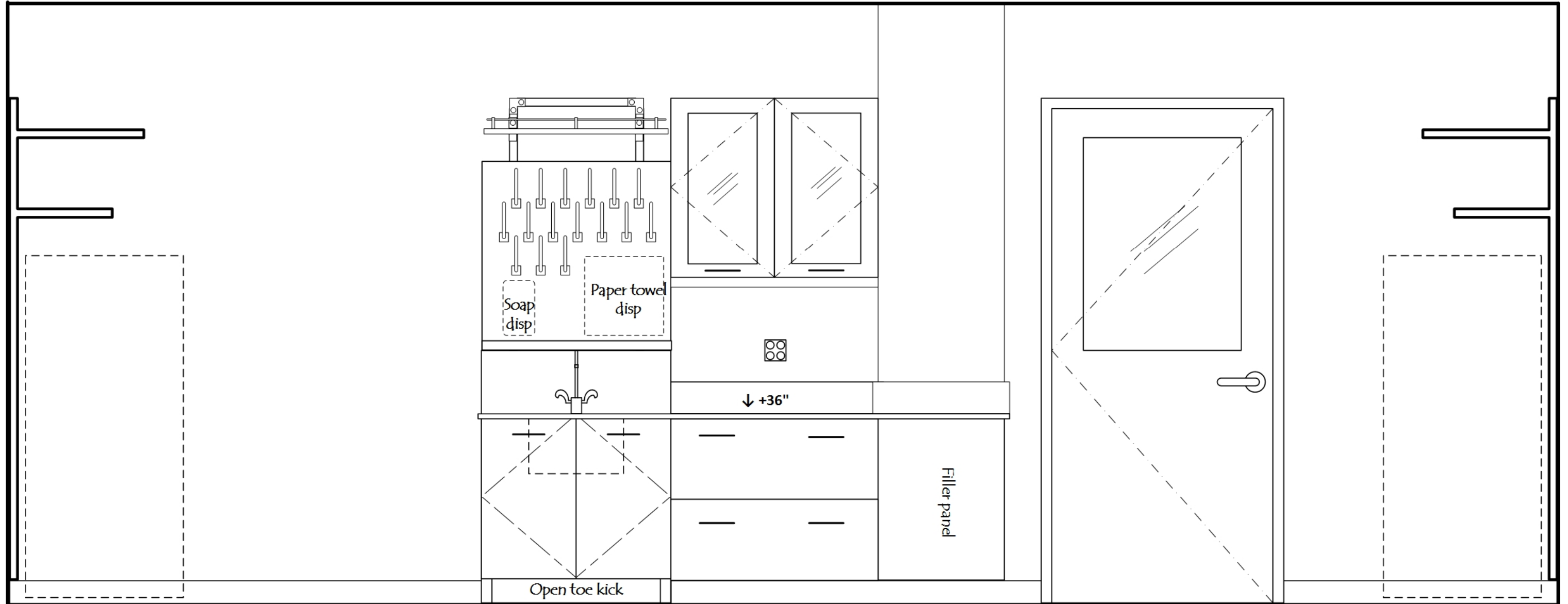
# Advanced Study Lab

## Elevation A



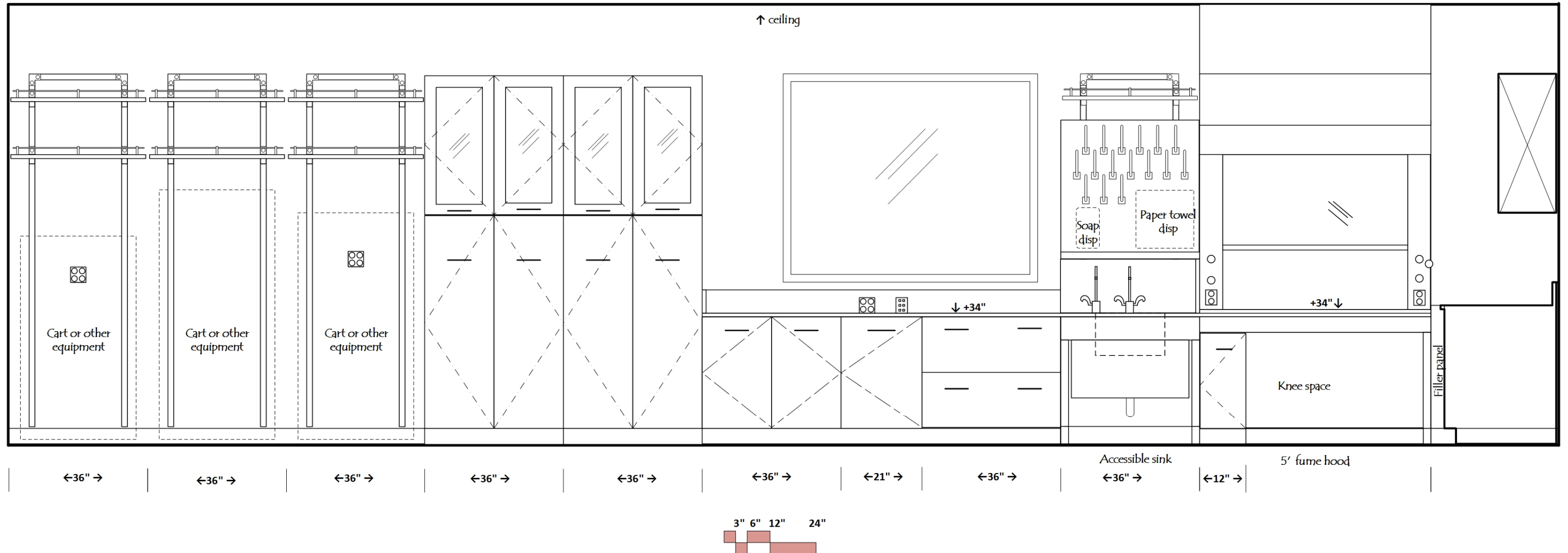
# Advanced Study Lab

## Elevation B



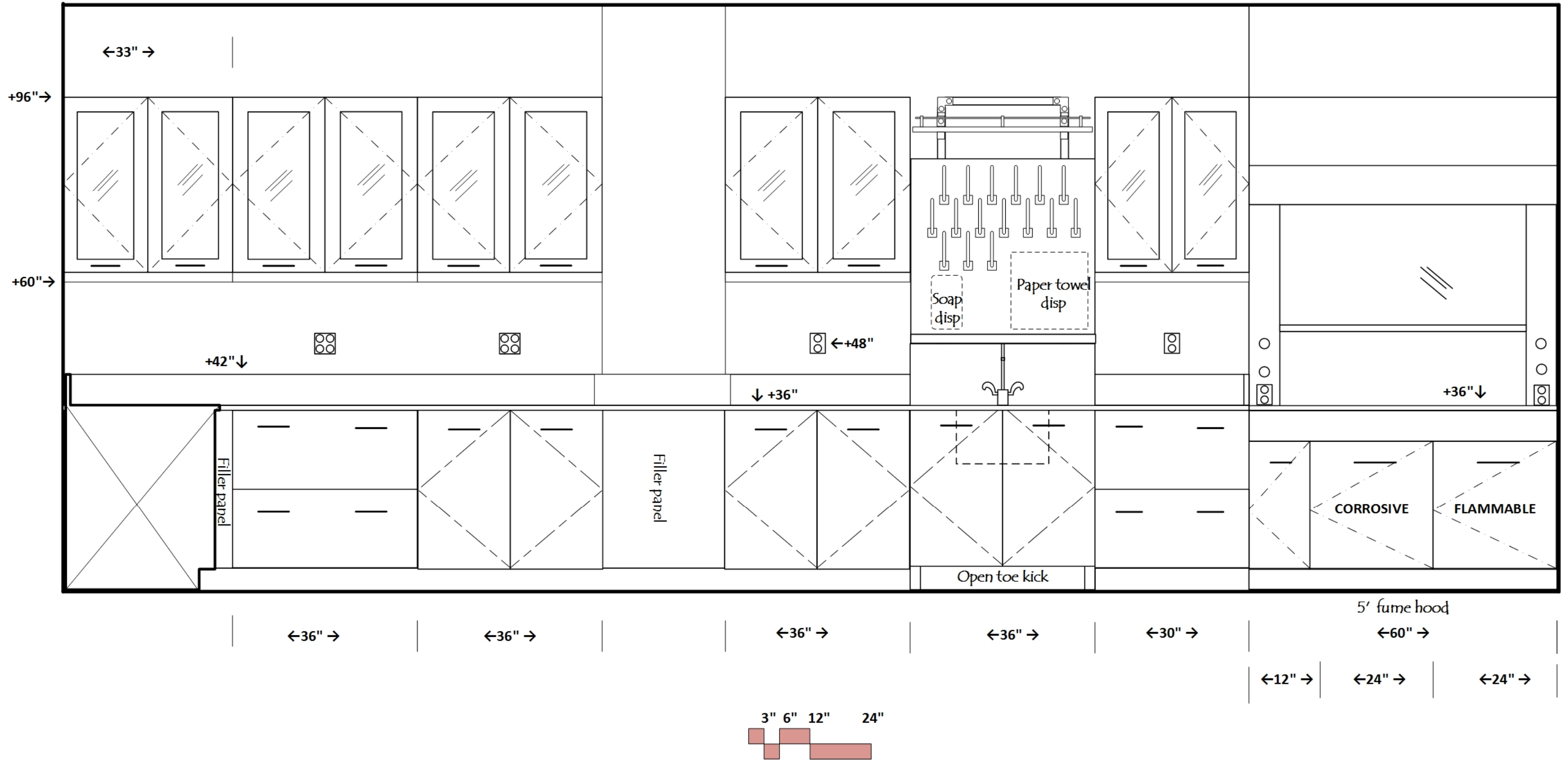
# Advanced Study Lab

## Elevation C

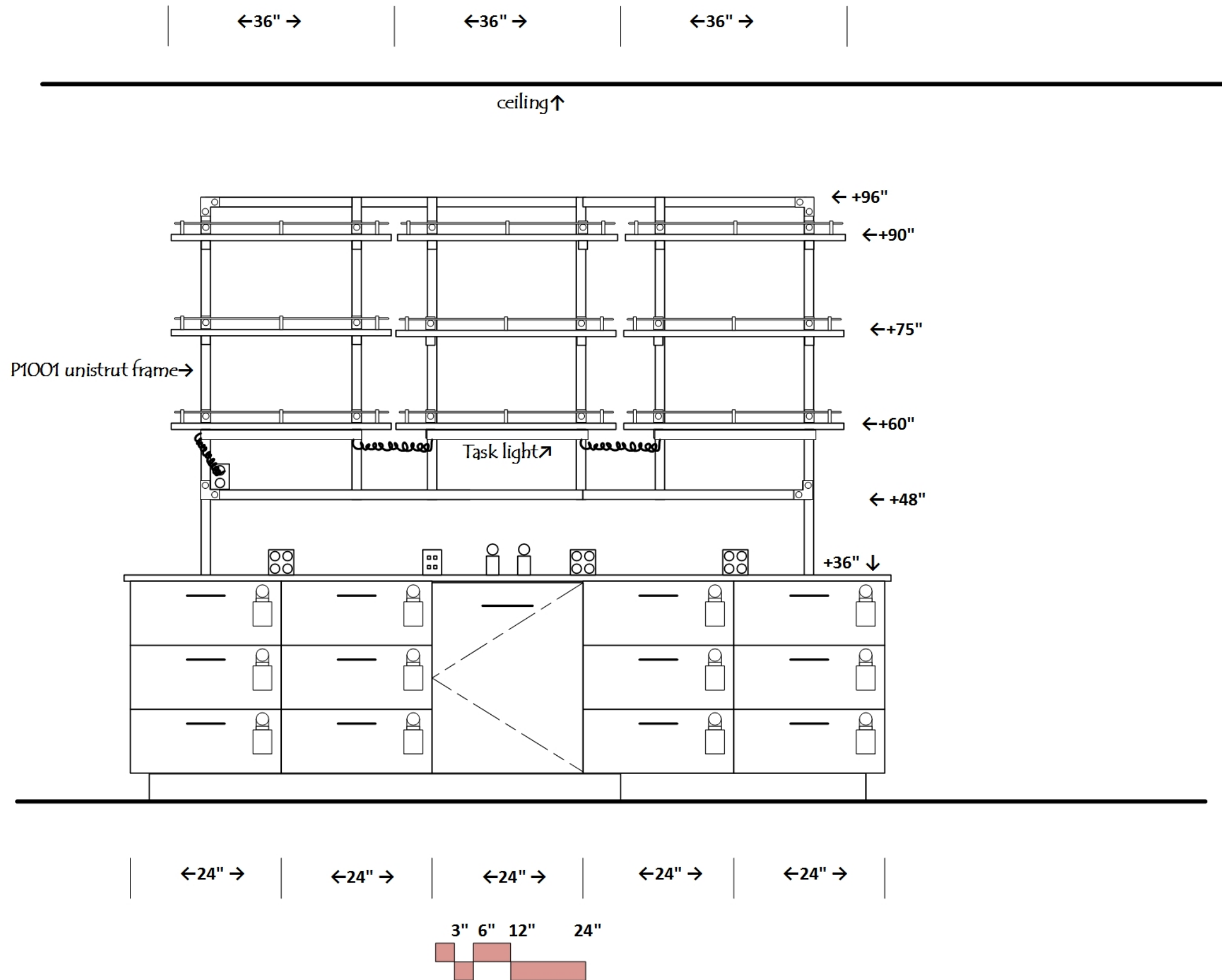


# Advanced Study Lab

## Elevation D



# Advanced Study Lab Elevation E



Similar for both sides of each island in Advanced Study Lab- total of 24 student section drawers required



# Prep- Chem Store

## Level 2 West Center

### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
       1hr fire rating around Chem Store Room  
 Ceiling: 9'-0" acoustic tile  
 Doors: 3'x8' with window  
 Daylight: Clerestory windows and/or view windows  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 (6) air changes per hour occupied  
 (6) air changes per hour 24/7 at Chem Store  
 (4) air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 208v power at equipment spaces in prep area  
 Dedicated circuit at explosion proof ref in Chem Store  
 Emer power at fume hood exhaust  
 Data & Wireless data  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 task lights below wall cabinets

### PLUMBING

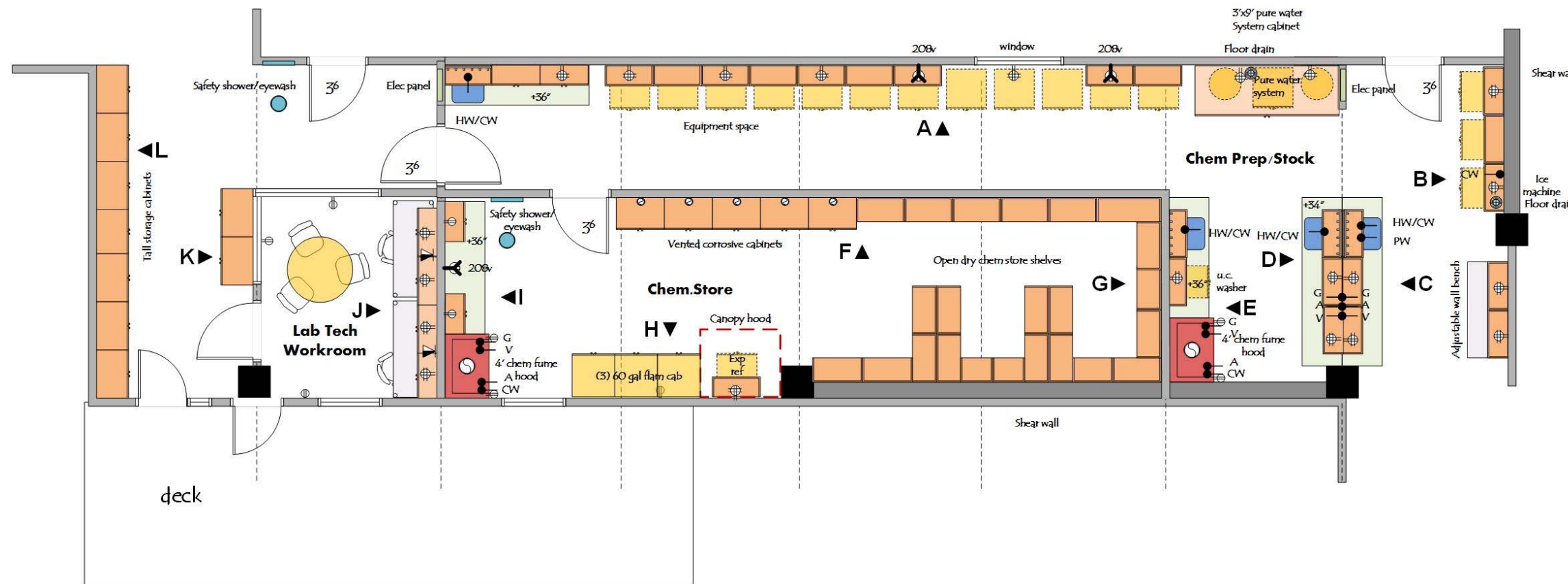
Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at sinks where noted  
 Gas, Air, Vac at lab benches where noted  
 Gas, Air, Vac, Cold Water at fume hoods  
 Cold water and drain at ice machine  
 Hot/Cold water and pure water at u.c. washer  
 Pure water system to all 2nd floor pure water faucets

### CONTRACTOR FURNISHED EQUIPMENT

Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Tables  
 Resin tops and sinks; Faucets & fittings  
 marker boards; projector screens

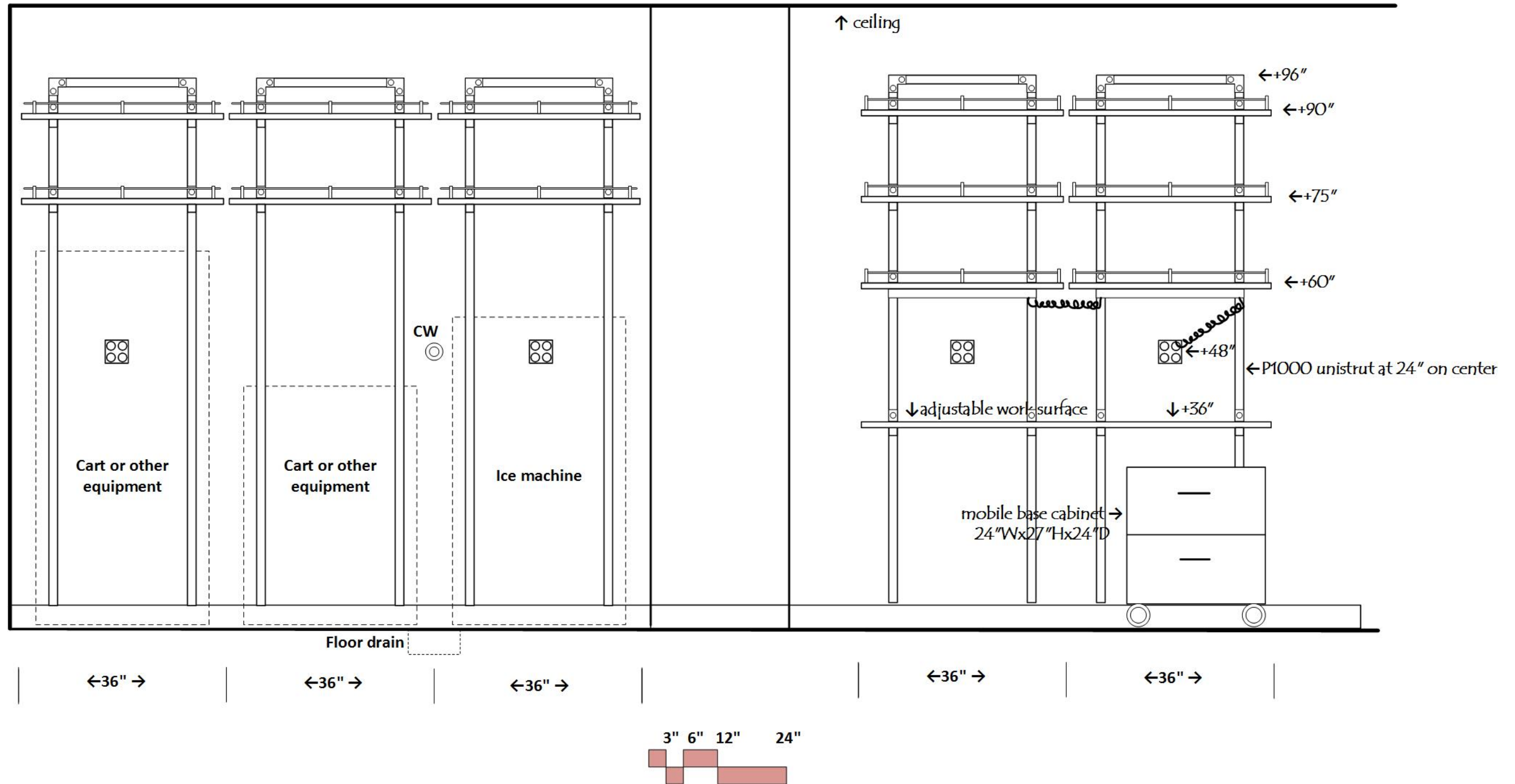
### COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchtap analytical instruments  
 Scientific equipment  
 paper towel dispenser

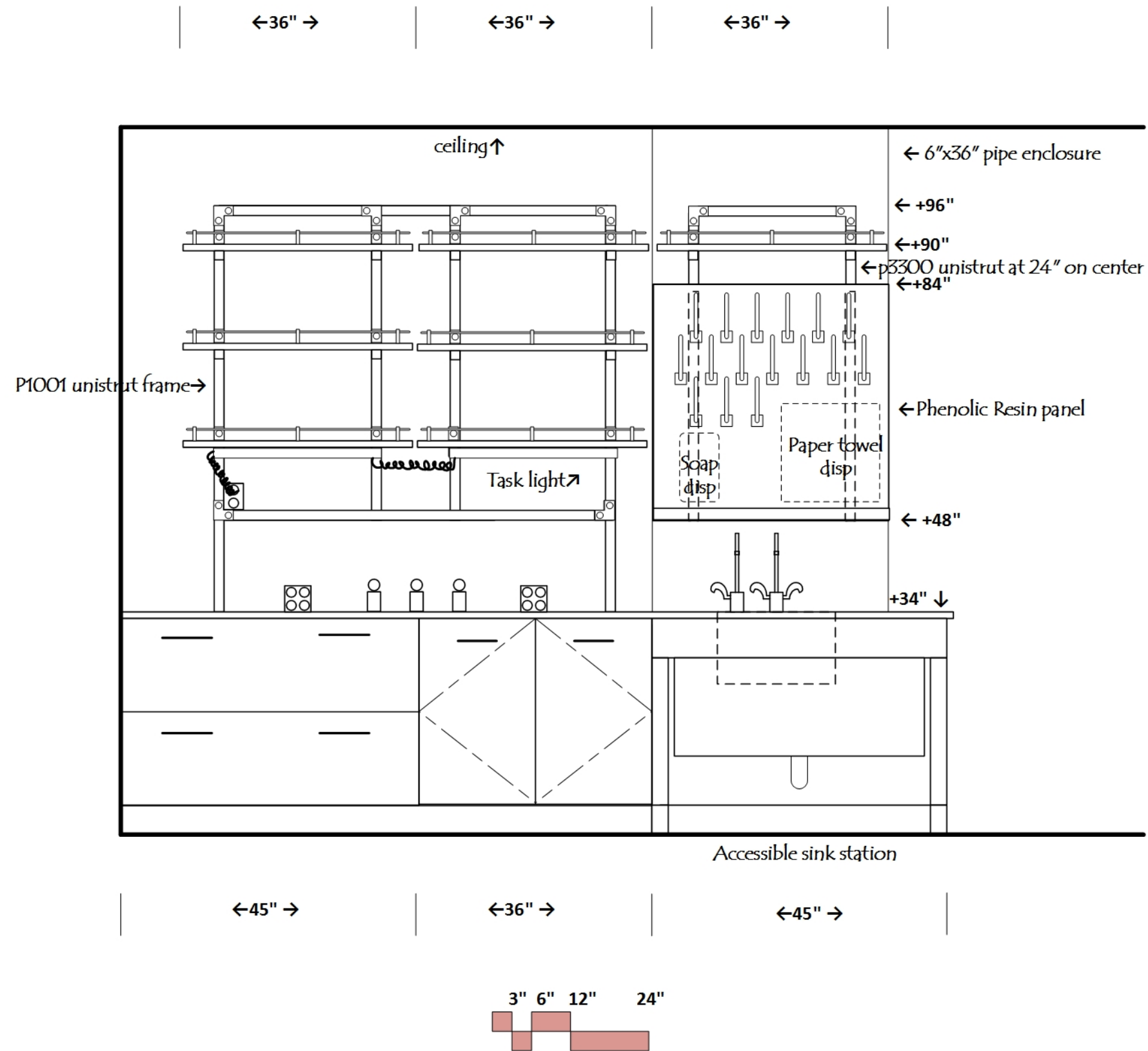




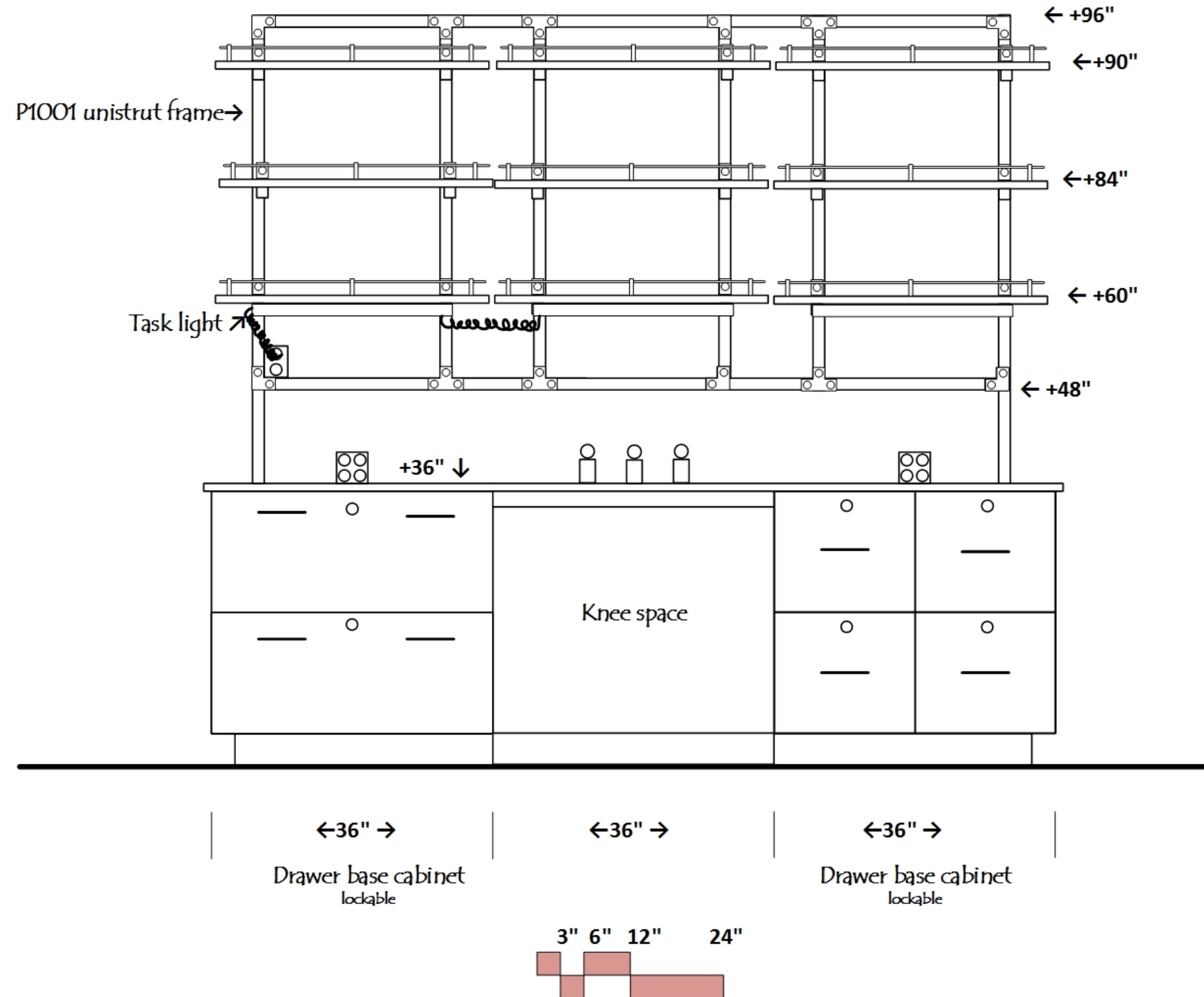
# Prep- Chem Store Elevation B



# Prep- Chem Store Elevation C

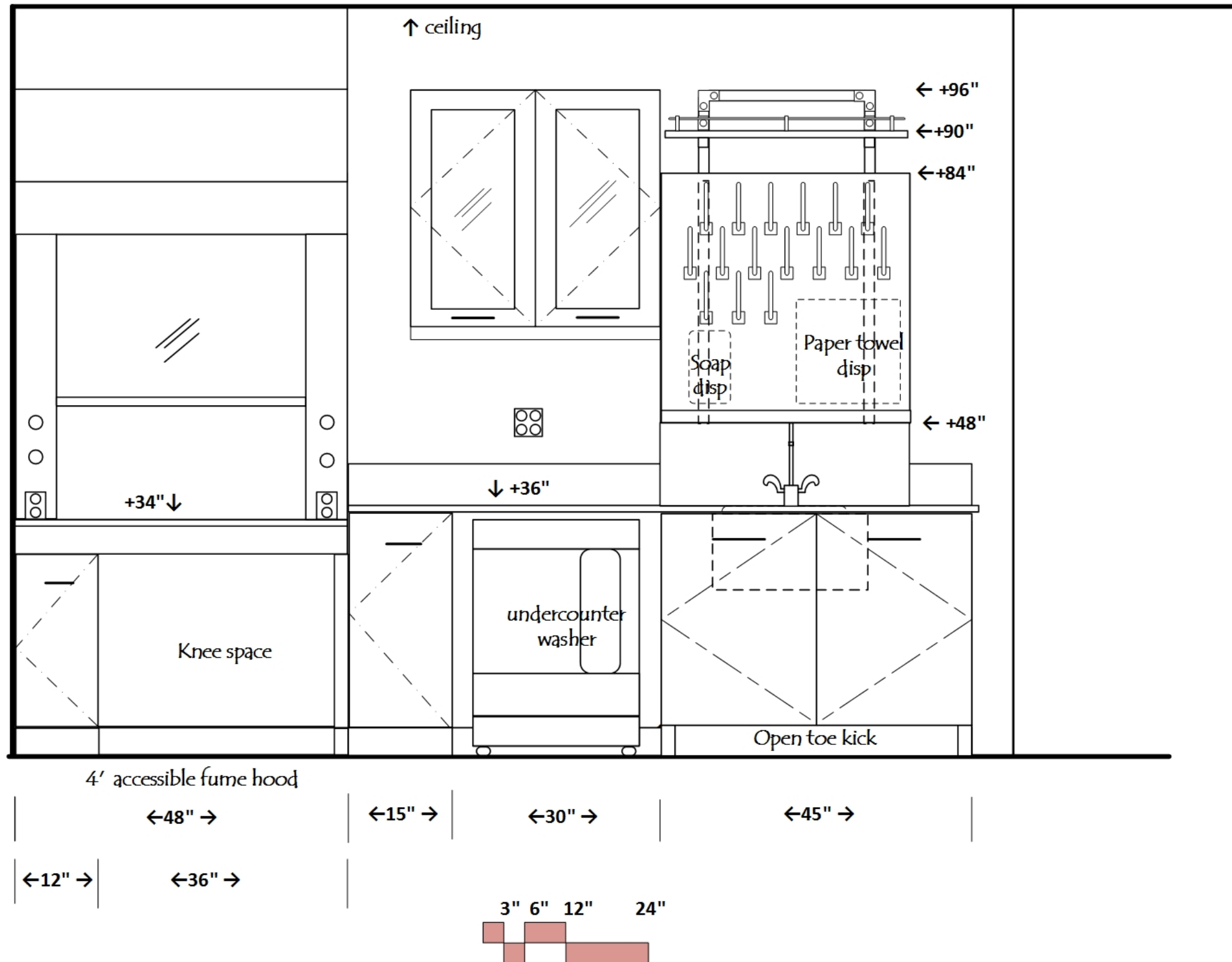


# Prep- Chem Store Elevation D

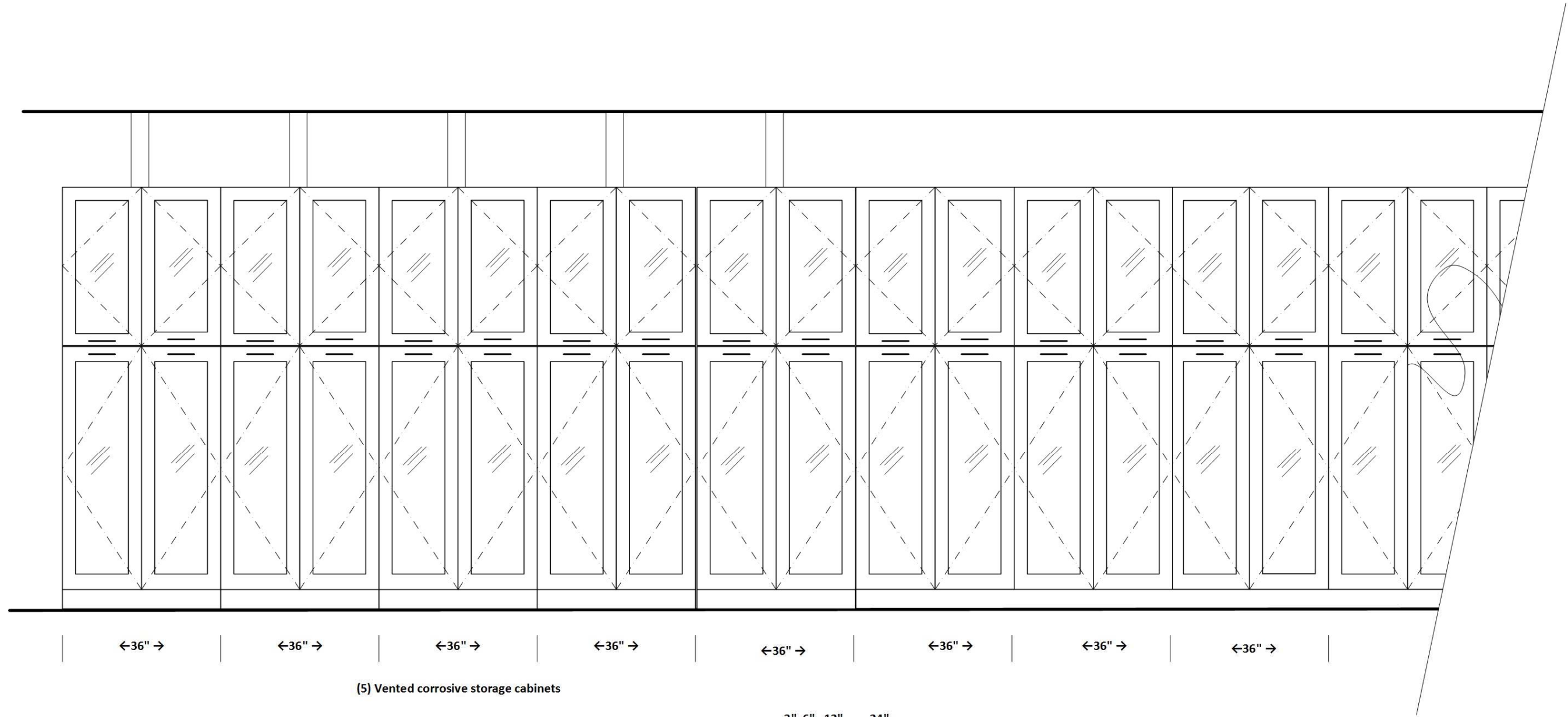


# Prep- Chem Store

## Elevation E

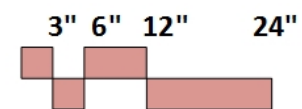
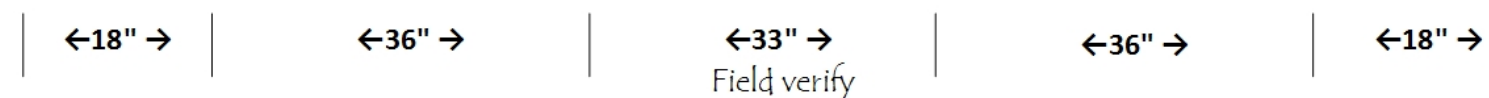
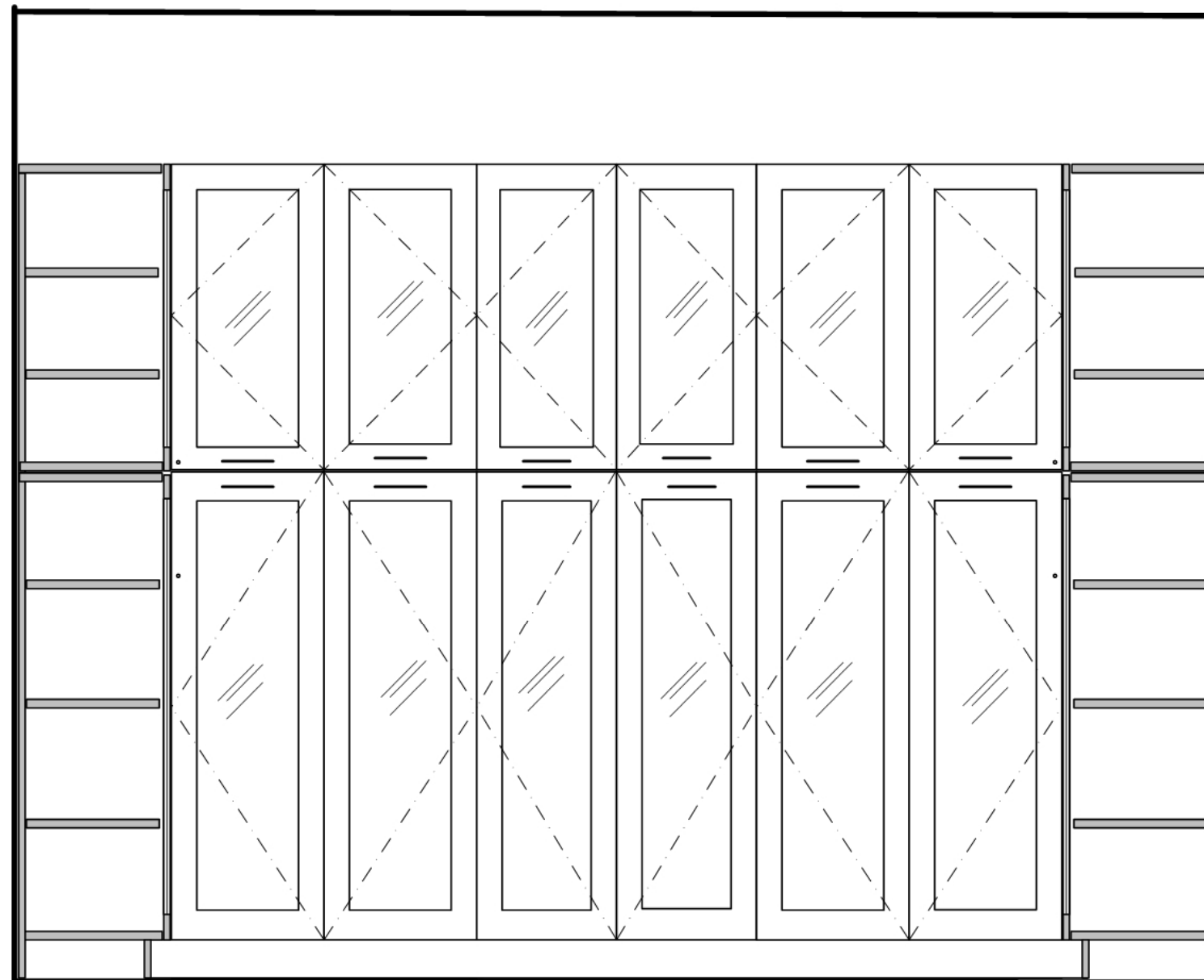


# Prep- Chem Store Elevation F



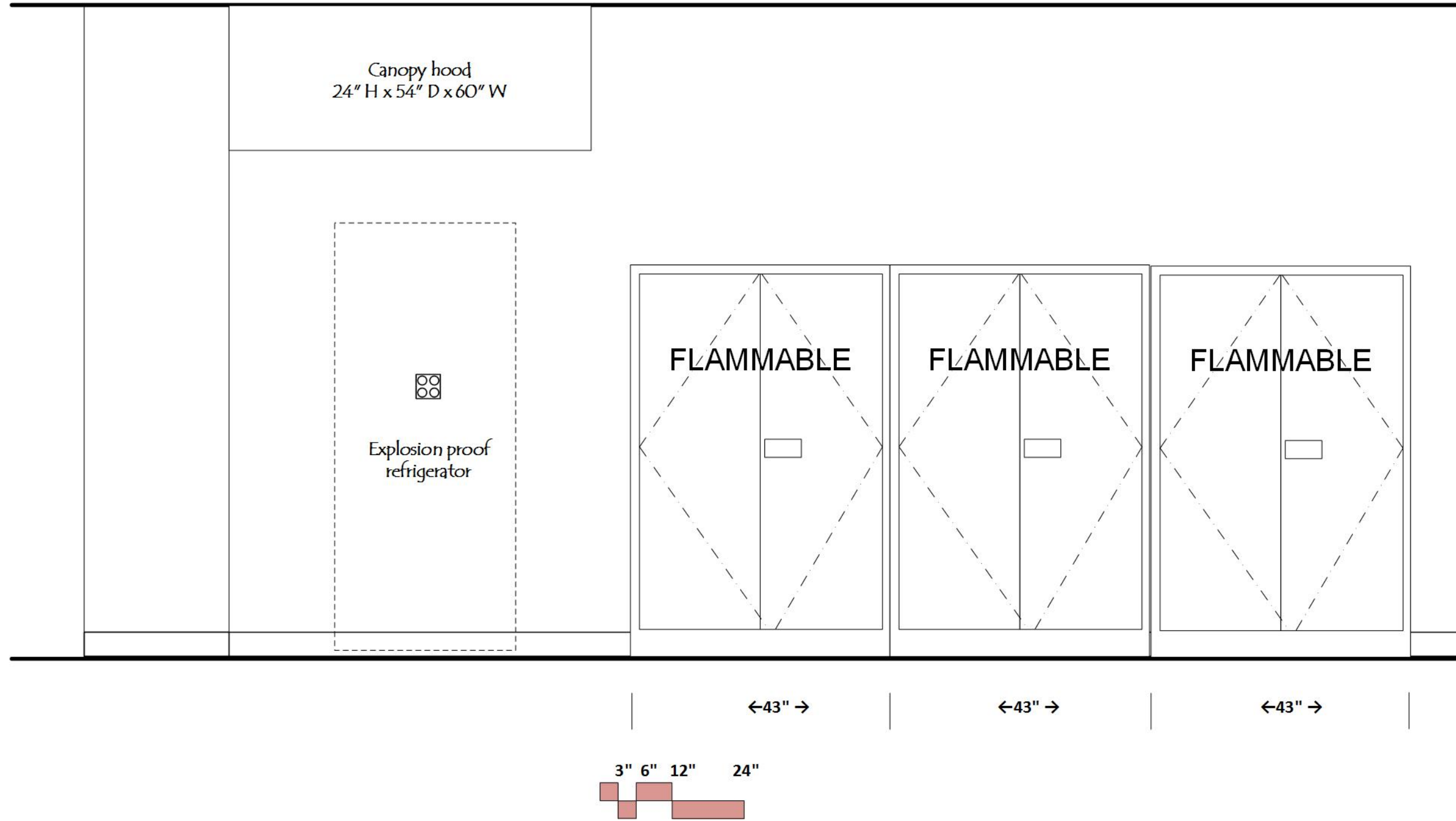
# Prep- Chem Store

## Elevation G

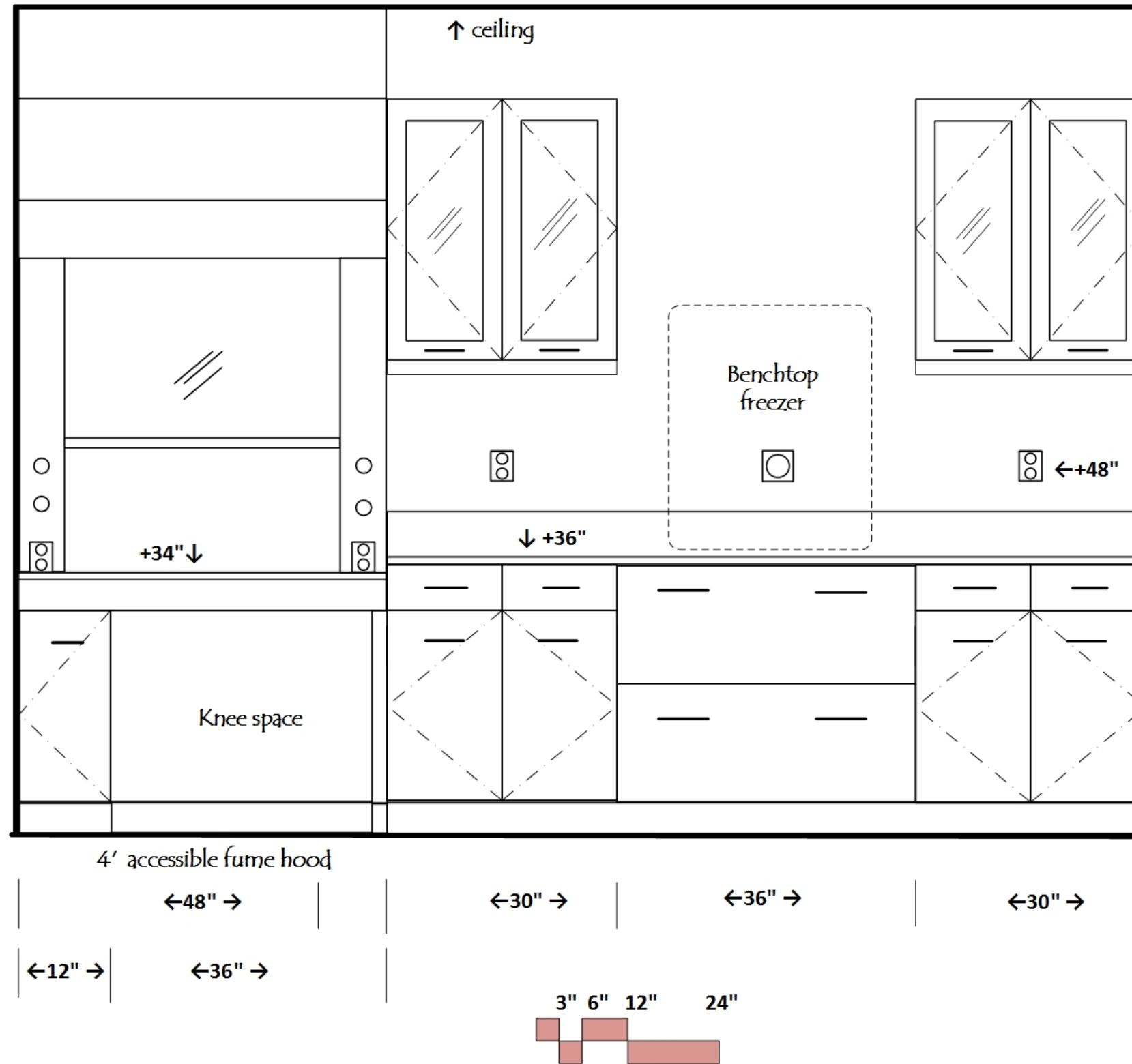




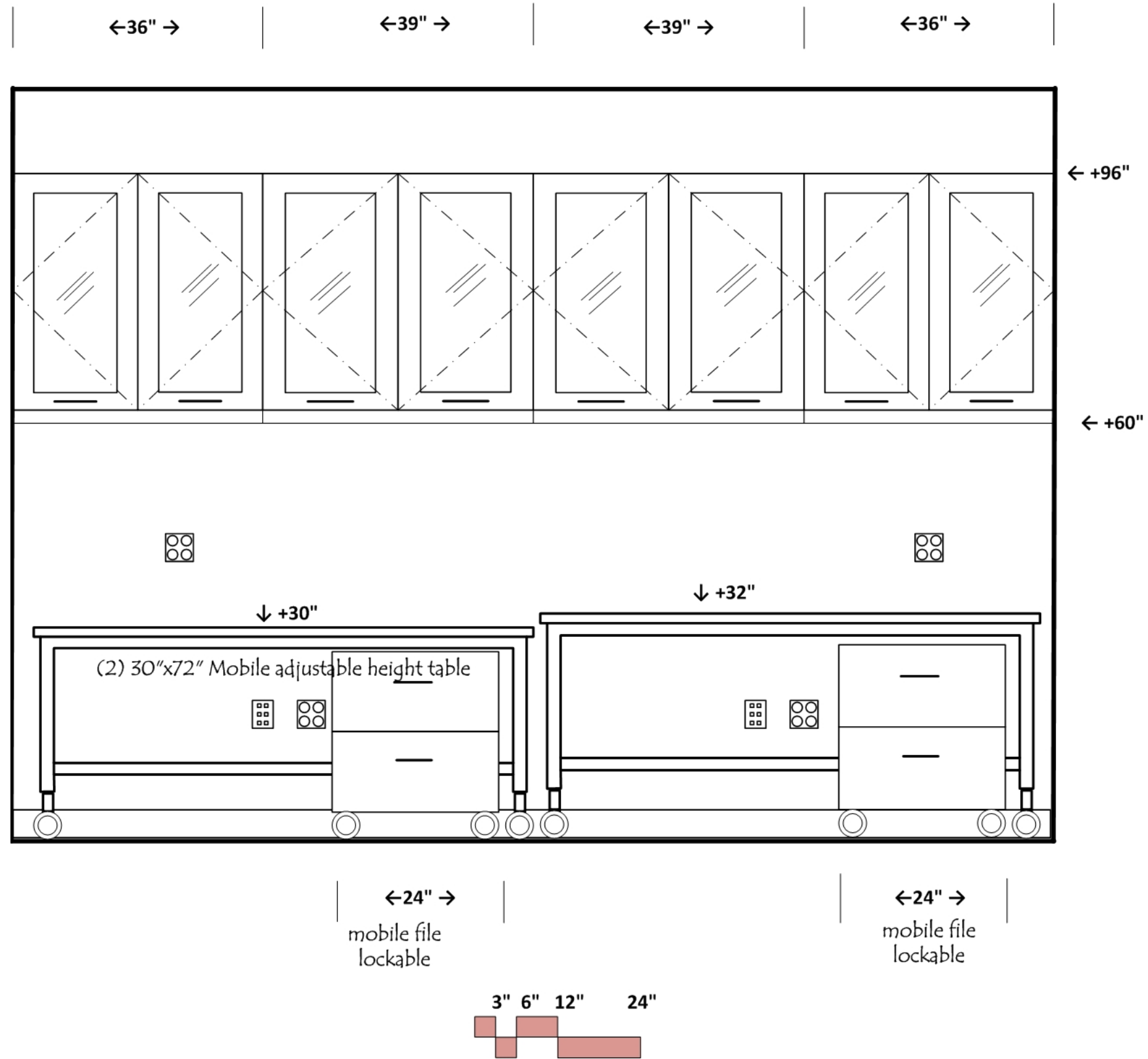
Prep- Chem Store  
Elevation H



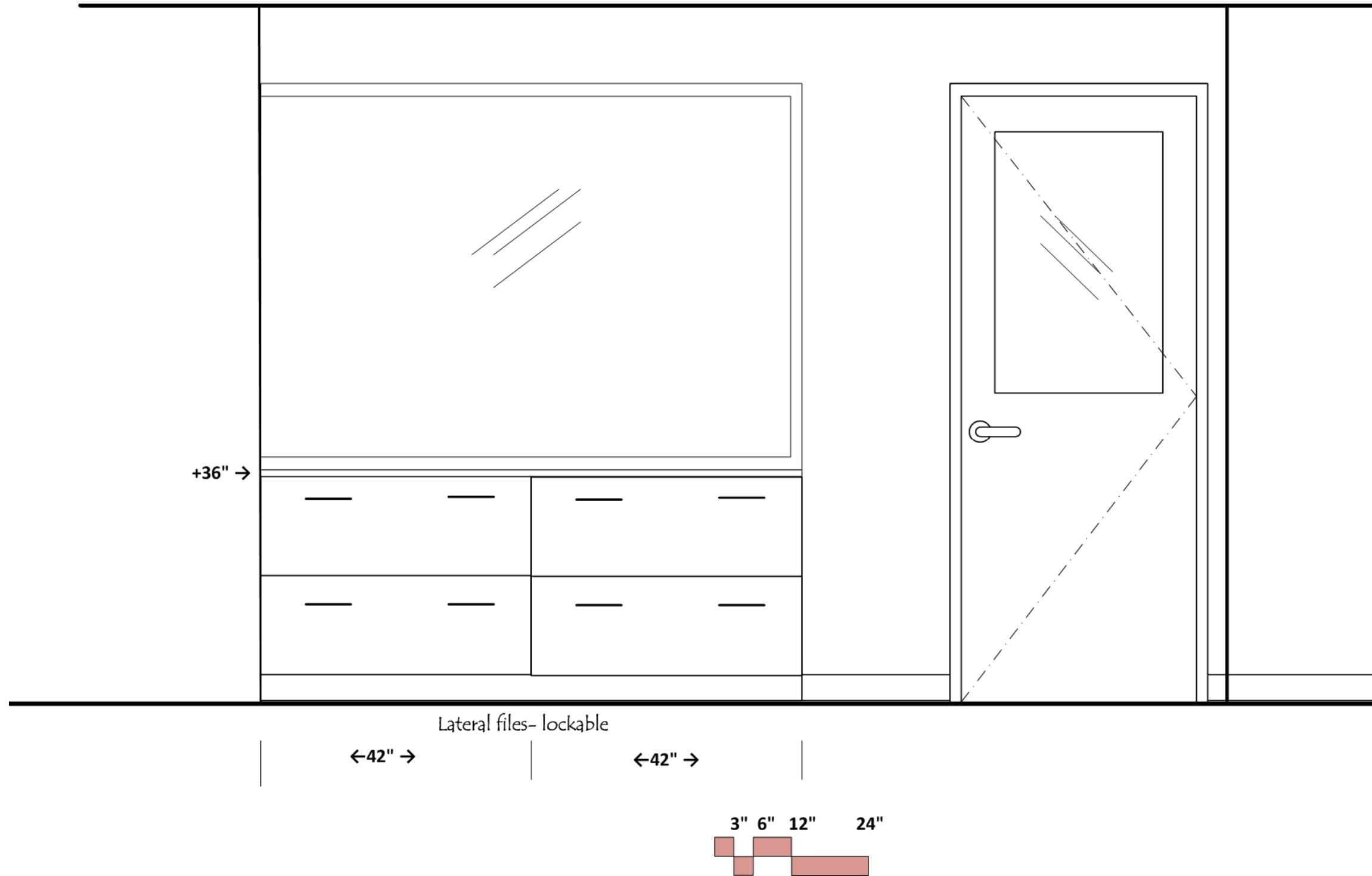
# Prep- Chem Store Elevation I



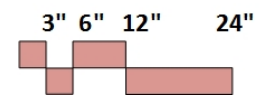
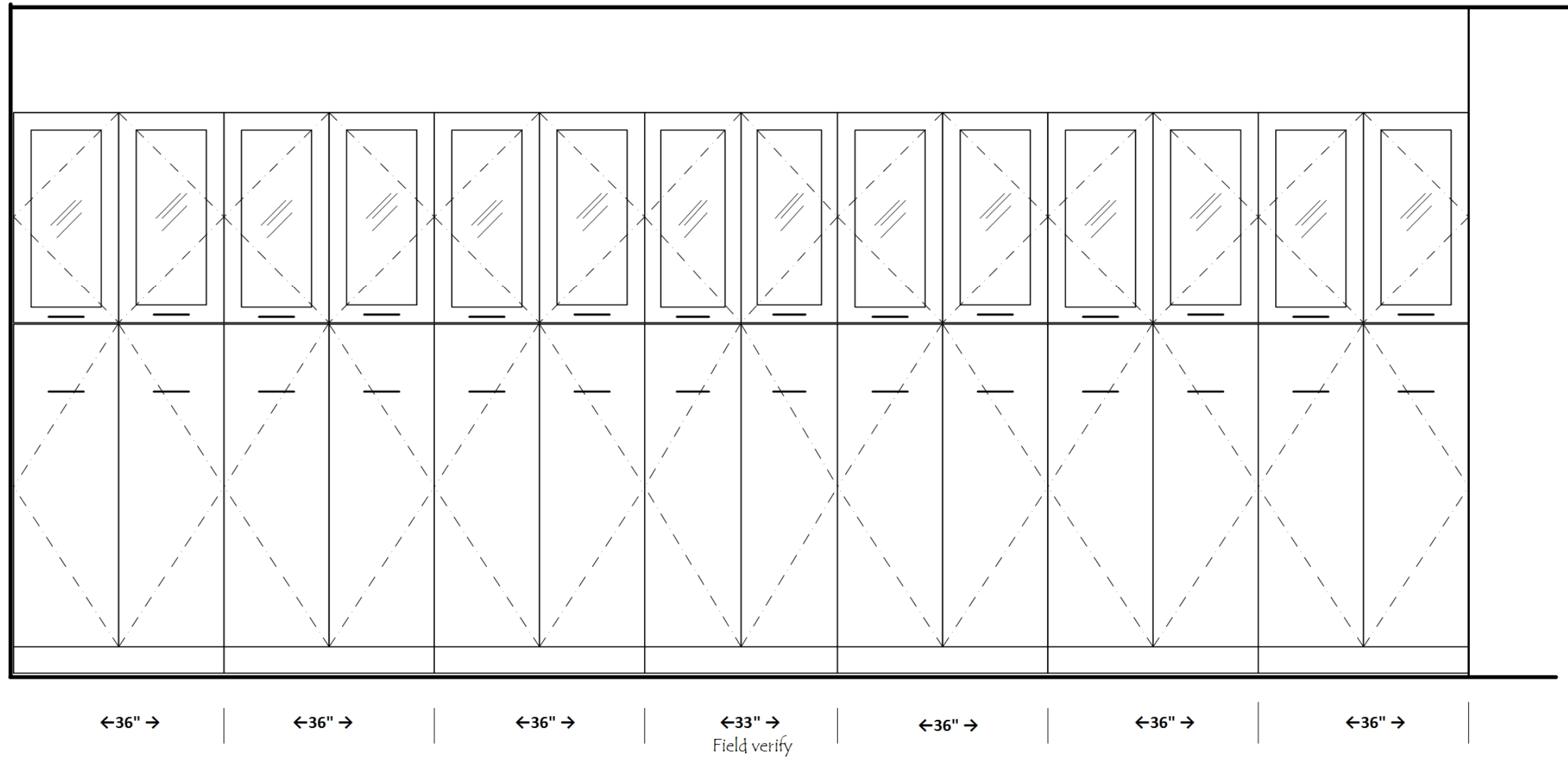
# Prep- Chem Store Elevation J



# Prep- Chem Store Elevation K

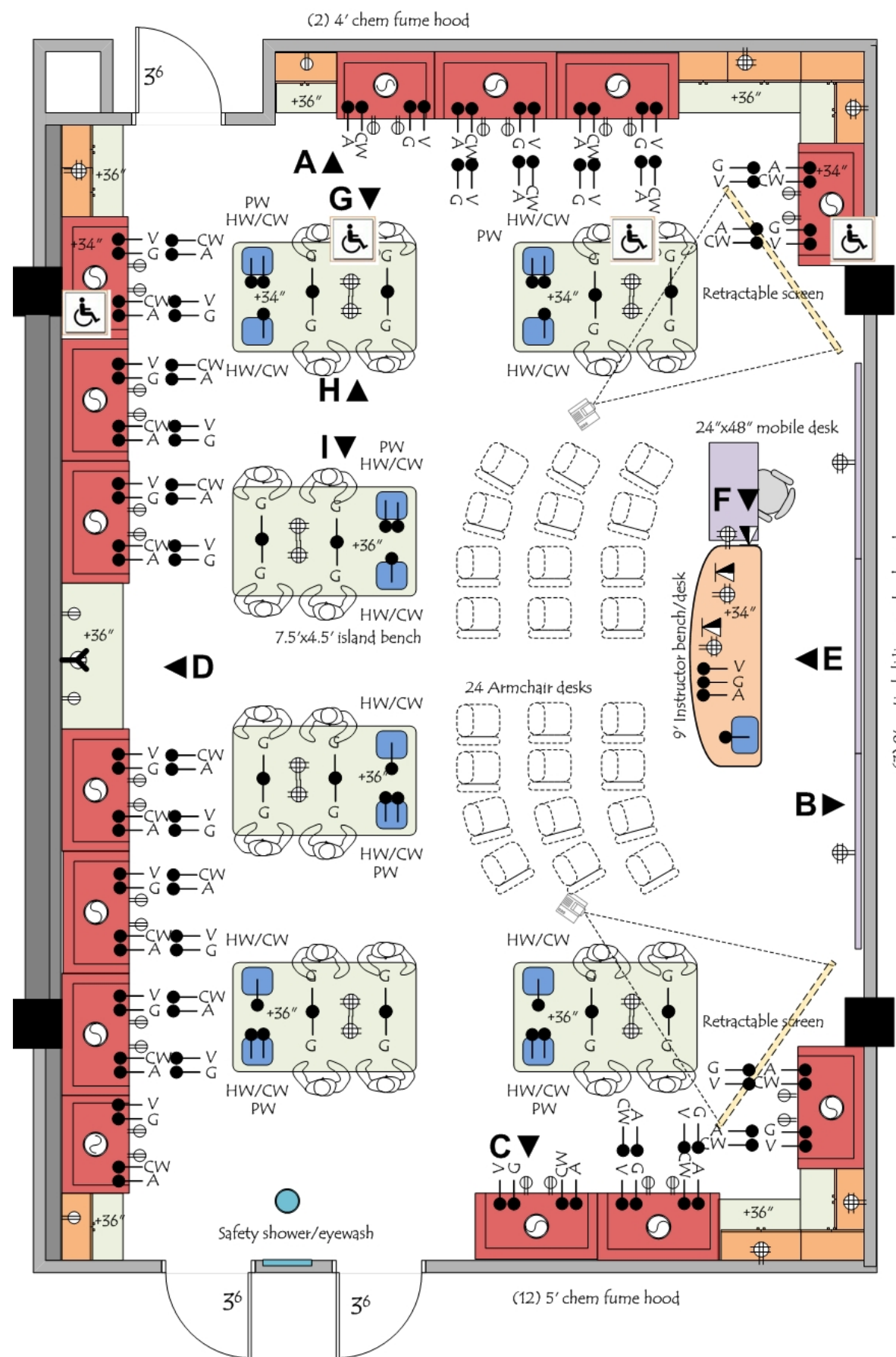


# Prep- Chem Store Elevation L



# Organic Chemistry Lab

## Level 2 East Center



### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3<sup>6</sup>x8<sup>0</sup> with window  
 Daylight: solatubes at ceiling  
 Light attenuation: blinds at all windows  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Exhaust on emergency power supply  
 (6) air changes per hour occupied  
 (4) air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Data & Wireless data  
 208v power at lab bench  
 Emer power at fume hood exhaust  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 task lights below wall cabinets  
 Provide light switches at instructor's bench and at each door  
 Separate lighting for marker board wall

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at sinks  
 Gas at each student station  
 Gas, Vac, Air, cold water at each fume hood

### CONTRACTOR FURNISHED EQUIPMENT

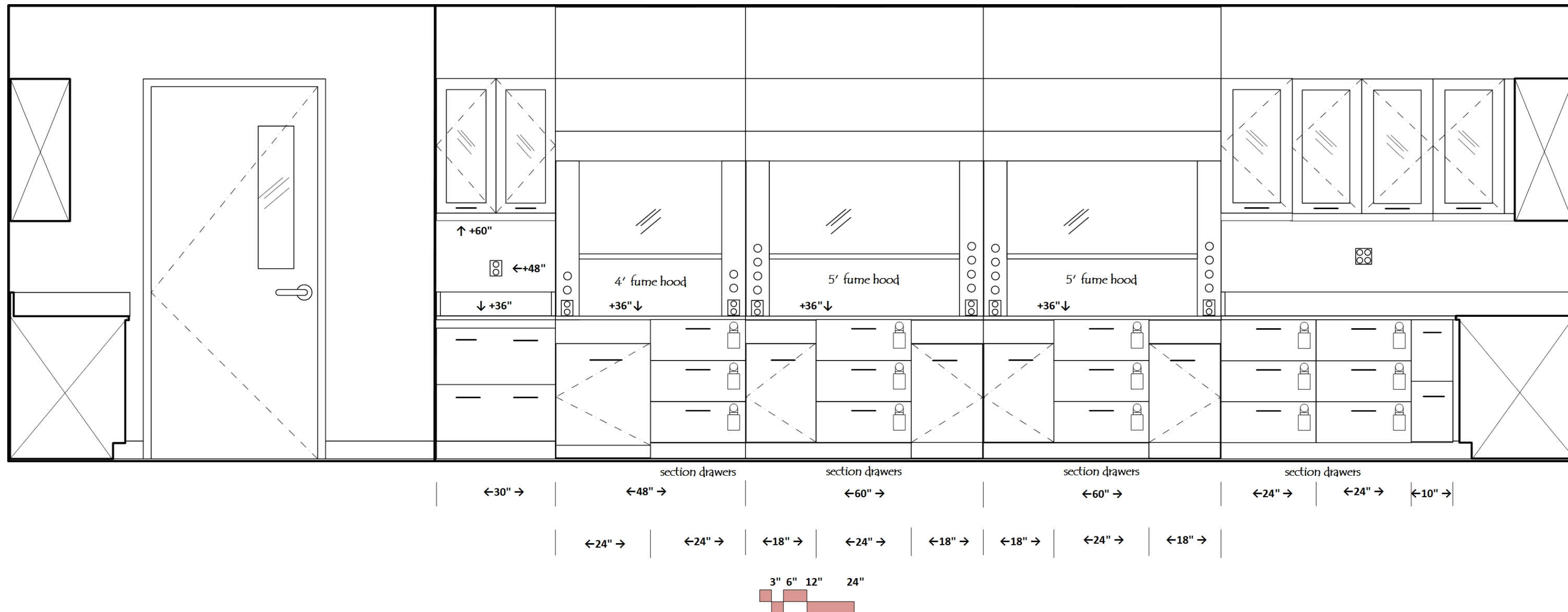
Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 144 section drawers required- 146 section drawers shown in elevations; minimum interior dim of each section drawer: 7" height x 20" deep x 22.5" wide  
 Resin tops and sinks; Faucets & fittings  
 marker boards; projector screens  
 projection system

### COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchtop analytical instruments  
 Scientific equipment  
 paper towel dispenser

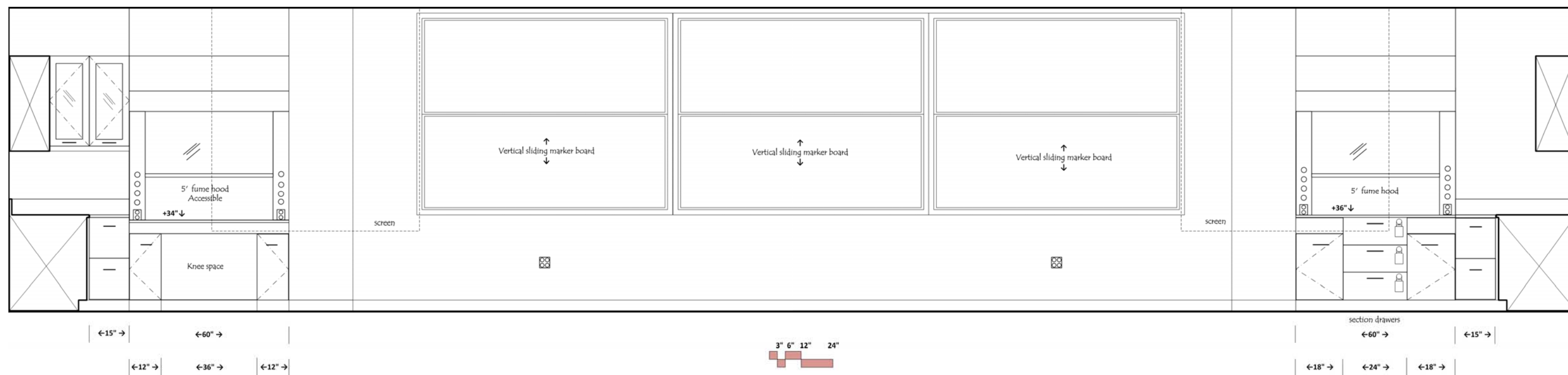
# Organic Chemistry Lab

## Elevation A



# Organic Chemistry Lab

## Elevation B

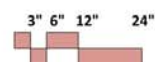
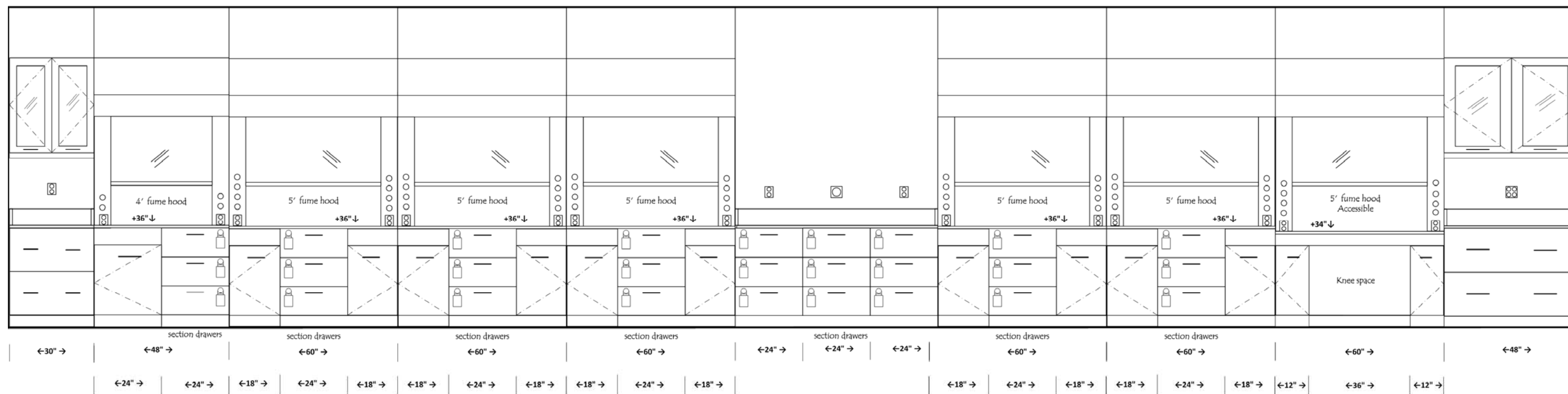






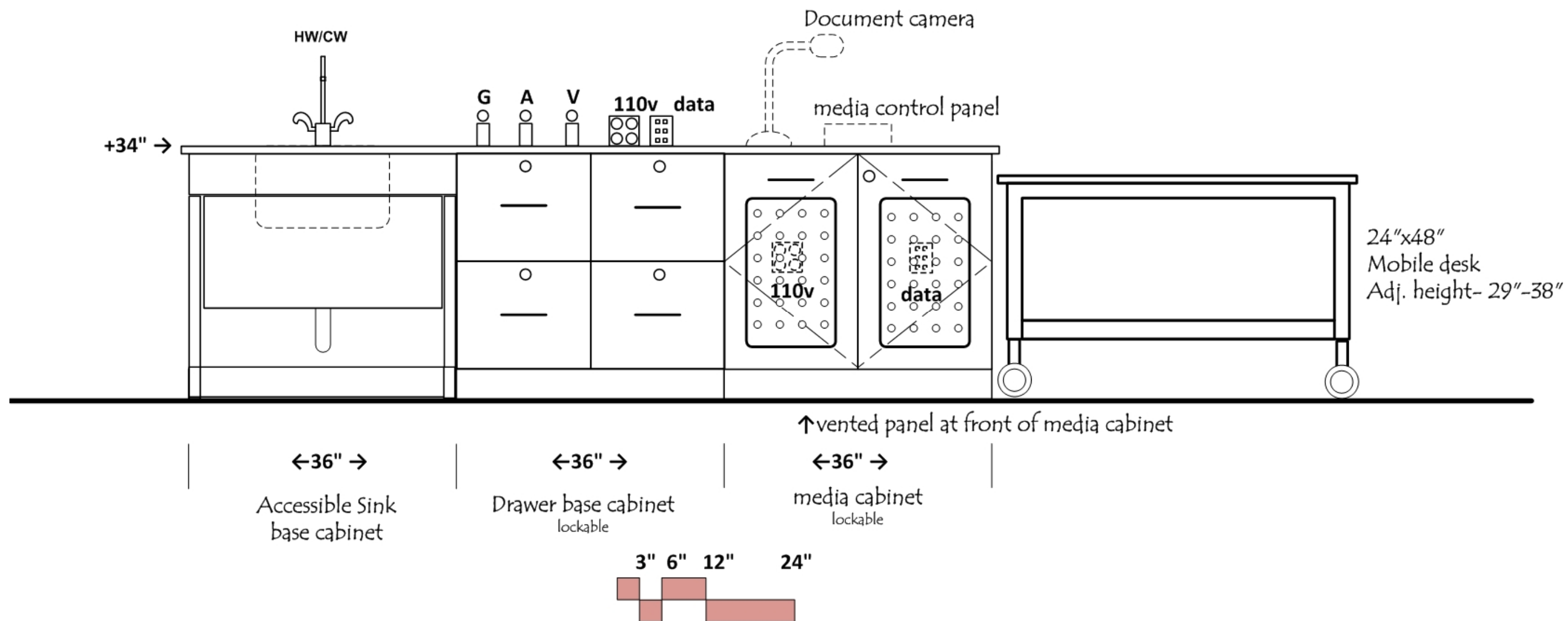
# Organic Chemistry Lab

## Elevation D



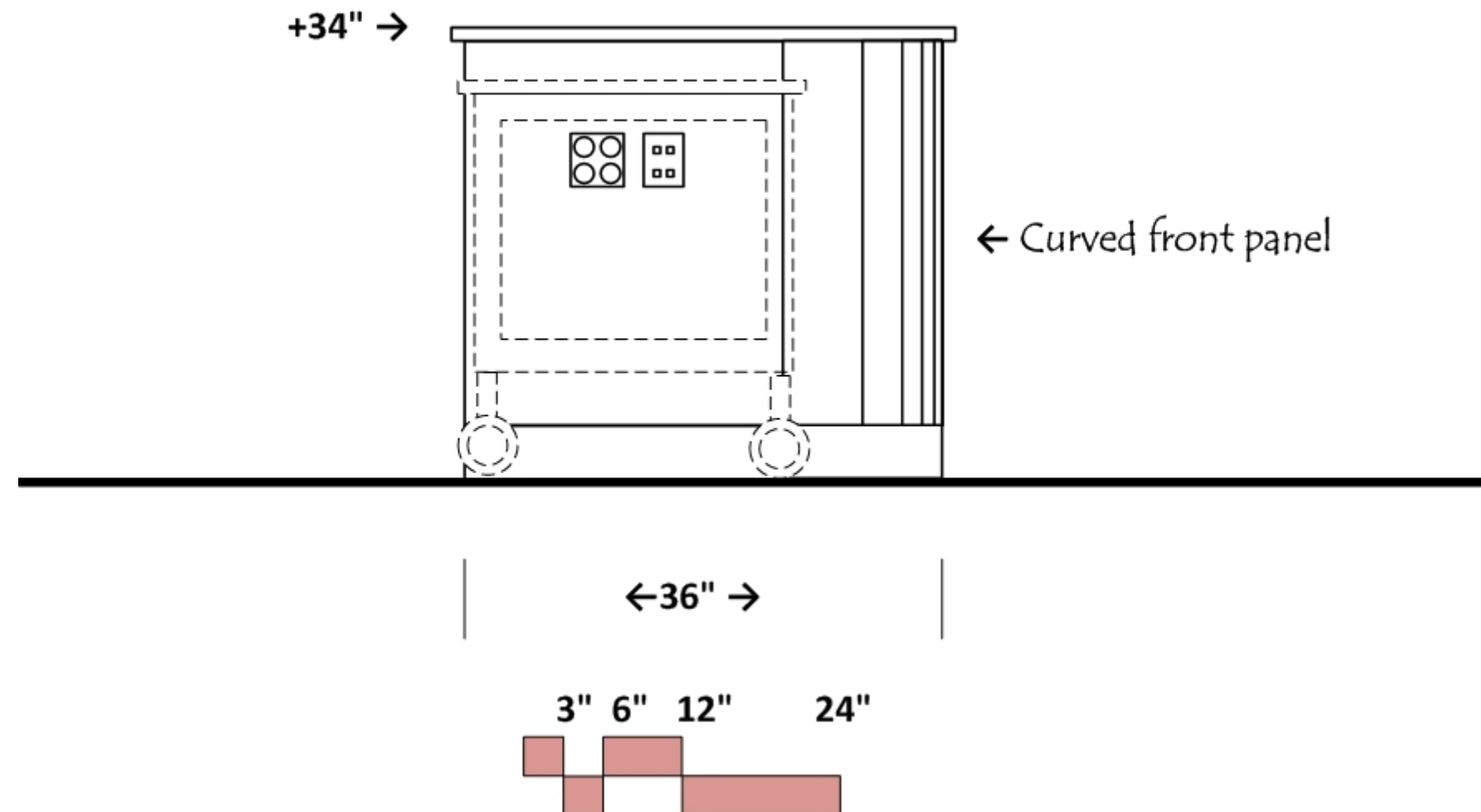
# Organic Chemistry Lab

## Elevation E



# Organic Chemistry Lab

## Elevation F

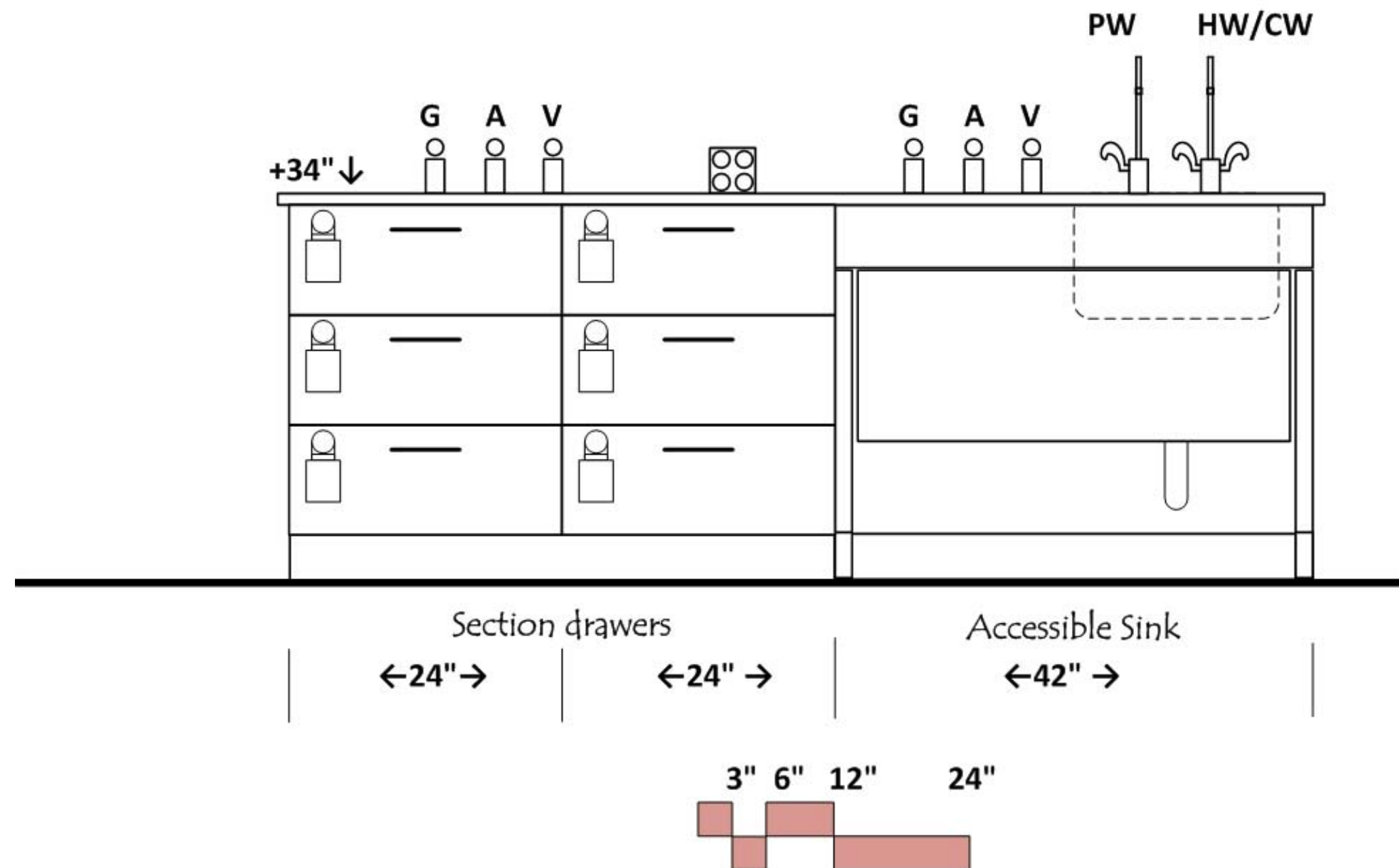


# Organic Chemistry Lab

Elevation G

Similar for 2 islands

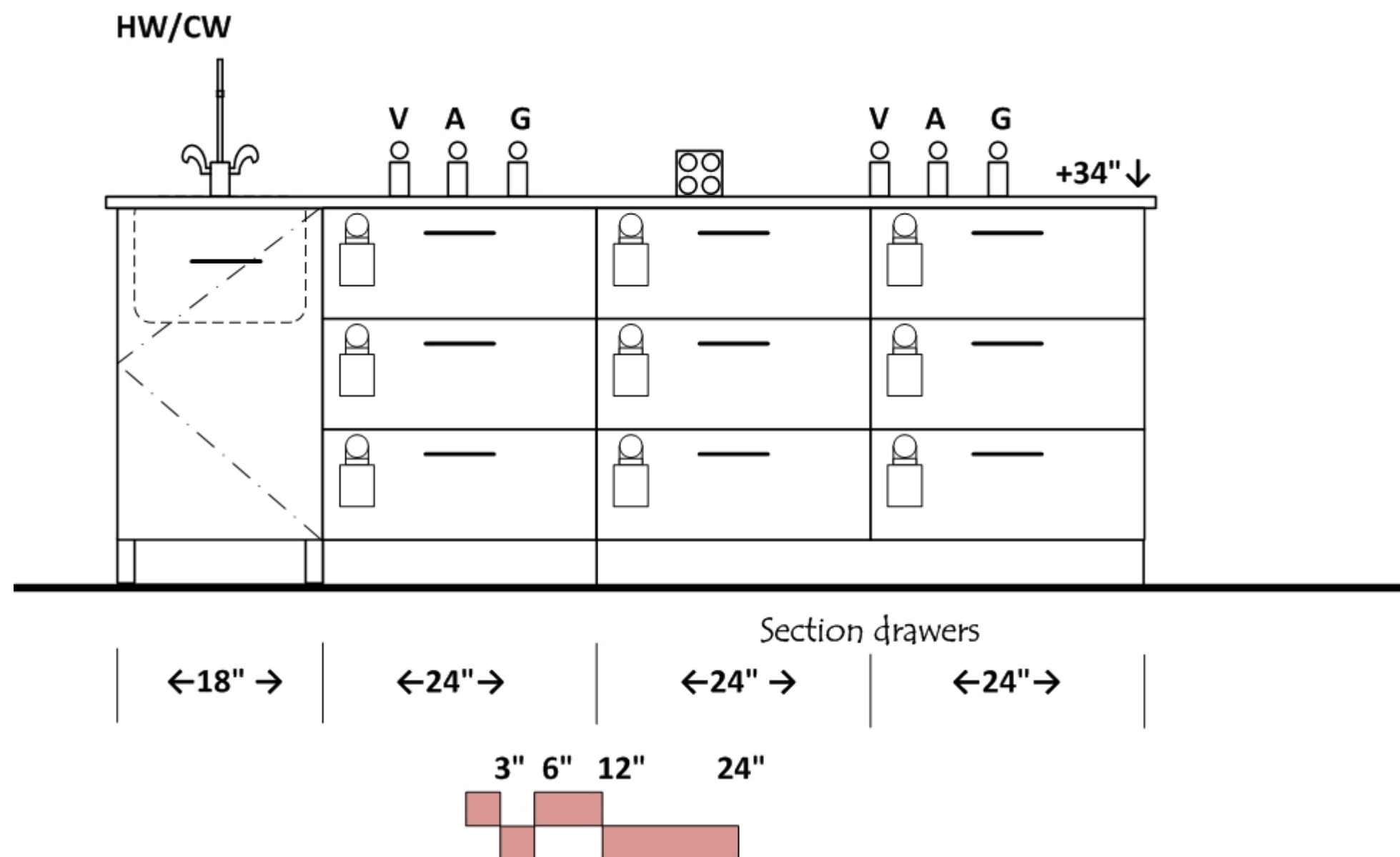
Section drawer dividers at all student island benches



# Organic Chemistry Lab

Elevation H

Similar for 2 islands



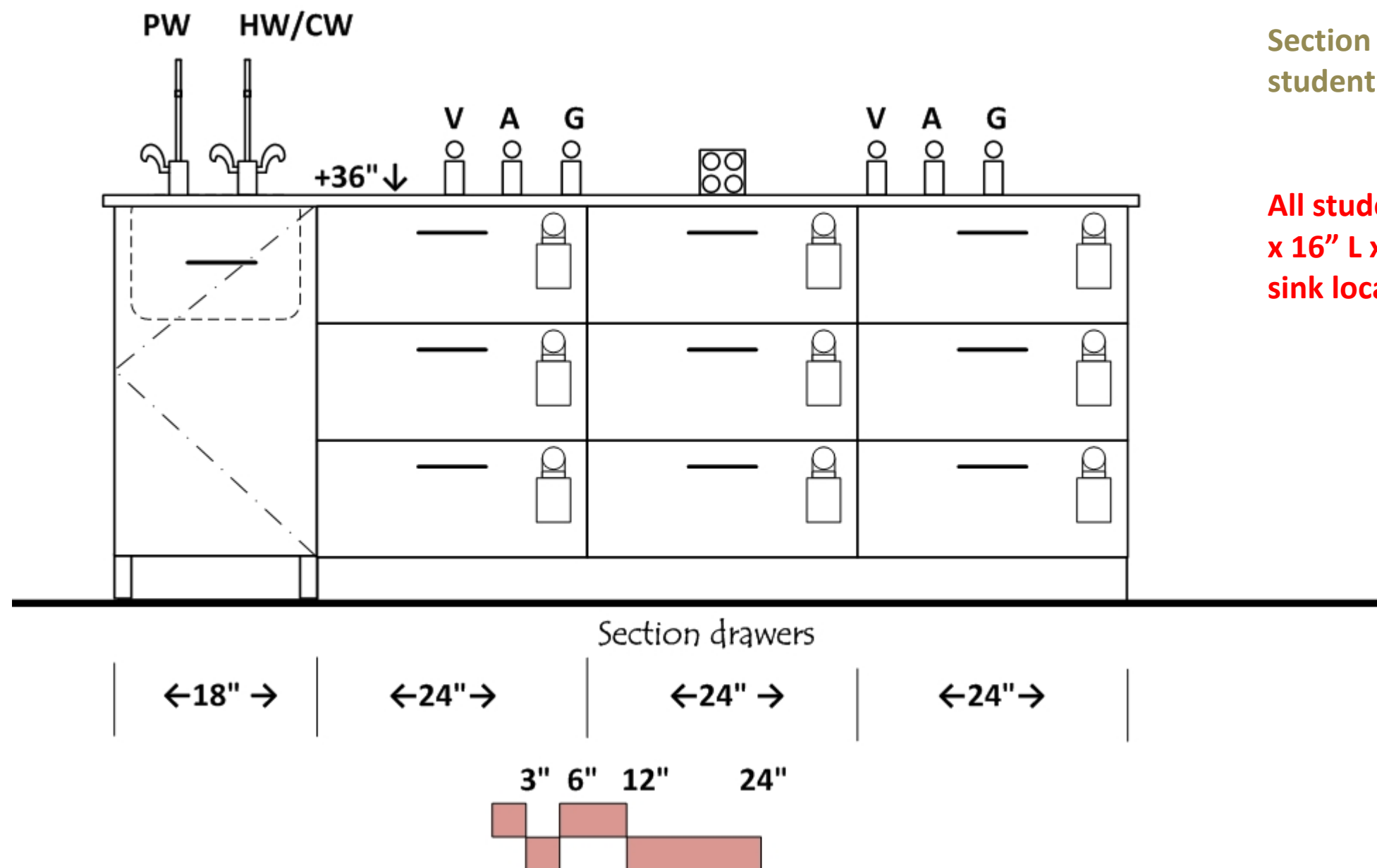
Section drawer dividers at all student island benches.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.

# Organic Chemistry Lab

Elevation I

Similar for 4 islands

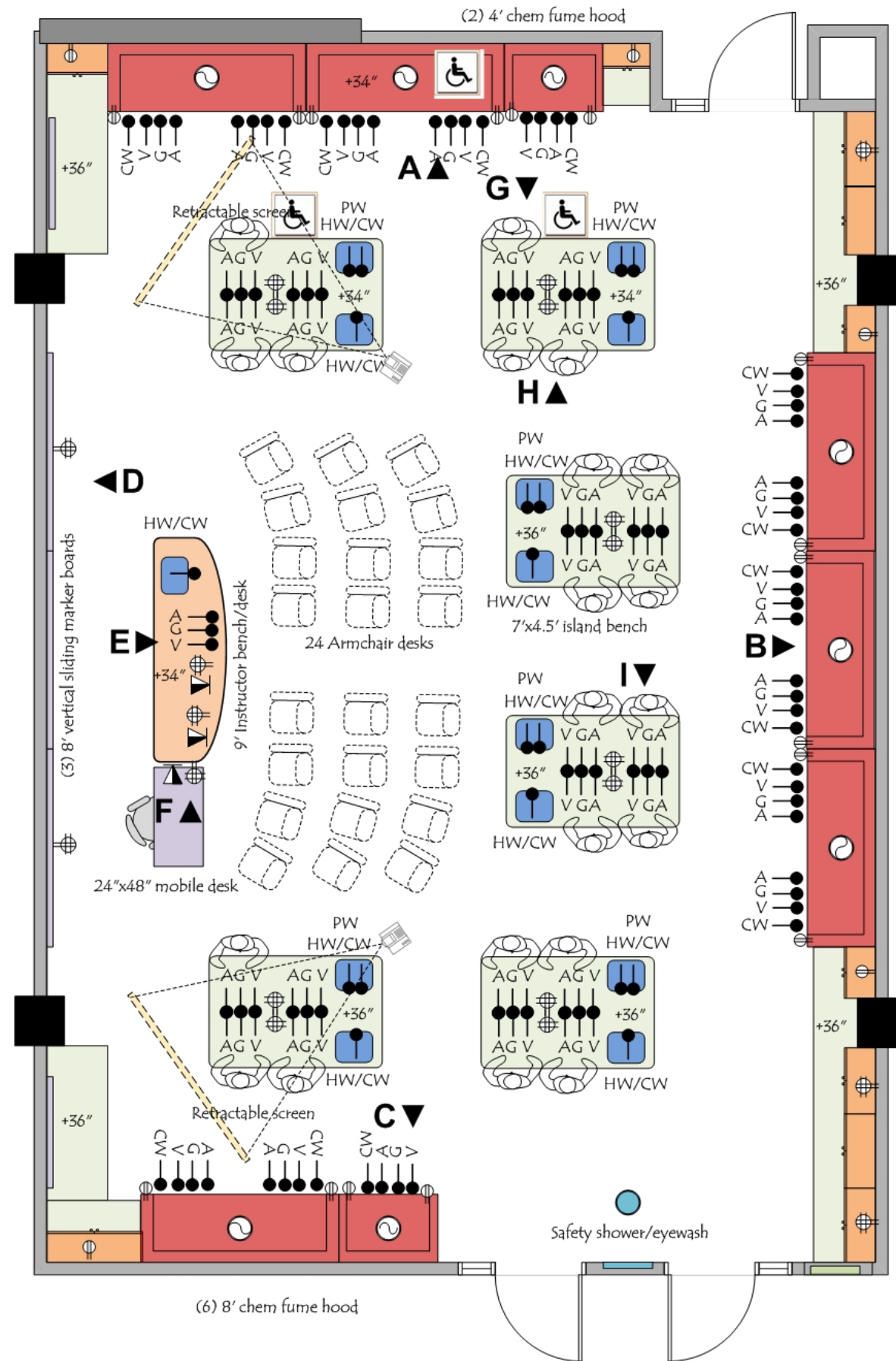


Section drawer dividers at all student island benches.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.

# General Chemistry Lab 1

## Level 2 East Center



### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3'x8' with window  
 Daylight: solatubes at ceiling  
 Light attenuation: blinds at all windows  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Exhaust on emergency power supply  
 (6) air changes per hour occupied  
 (4) air changes per hour unoccupied  
 Pressure: Negative; Humidity: Ambient

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Data & Wireless data  
 Emer power at fume hood exhaust  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 task lights below wall cabinets  
 Provide light switches at instructor's bench and at each door  
 Separate lighting for marker board wall

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at sinks  
 Gas, Vac, Air at each student station  
 (2) gas, (2) vac, (2) air, (2) cold water at each 8' fume hood  
 (1) gas, (1) vac, (1) air, (1) cold water at each 4' fume hood

### CONTRACTOR FURNISHED EQUIPMENT

Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 180 section drawers requested- 171 section drawers shown on elevations  
 Resin tops and sinks; Faucets & fittings  
 marker boards; projector screens  
 projection system

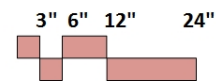
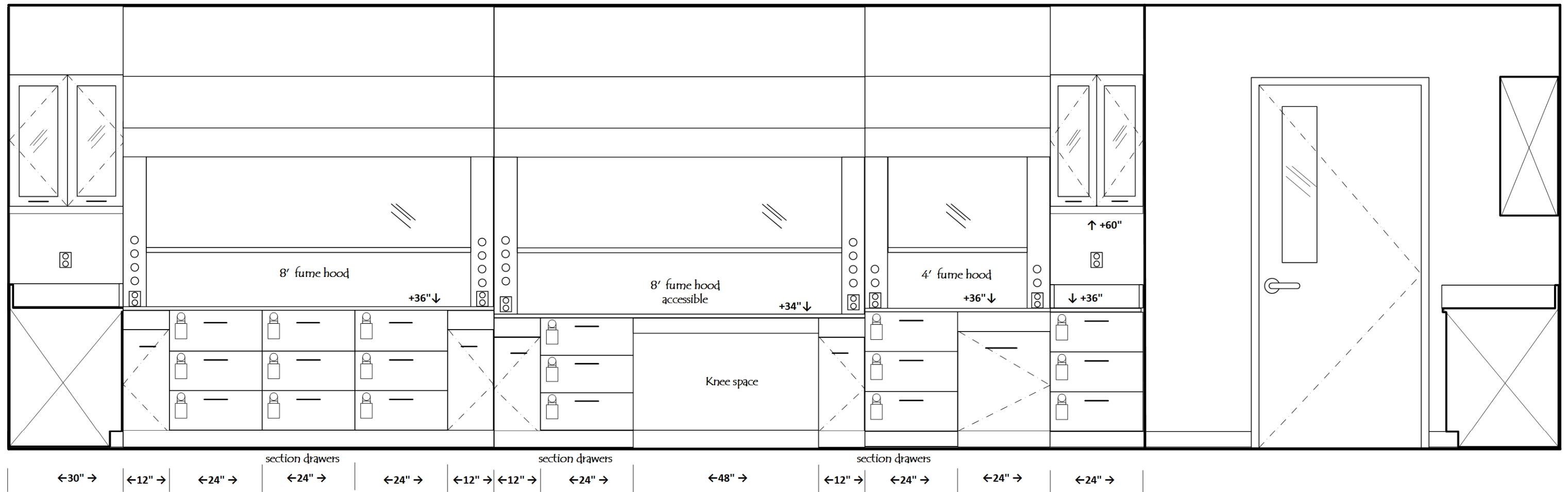
### COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchttop analytical instruments  
 Scientific equipment



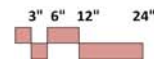
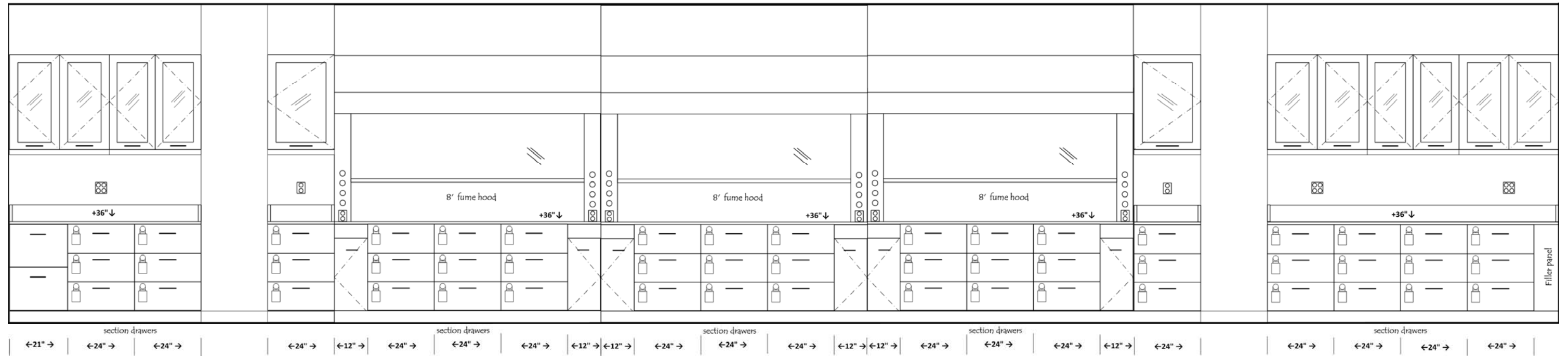
# General Chemistry Lab 1

## Elevation A



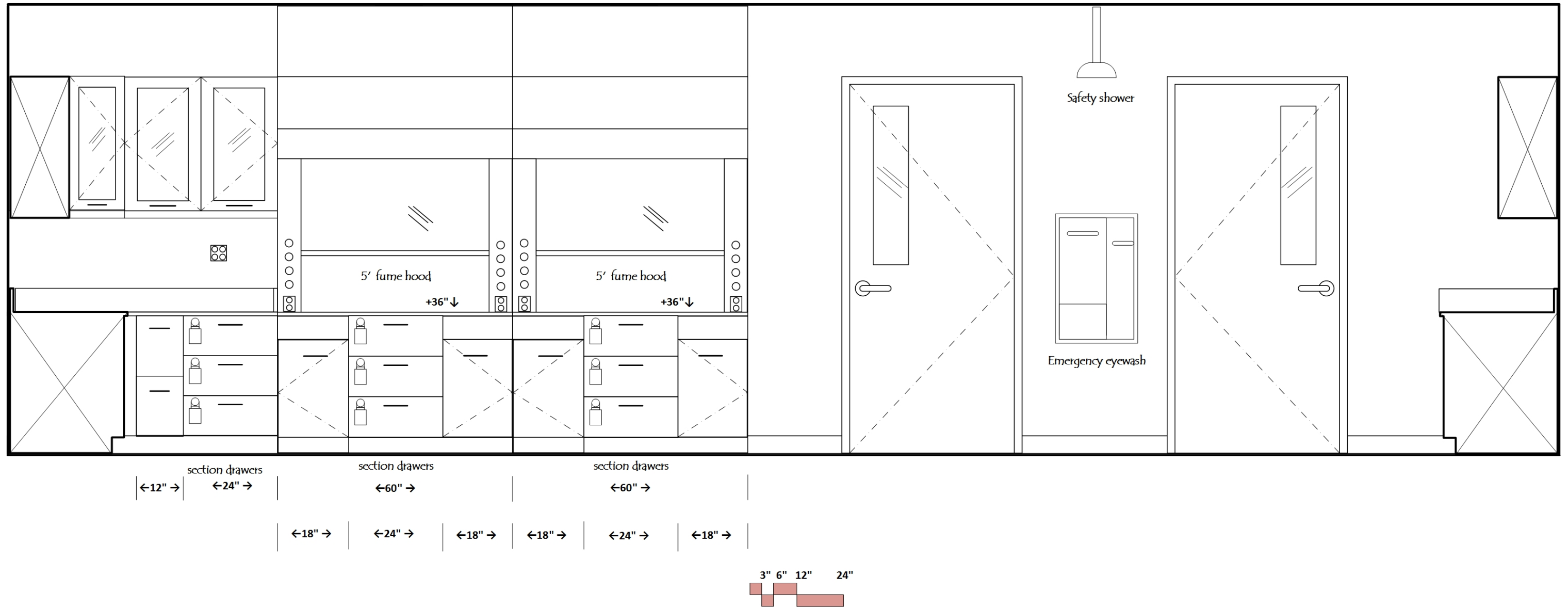
# General Chemistry Lab 1

## Elevation B



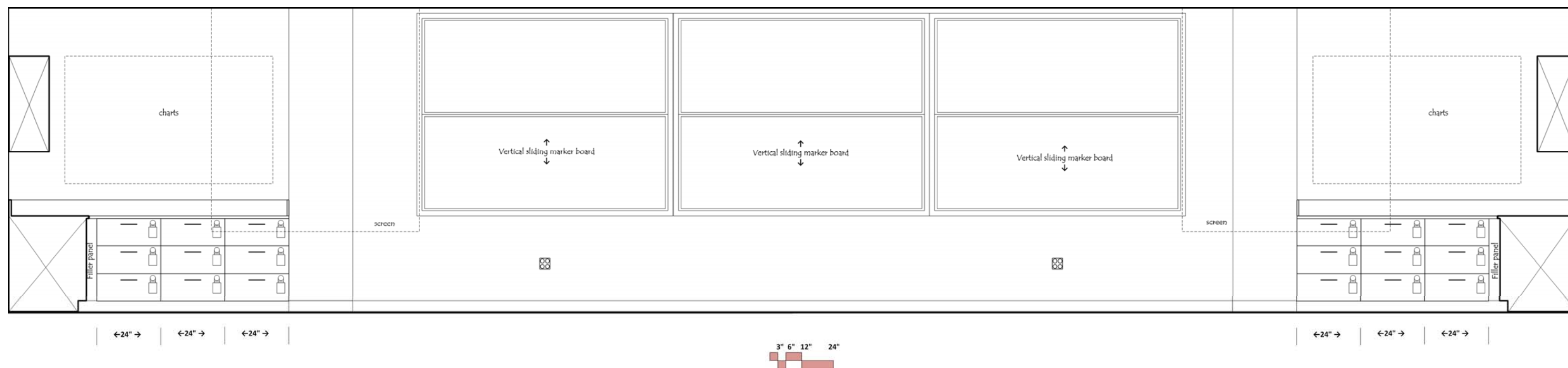
# General Chemistry Lab 1

## Elevation C



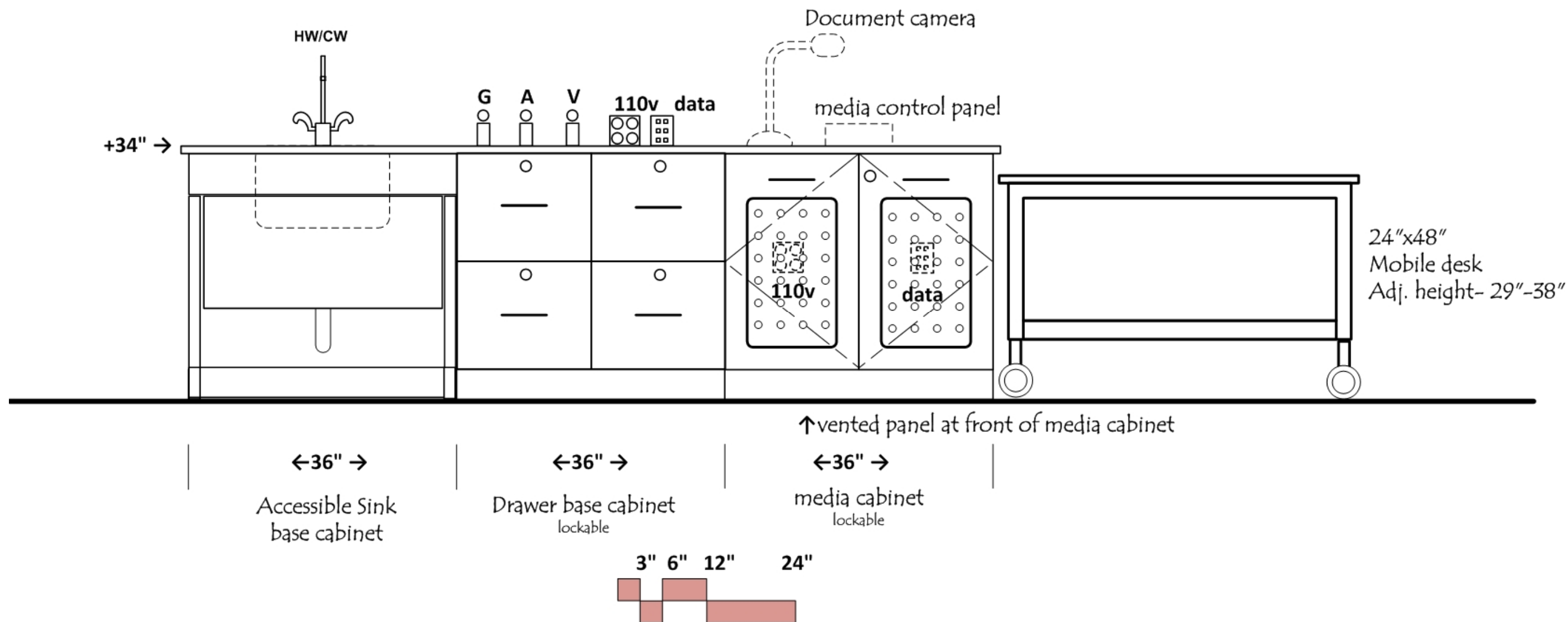
# General Chemistry Lab 1

## Elevation D



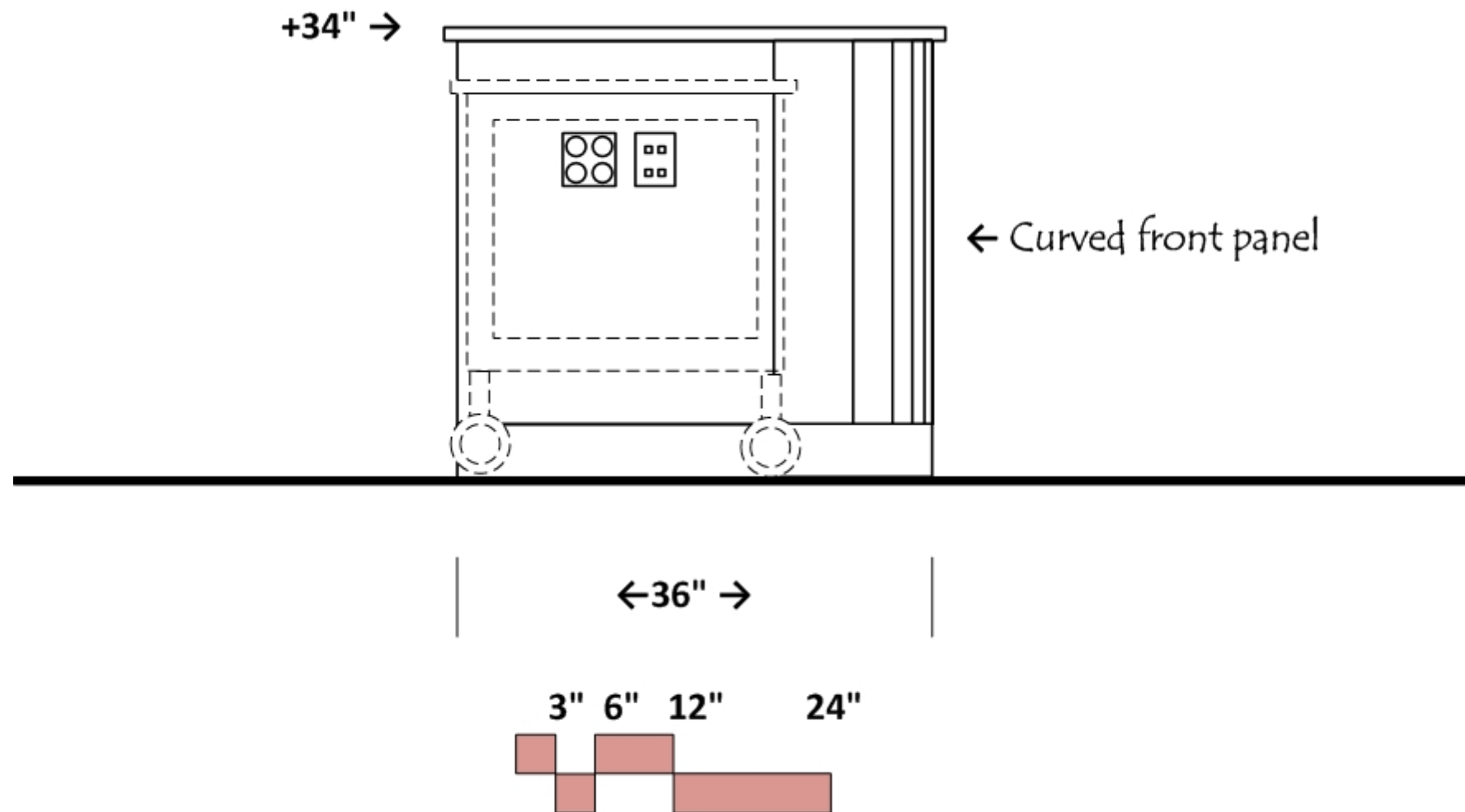
# General Chemistry Lab 1

## Elevation E



# General Chemistry Lab 1

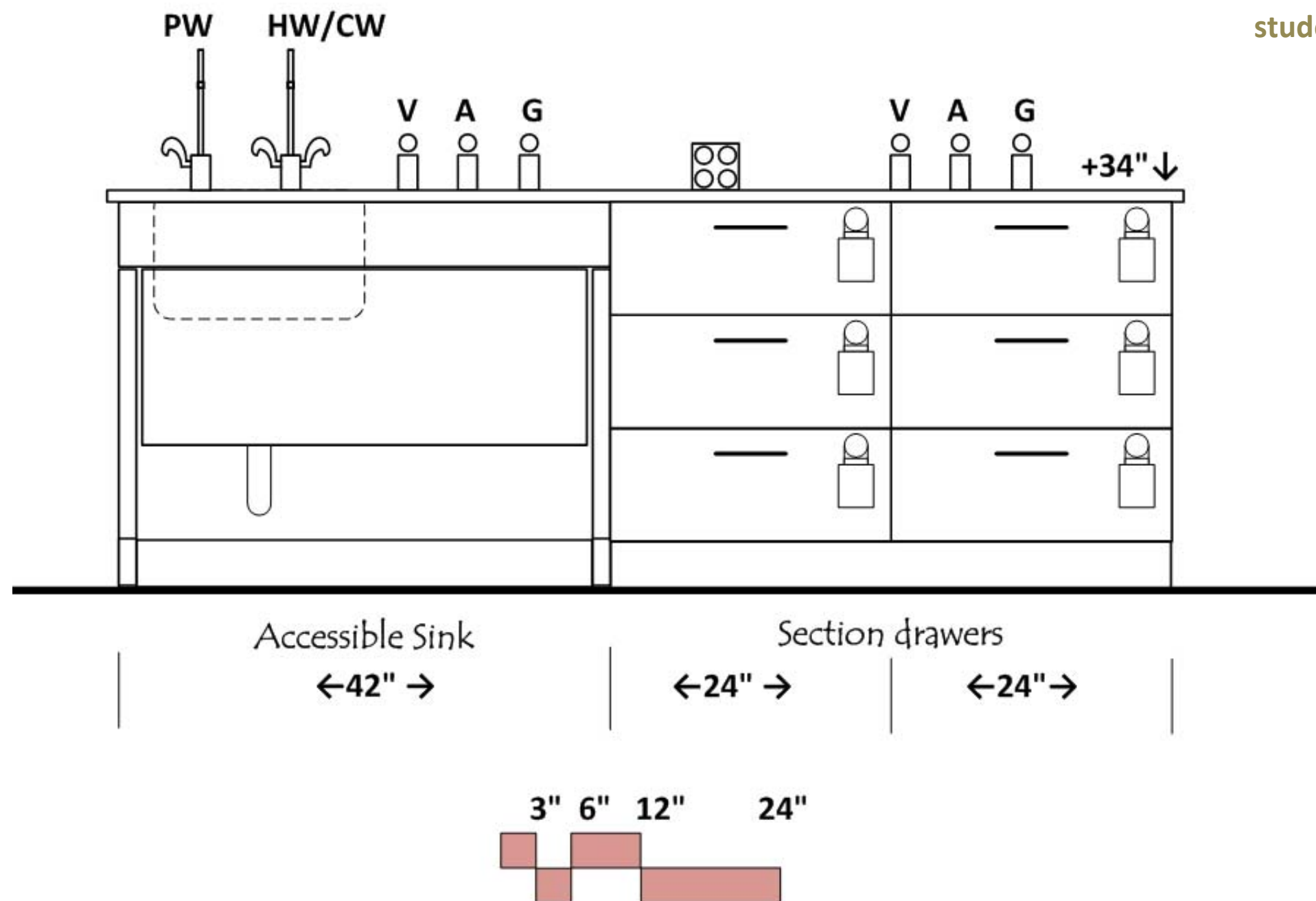
## Elevation F



# General Chemistry Lab 1

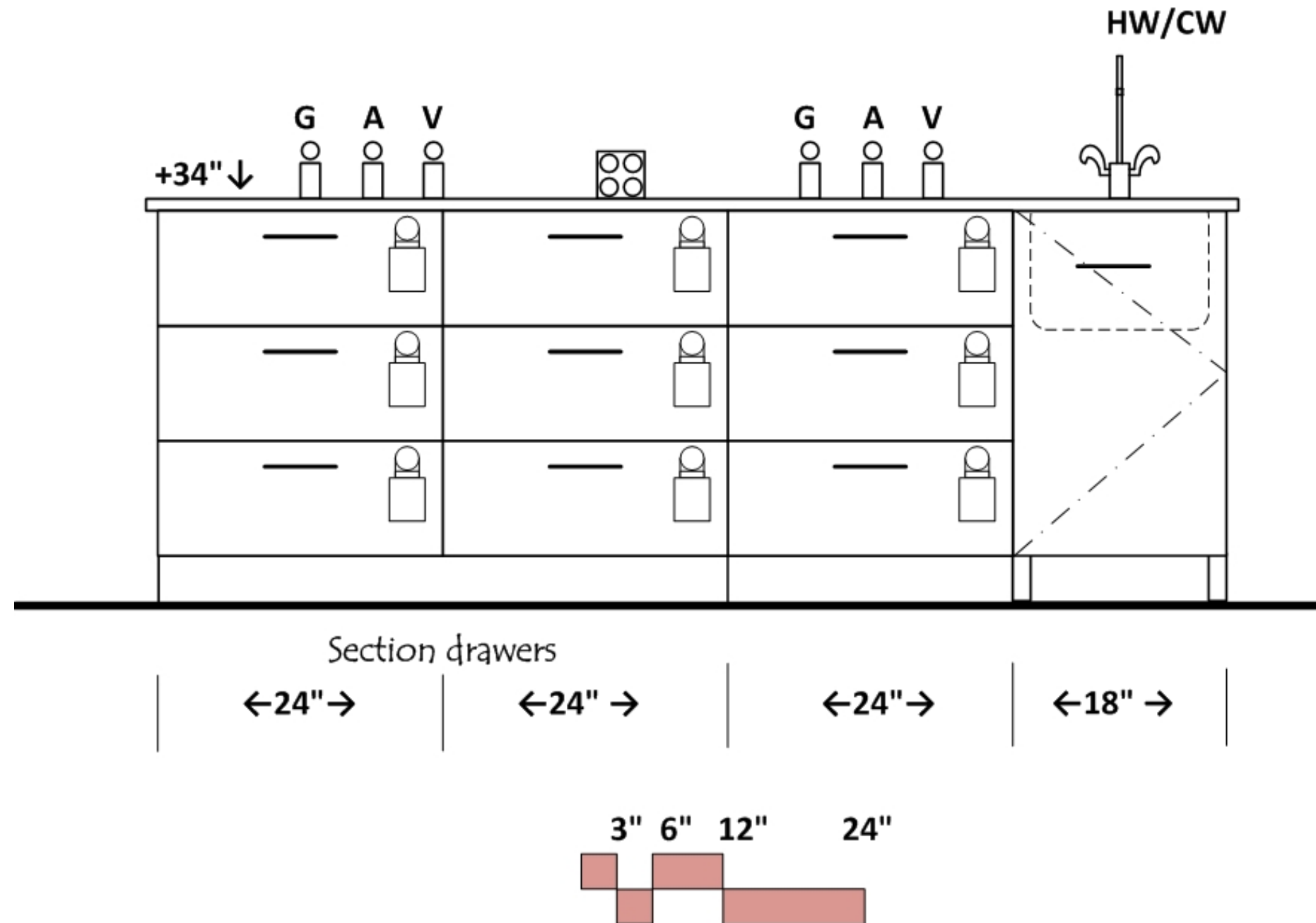
## Elevation G

Section drawer dividers at all student island benches



# General Chemistry Lab 1

## Elevation H



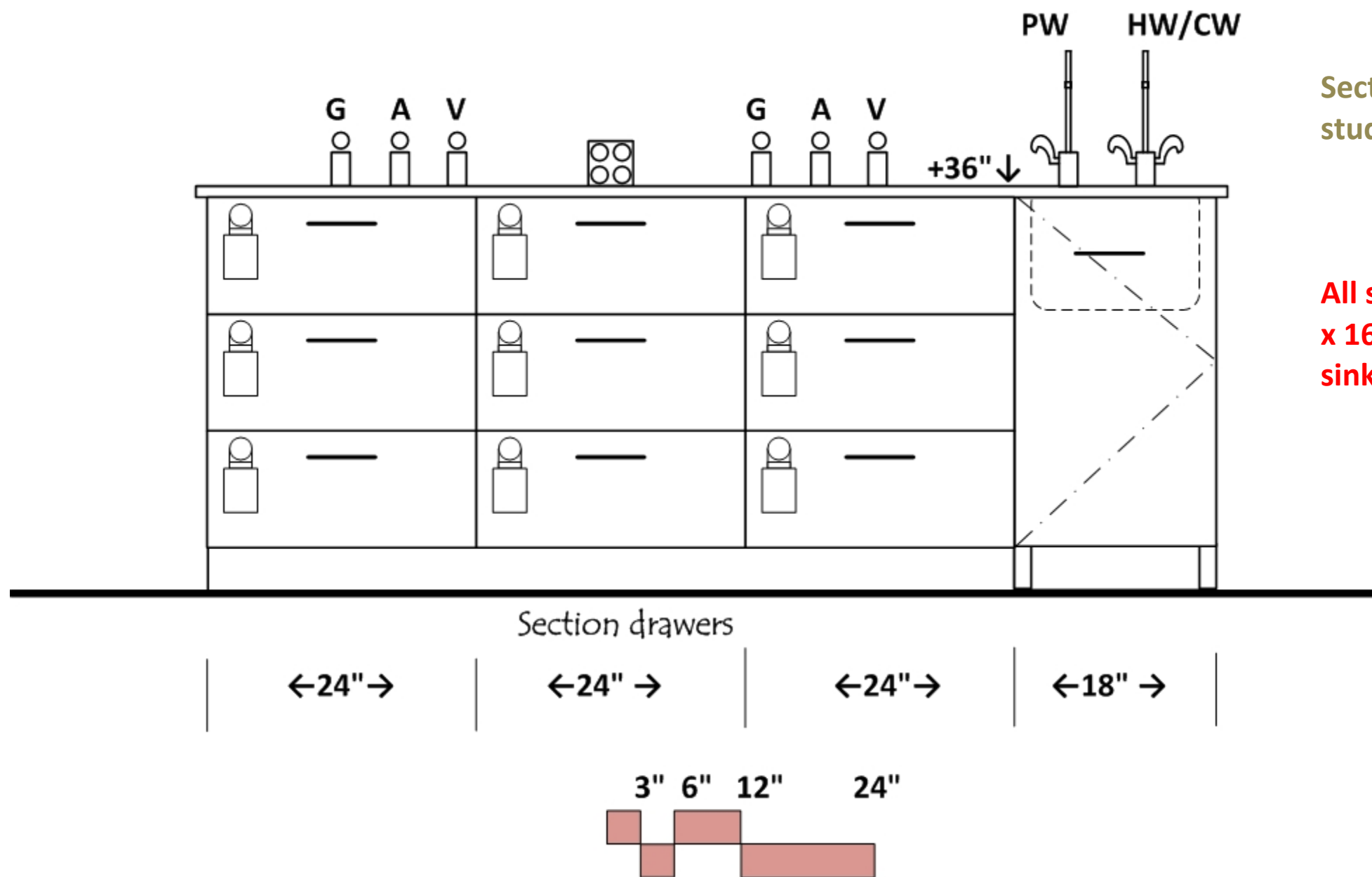
Section drawer dividers at all student island benches.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.



# General Chemistry Lab 1

## Elevation I



Section drawer dividers at all student island benches.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.

# Prep- Instrument Room

## Level 2 East Center

### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-0" acoustic tile  
 Doors: 3<sup>6</sup>x8<sup>0</sup> with window  
 Daylight: Clerestory window and/or view windows  
 Light attenuation: blinds at all windows  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Exhaust on emergency power supply  
 (6) air changes per hour occupied  
 (4) air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Maximum of 2 duplex or one fourplex per circuit in instrument room  
 Data & Wireless data  
 Emer power at fume hood exhaust  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 task lights below wall cabinets

### PLUMBING

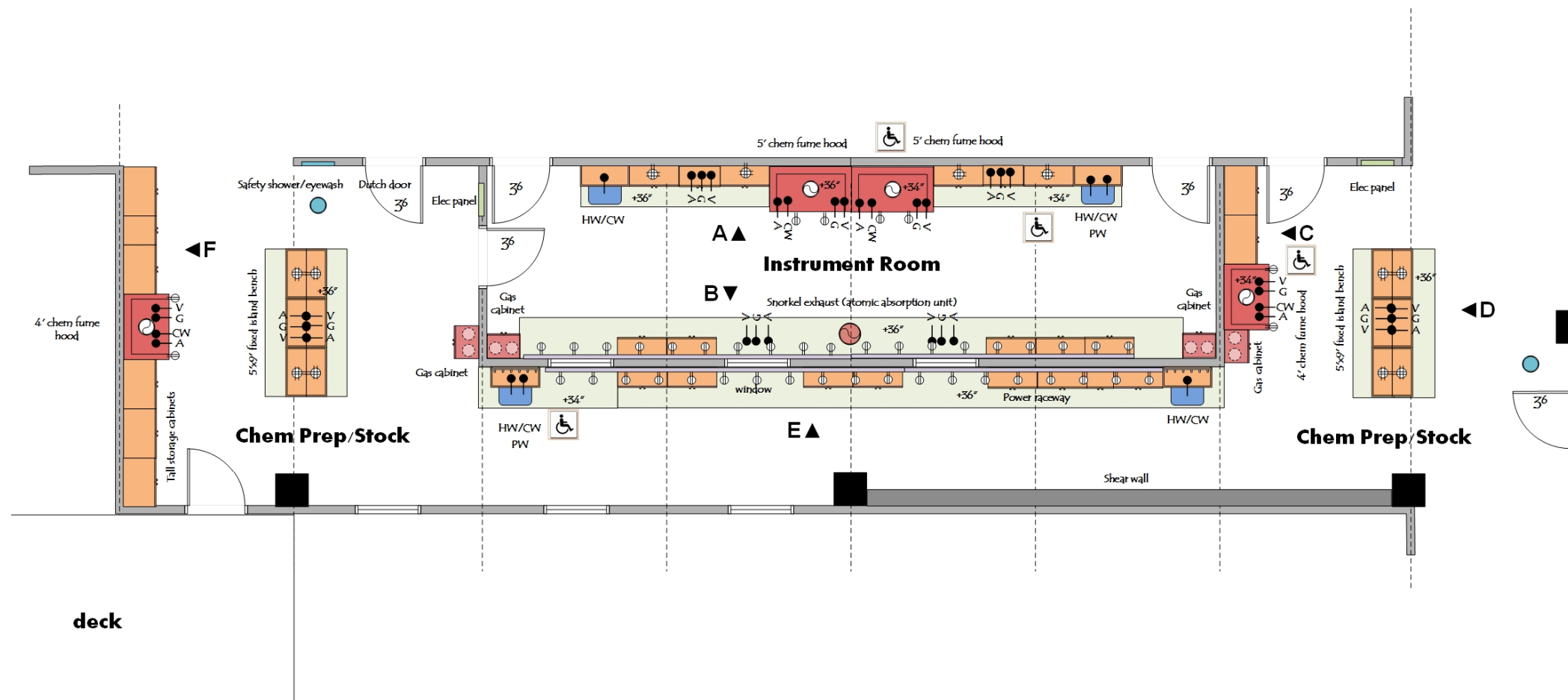
Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at sinks  
 Gas, Vac, Air at lab benches  
 Gas, Vac, Air and cold water at fume hoods

### CONTRACTOR FURNISHED EQUIPMENT

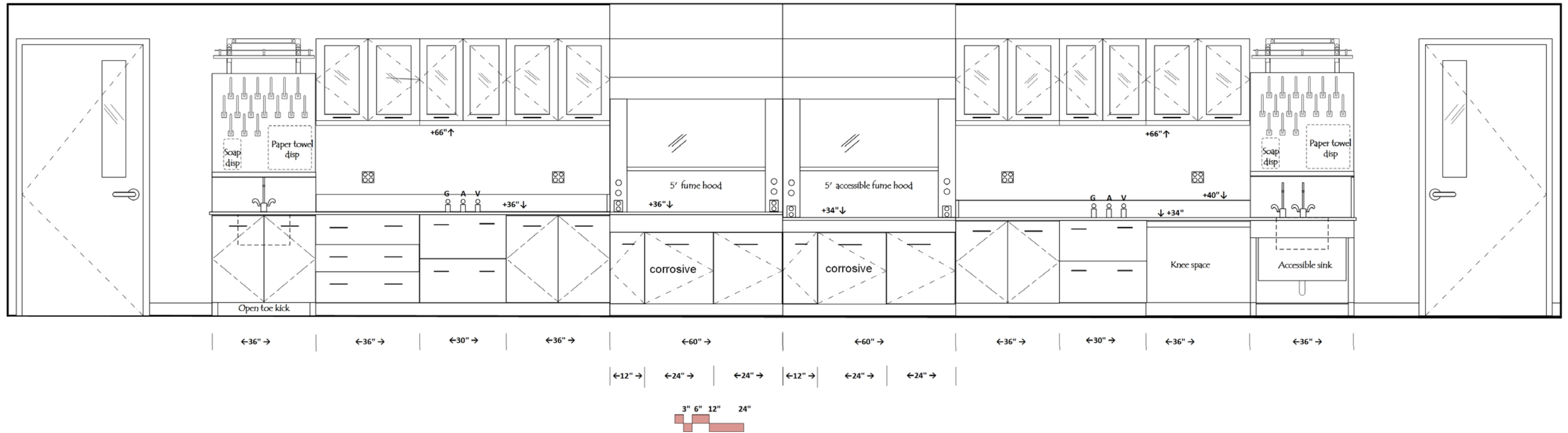
Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Tables  
 Resin tops and sinks; Faucets & fittings

### COLLEGE FURNISHED EQUIPMENT

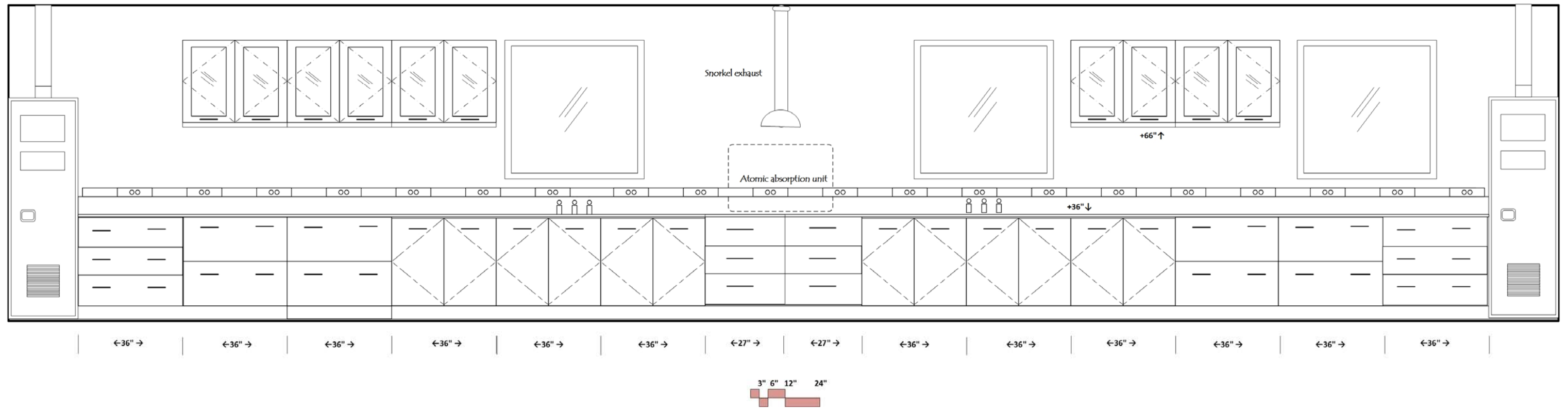
Chairs  
 Benchtop analytical instruments  
 Scientific equipment  
 paper towel dispenser



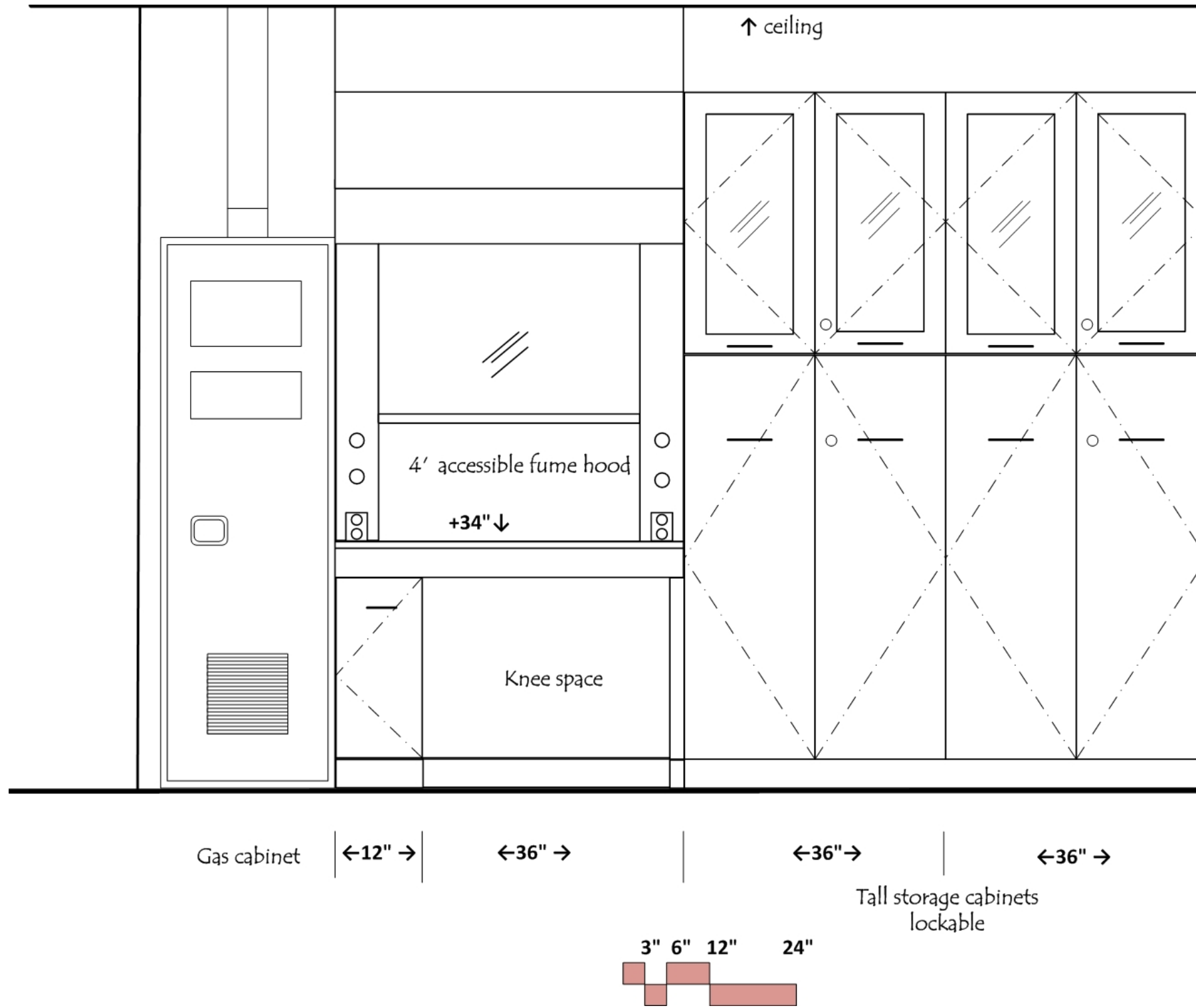
# Prep- Instrument Room Elevation A



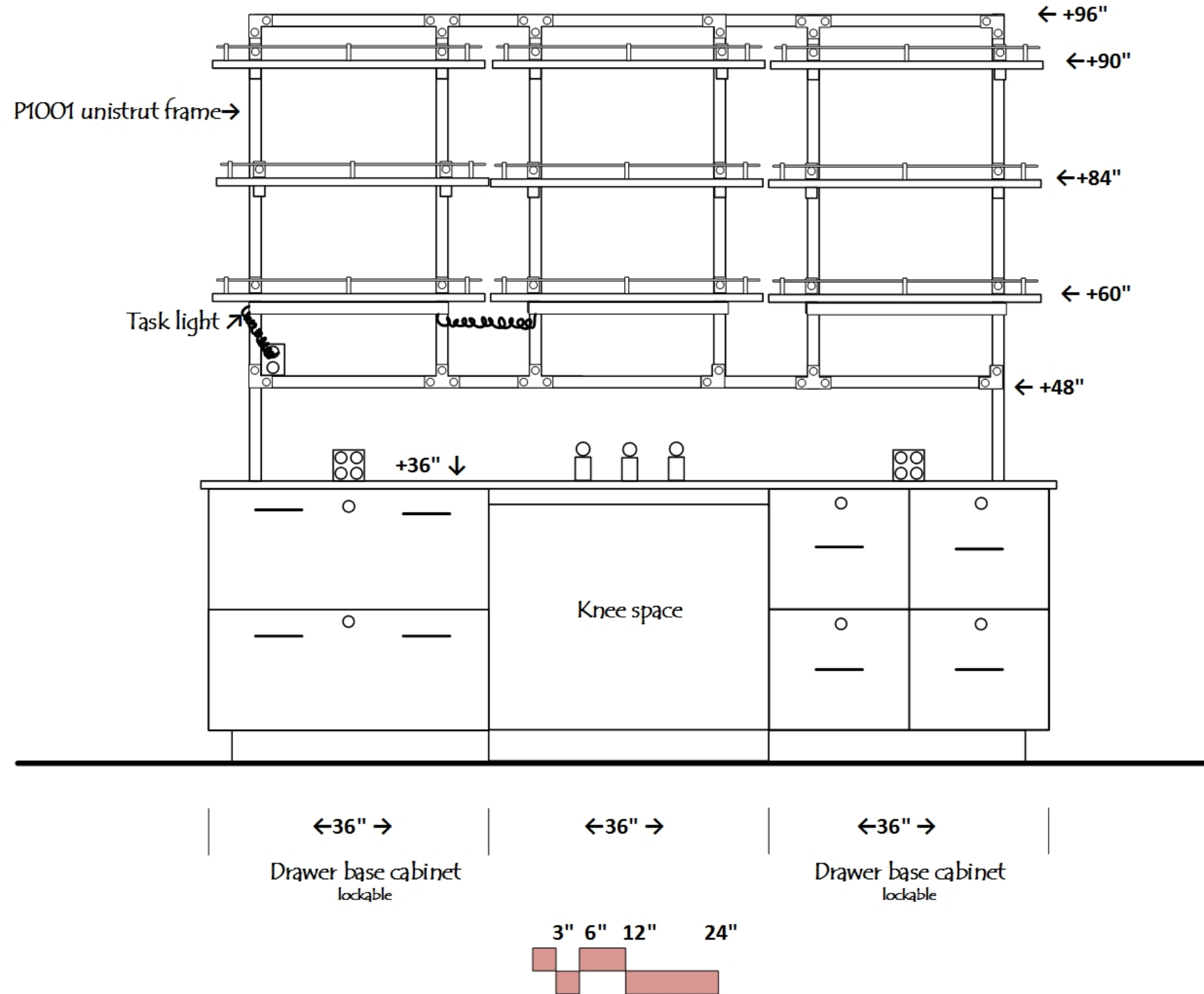
# Prep- Instrument Room Elevation B



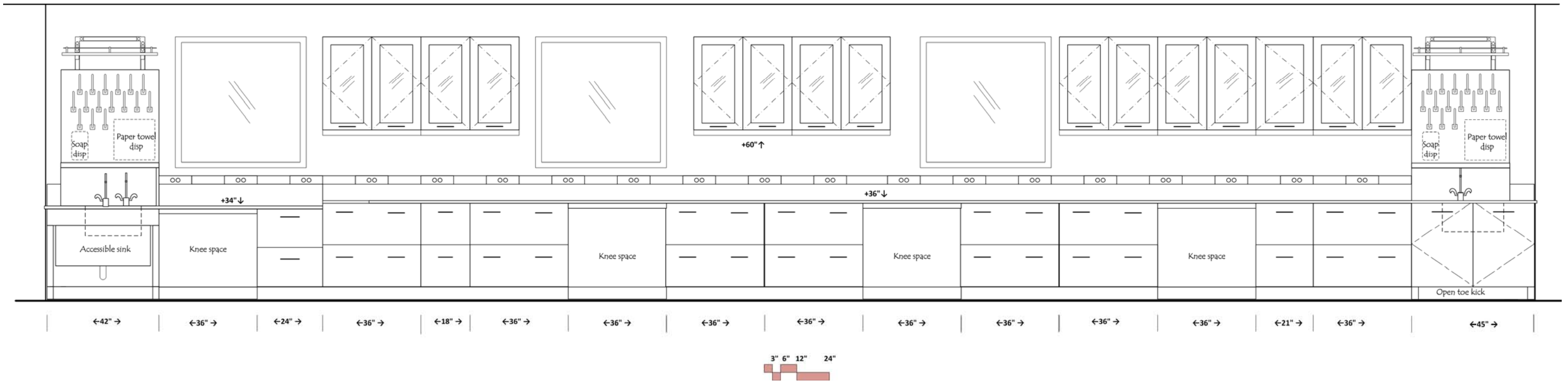
# Prep- Instrument Room Elevation C



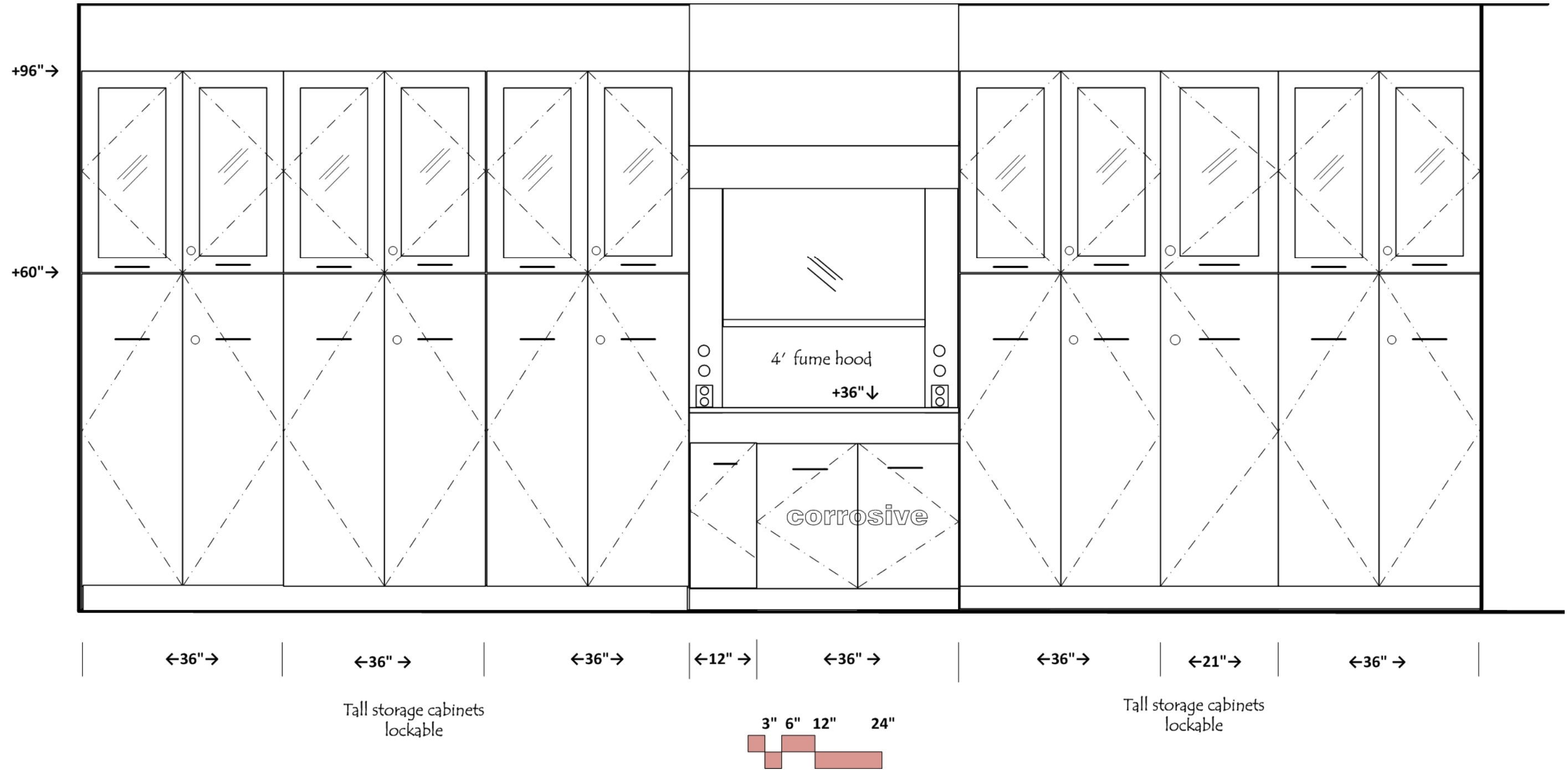
Prep- Instrument Room  
 Elevation D  
 Similar for opposite side of island



# Prep- Instrument Room Elevation E

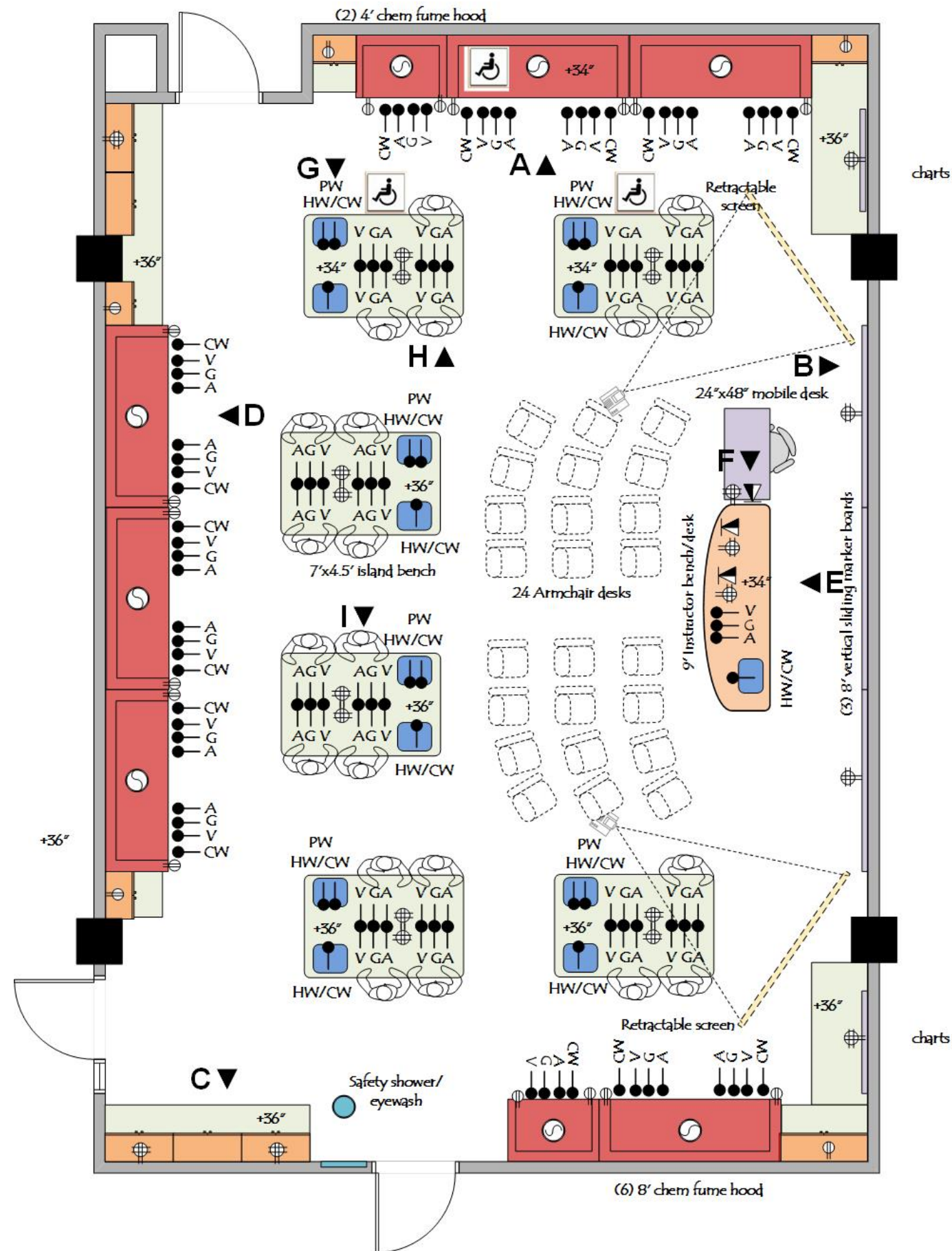


# Prep- Instrument Room Elevation F





# General Chemistry Lab 2 Level 2



## ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3'x8' with window  
 Daylight: solatubes at ceiling  
 Light attenuation: black out at windows (if any)  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

## STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

## MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Exhaust on emergency power supply  
 (6) air changes per hour occupied  
 (4) air changes per hour unoccupied  
 Pressure: Negative; Humidity: Ambient

## ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Data & Wireless data  
 Emer power at fume hood exhaust  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 task lights below wall cabinets  
 Provide light switches at instructor's bench and at each door  
 Separate lighting for marker board wall

## PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at sinks  
 Gas, Vac, Air at each student station  
 (2)gas, (2)vac, (2)air, (2) cold water at each 8' fume hood  
 (1) gas, (1) vac, (1) air, (1) cold water at each 4' fume hood

## CONTRACTOR FURNISHED EQUIPMENT

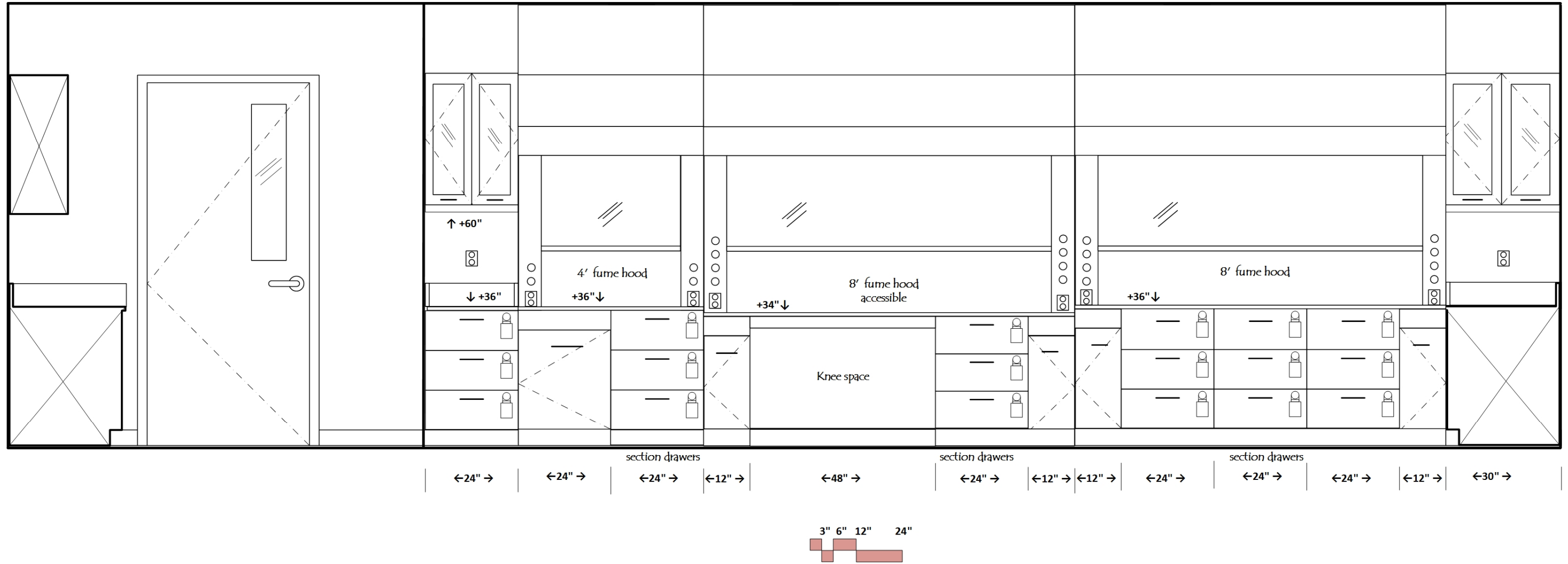
Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 192 section drawers requested- 201 section drawers shown on elevations  
 Resin tops and sinks; Faucets & fittings  
 marker boards; projector screens  
 projection system

## COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchtop analytical instruments  
 Scientific equipment

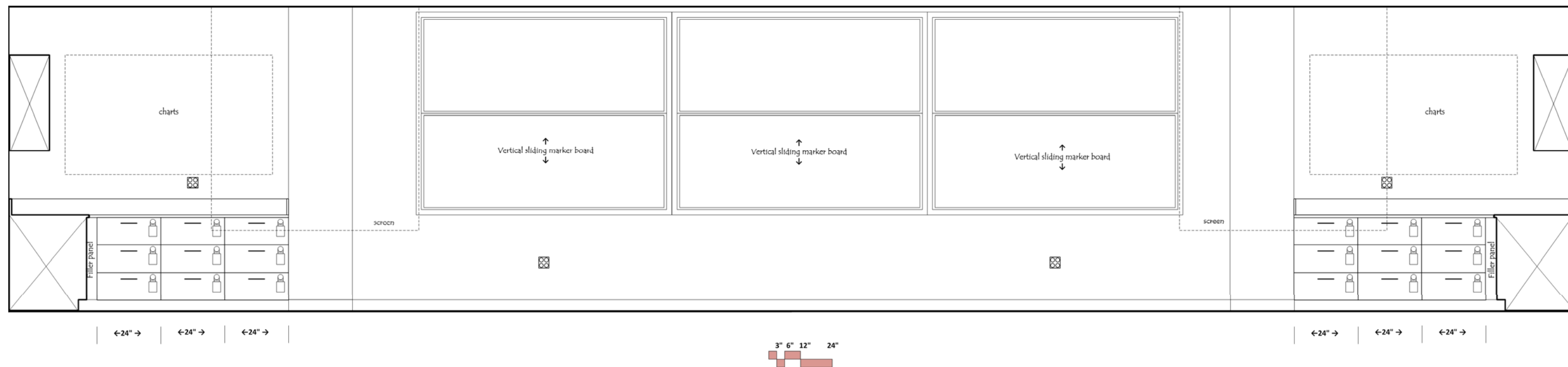
# General Chemistry Lab 2

## Elevation A



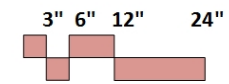
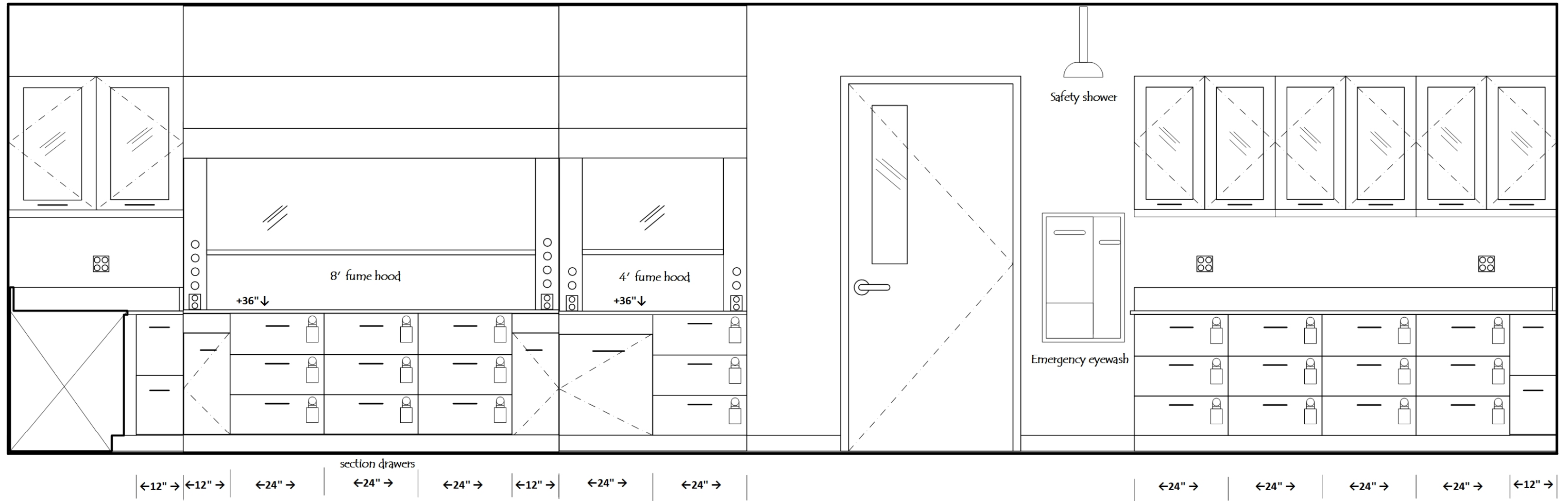
# General Chemistry Lab 2

## Elevation B



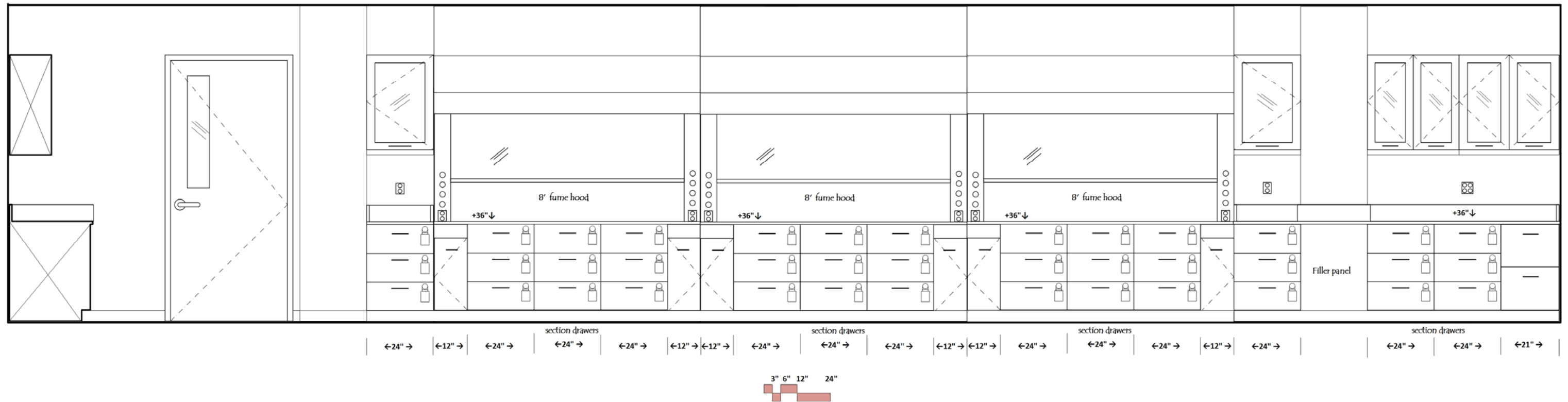
# General Chemistry Lab 2

## Elevation C



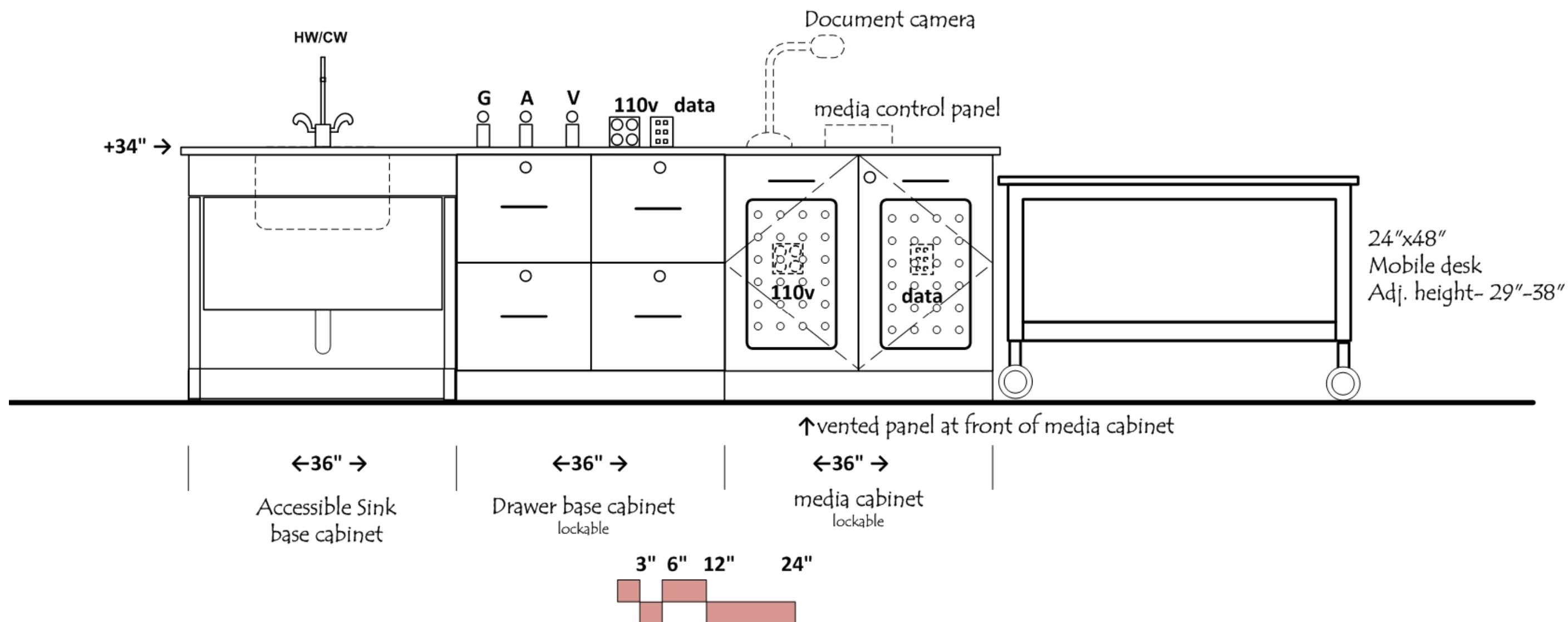
# General Chemistry Lab 2

## Elevation D



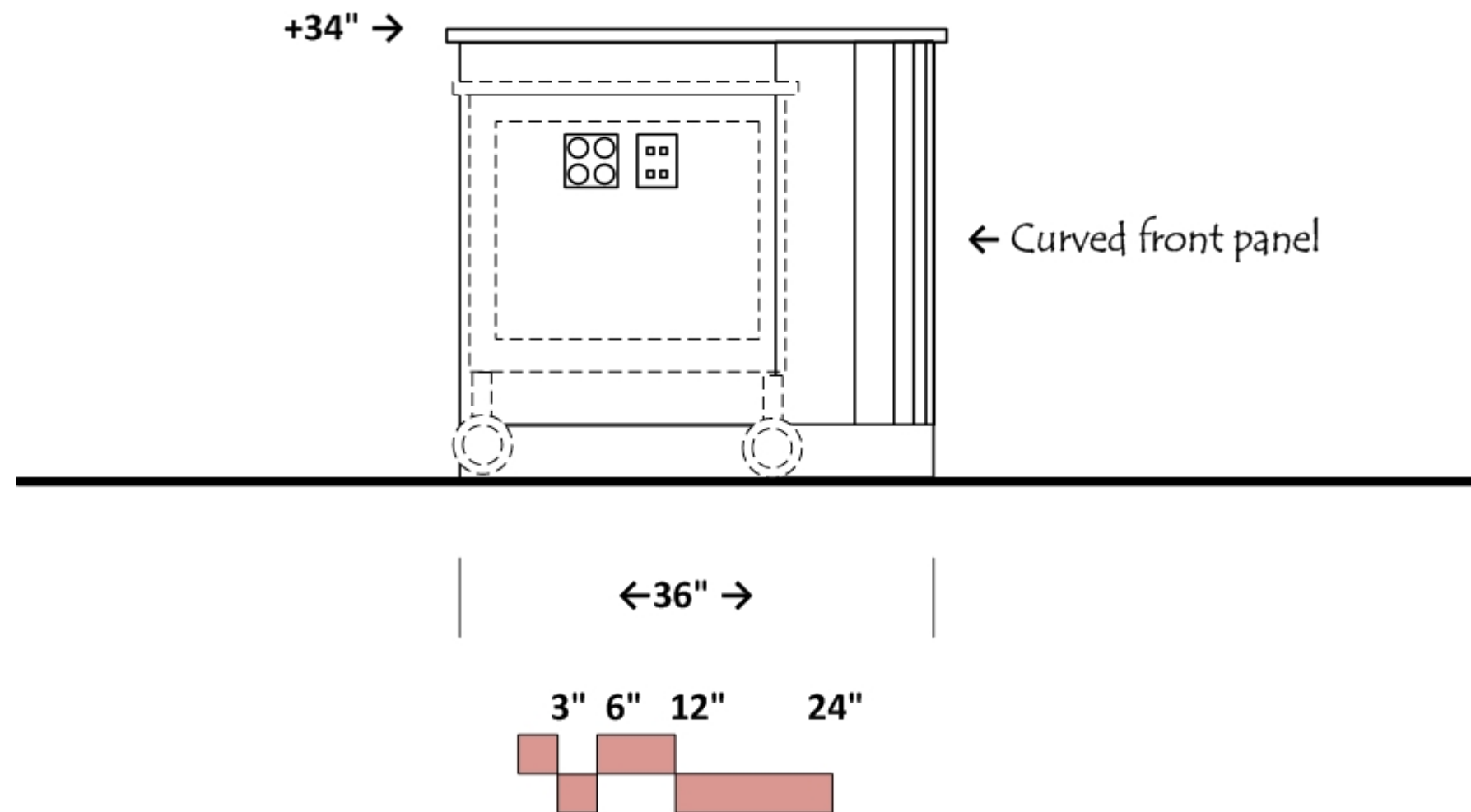
# General Chemistry Lab 2

## Elevation E



# General Chemistry Lab 2

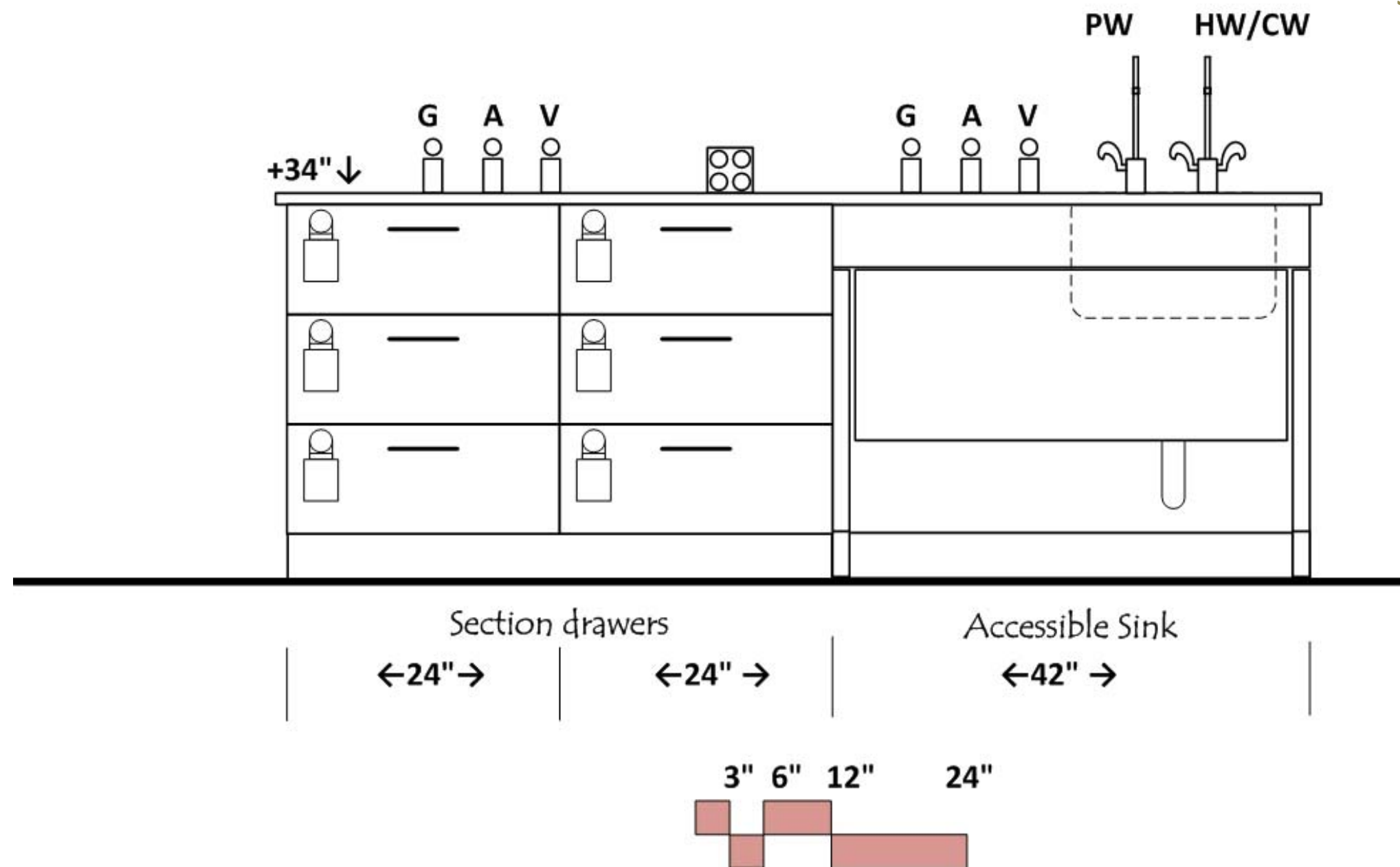
## Elevation F



# General Chemistry Lab 2

## Elevation G

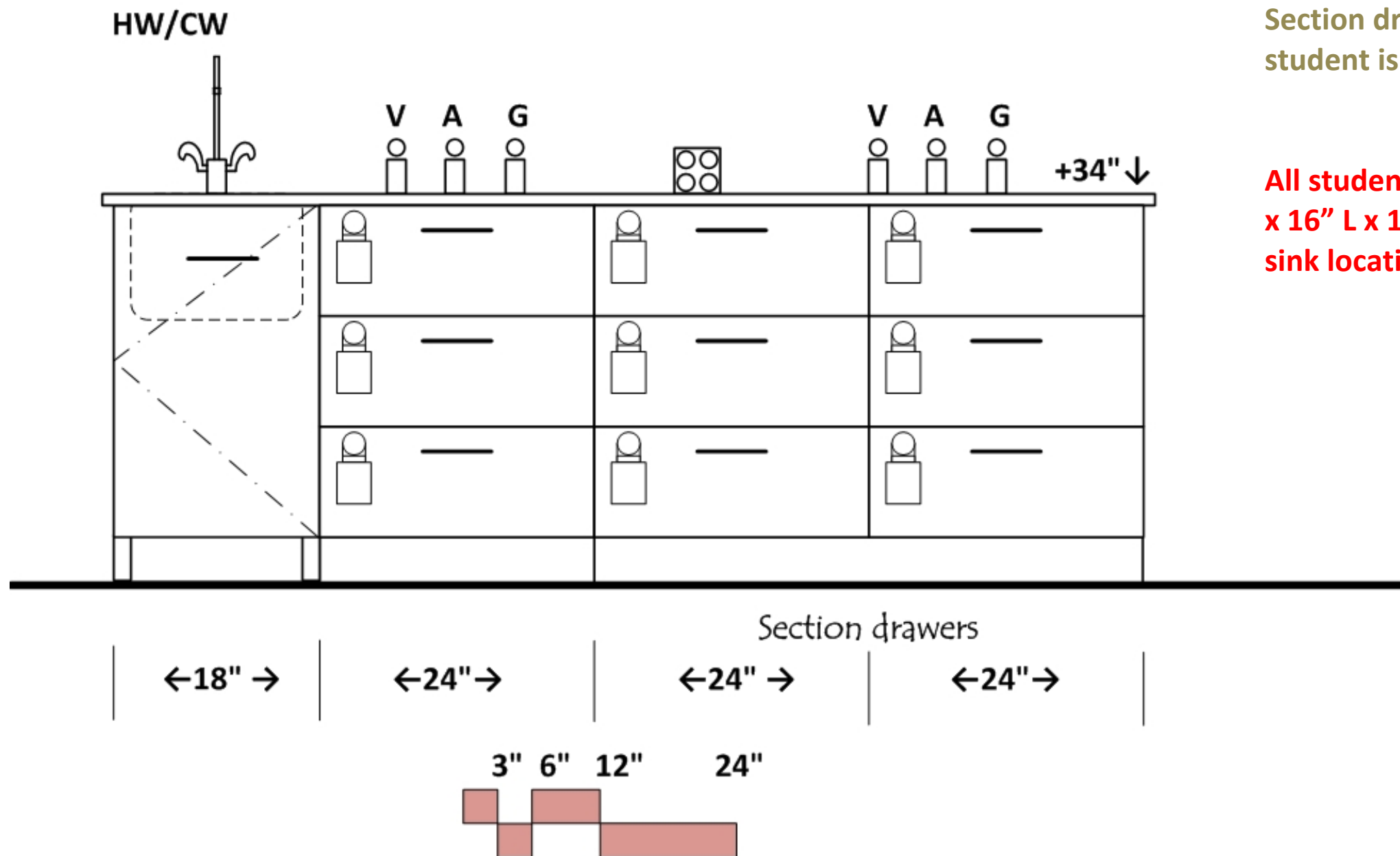
Section drawer dividers at all student island benches





# General Chemistry Lab 2

## Elevation H

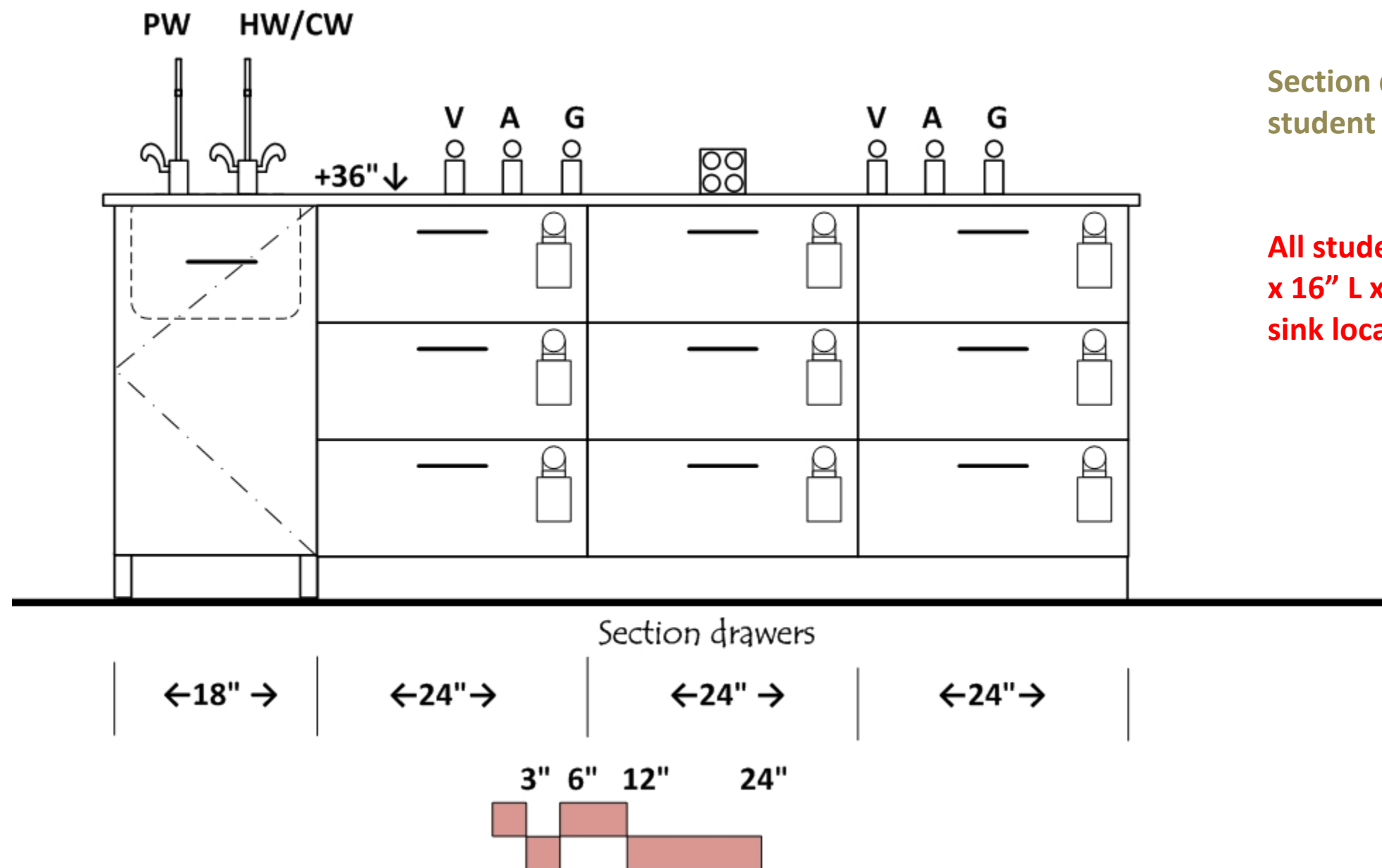


Section drawer dividers at all student island benches.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.

# General Chemistry Lab 2

## Elevation I

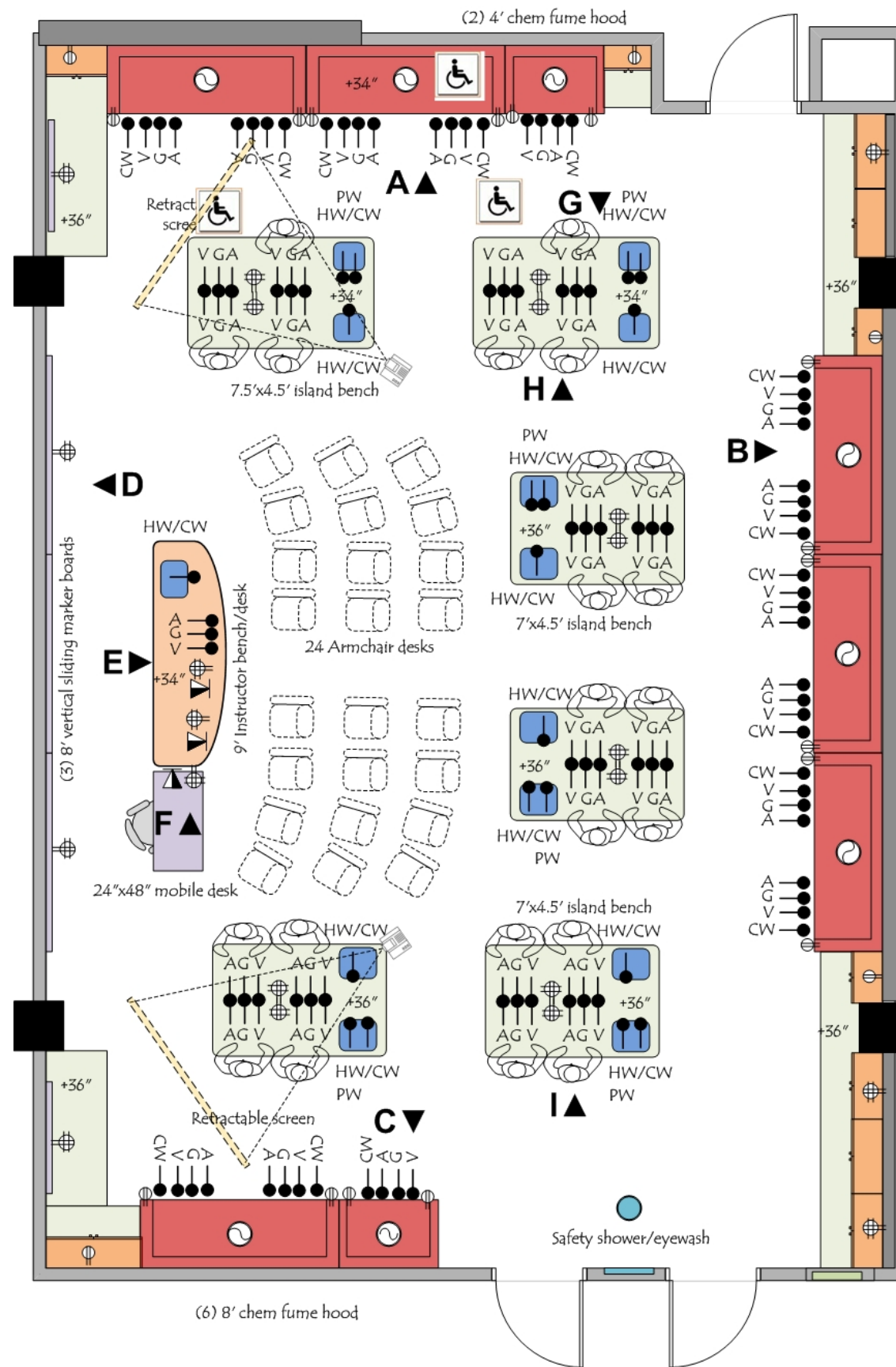


Section drawer dividers at all student island benches.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.

# General Chemistry Lab 3

## Level 2 East



### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-6" acoustic tile  
 Doors: 3'x8' with window  
 Daylight: solatubes at ceiling  
 Light attenuation: black out at windows (if any)  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Exhaust on emergency power supply  
 (6) air changes per hour occupied  
 (4) air changes per hour unoccupied  
 Pressure: Negative; Humidity: Ambient

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Data & Wireless data  
 Emer power at fume hood exhaust  
 Lighting: indirect fluorescent @ 60 f.c. with multi-level switching  
 task lights below wall cabinets  
 Provide light switches at instructor's bench and at each door  
 Separate lighting for marker board wall

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at sinks  
 Gas, Vac, Air at each student station  
 (2)gas, (2)vac, (2)air, (2) cold water at each 8' fume hood  
 (1) gas, (1) vac, (1) air, (1) cold water at each 4' fume hood

### CONTRACTOR FURNISHED EQUIPMENT

Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 168 section drawers requested- 201 section drawers shown on elevations  
 Resin tops and sinks; Faucets & fittings  
 marker boards; projector screens  
 projection system

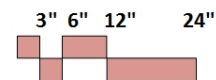
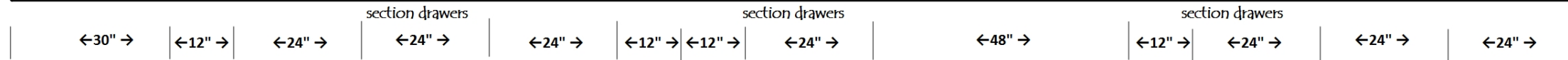
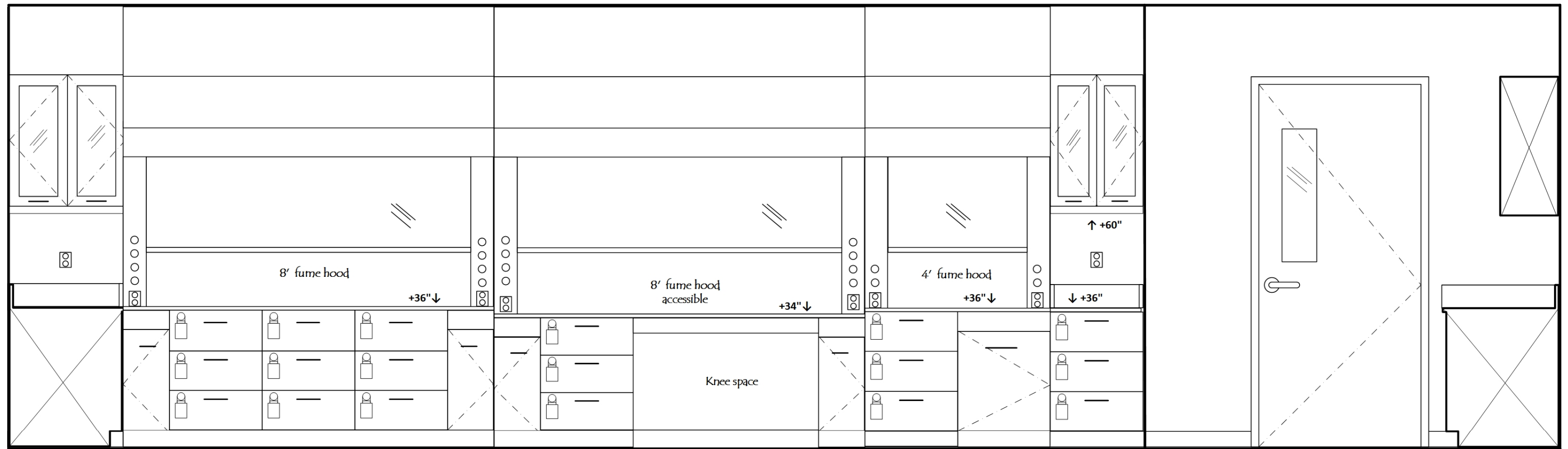
### COLLEGE FURNISHED EQUIPMENT

Chairs  
 Benchtop analytical instruments  
 Scientific equipment

# General Chemistry Lab 3

## Elevation A

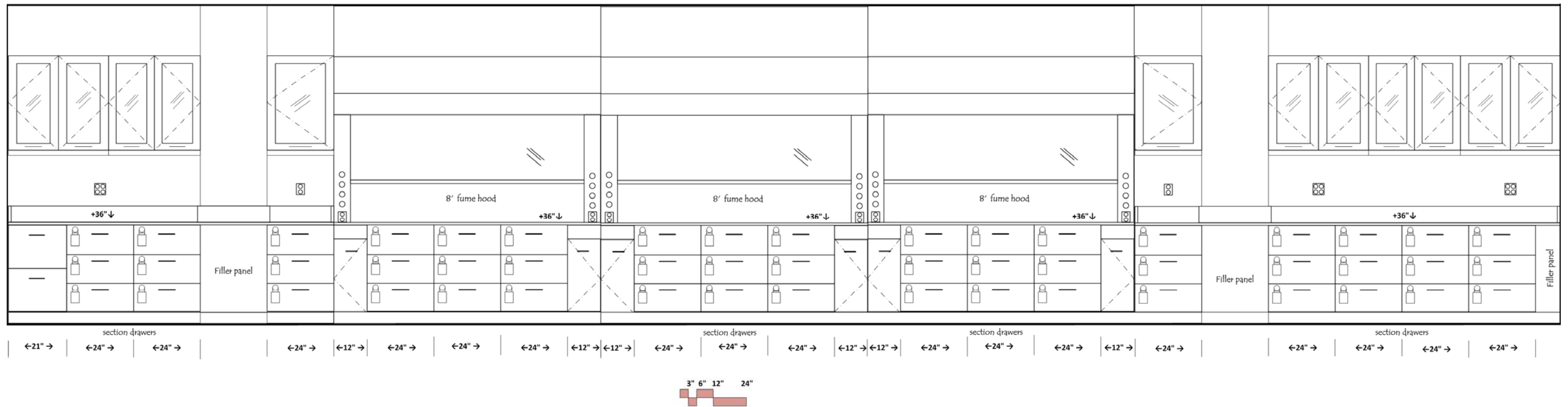
Section drawer dividers at all student island benches and at perimeter section drawers



# General Chemistry Lab 3

## Elevation B

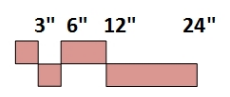
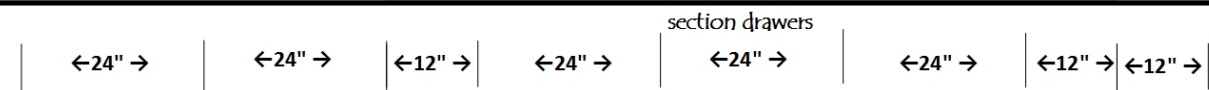
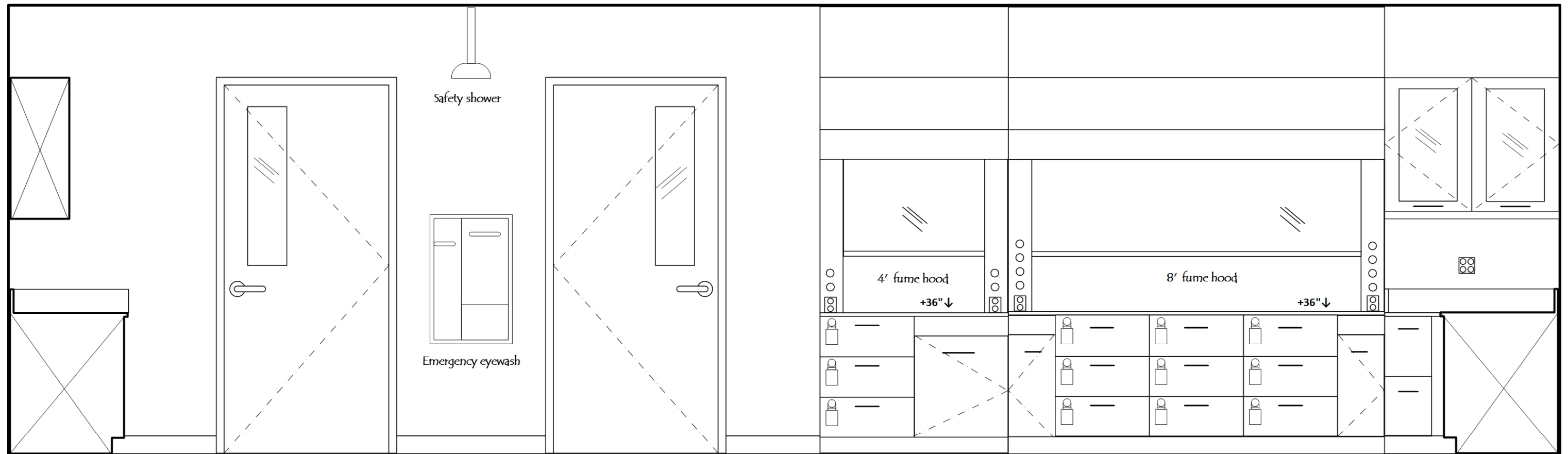
Section drawer dividers at all student island benches and at perimeter section drawers



# General Chemistry Lab 3

## Elevation C

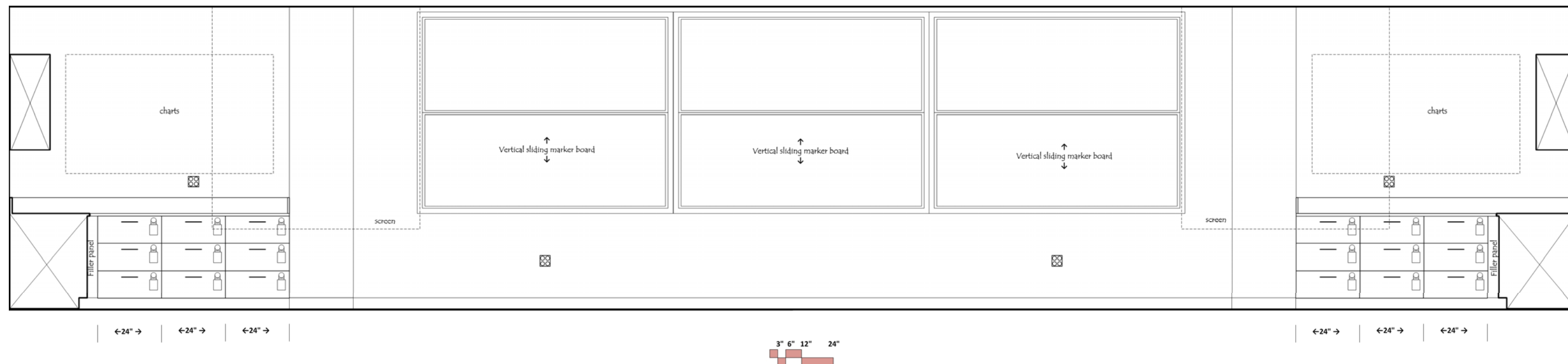
Section drawer dividers at all student island benches and at perimeter section drawers



# General Chemistry Lab 3

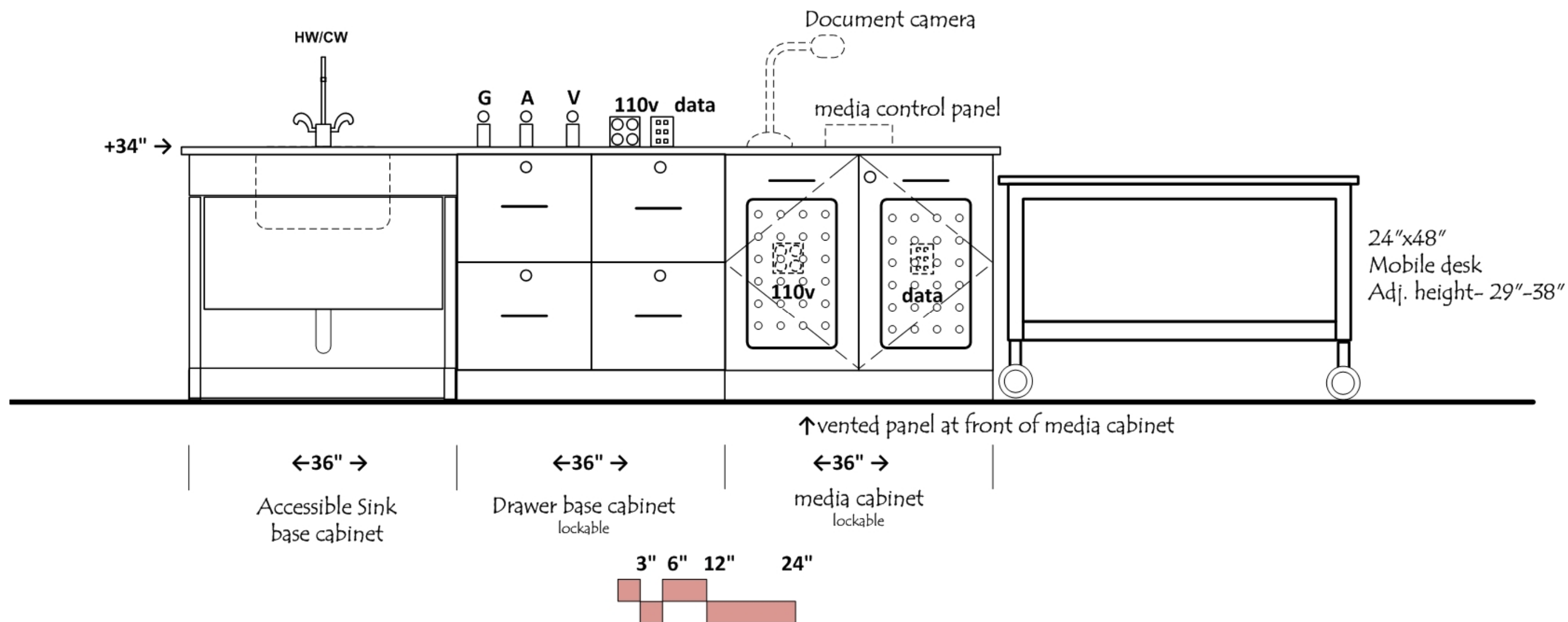
## Elevation D

Section drawer dividers at all student island benches and at perimeter section drawers



# General Chemistry Lab 3

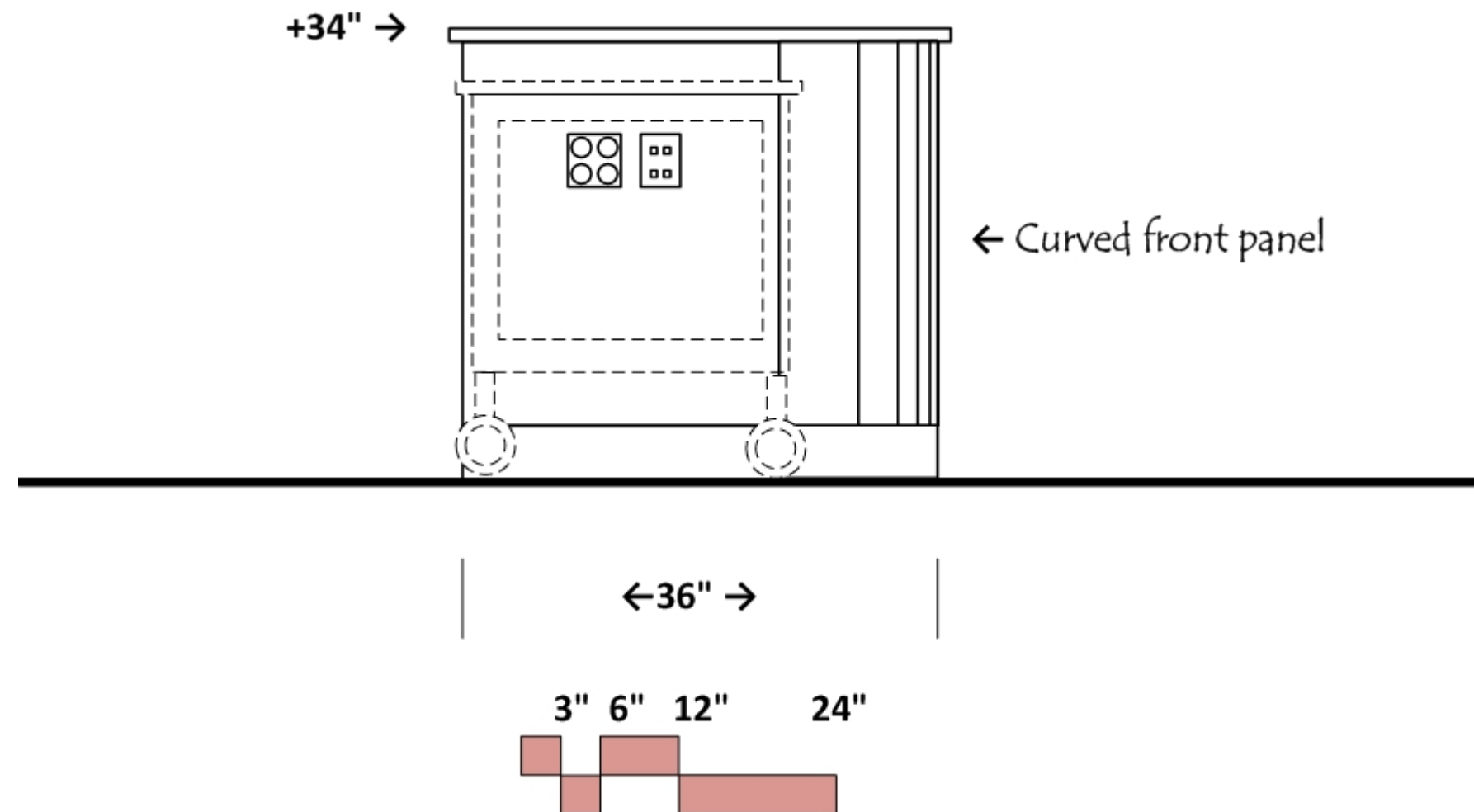
## Elevation E





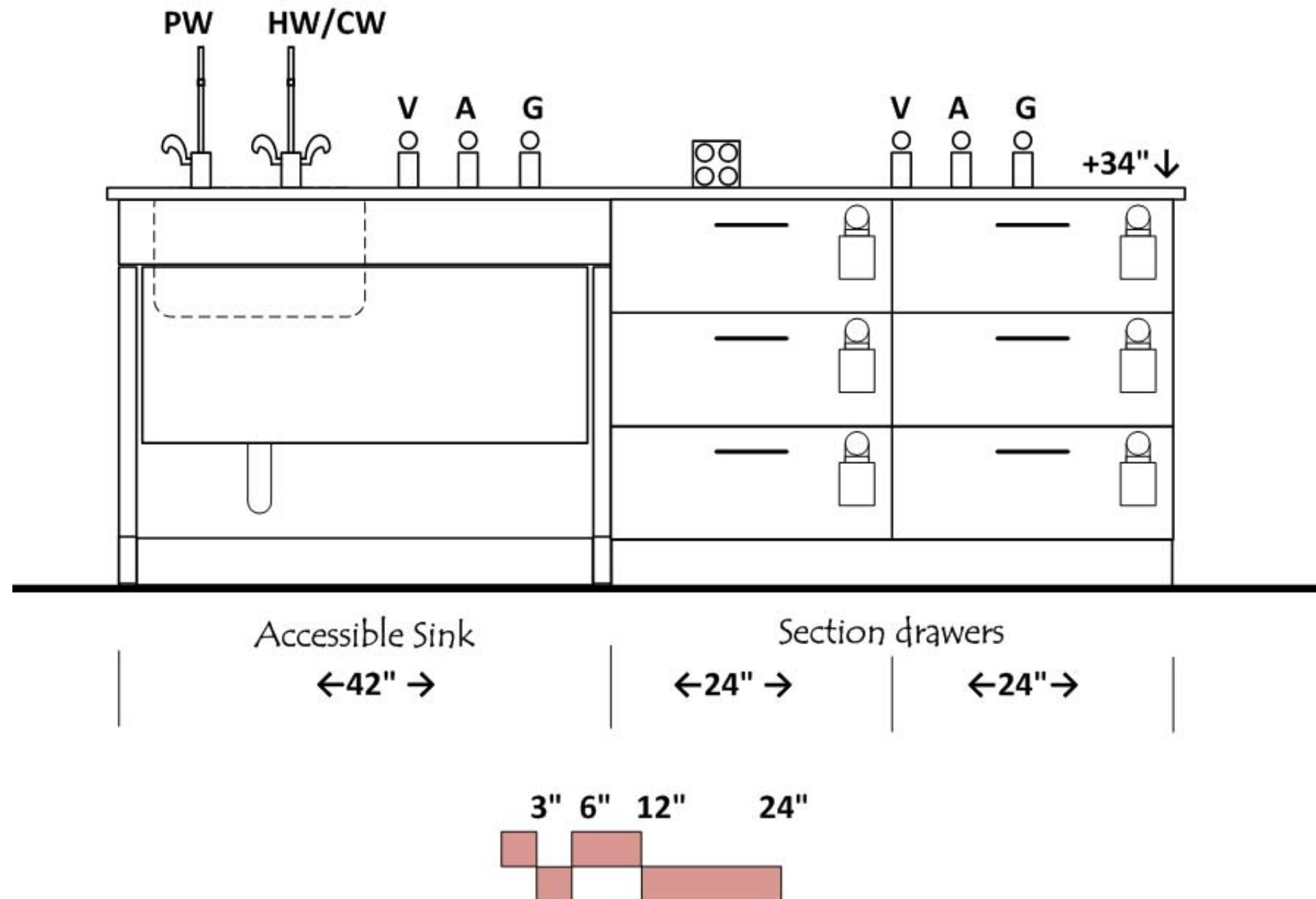
# General Chemistry Lab 3

## Elevation F



# General Chemistry Lab 3

## Elevation G



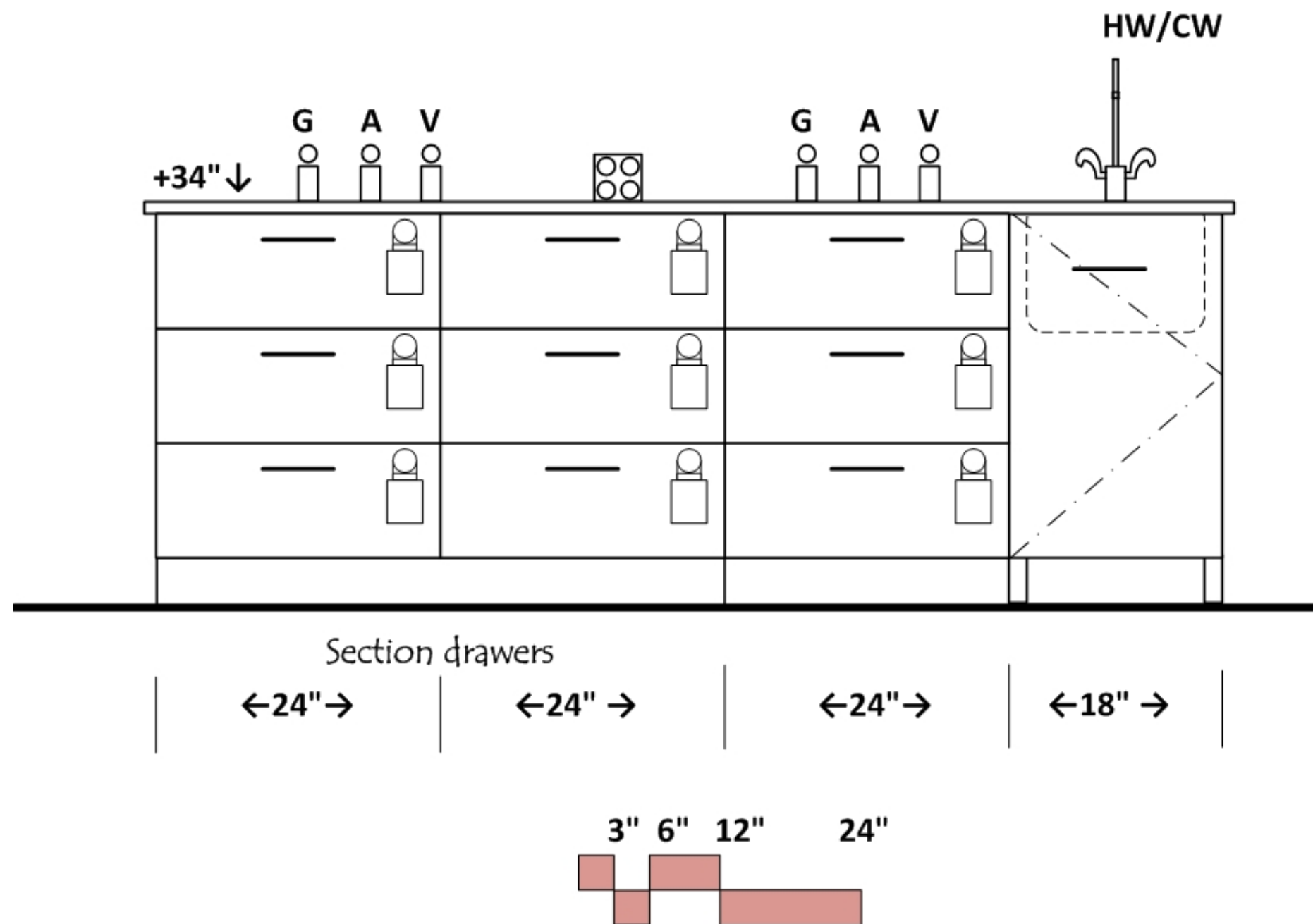
Section drawer dividers at all student island benches and at perimeter section drawers

# General Chemistry Lab 3

## Elevation H

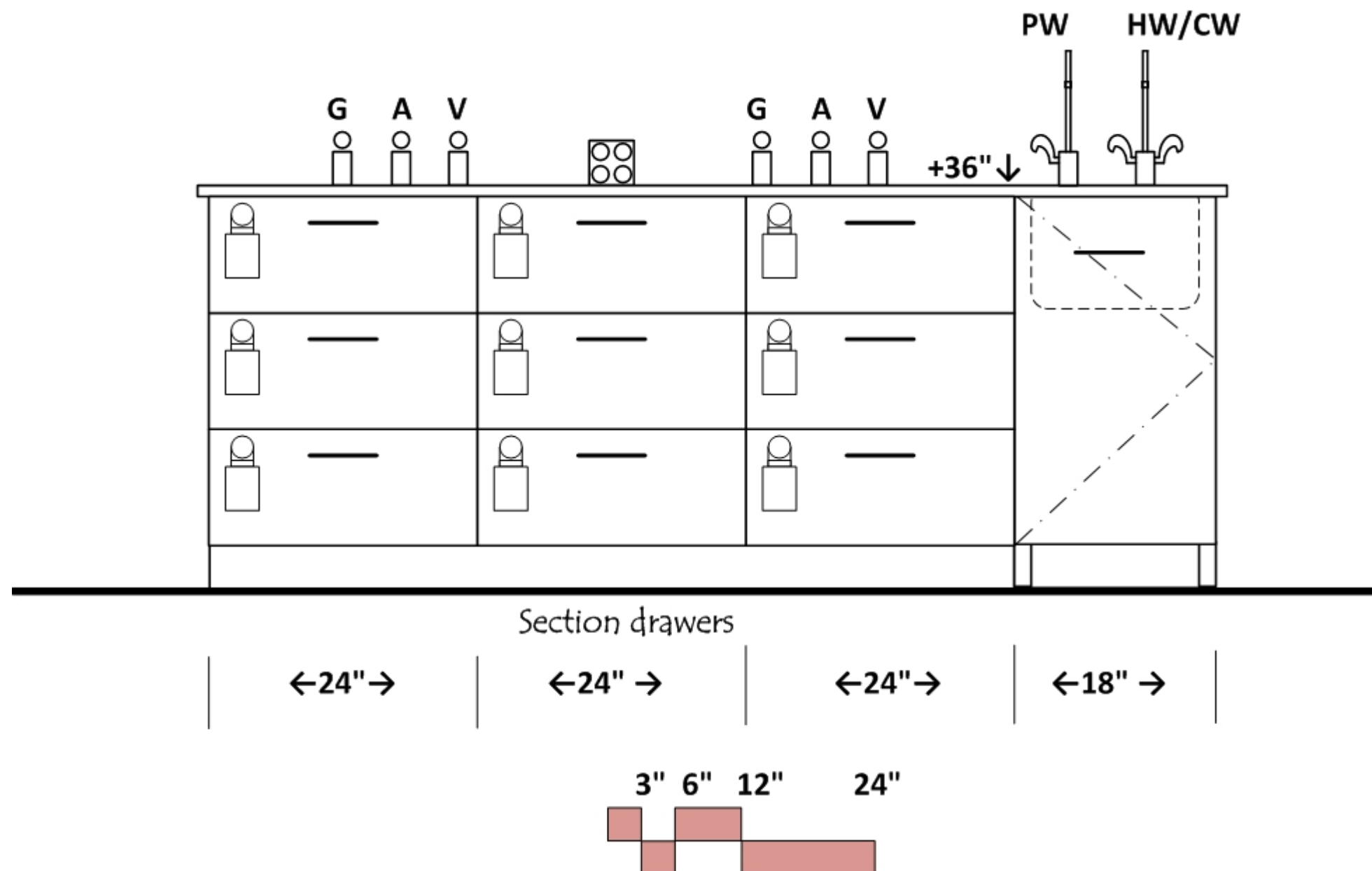
Section drawer dividers at all student island benches and at perimeter section drawers.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.



# General Chemistry Lab 3

## Elevation I

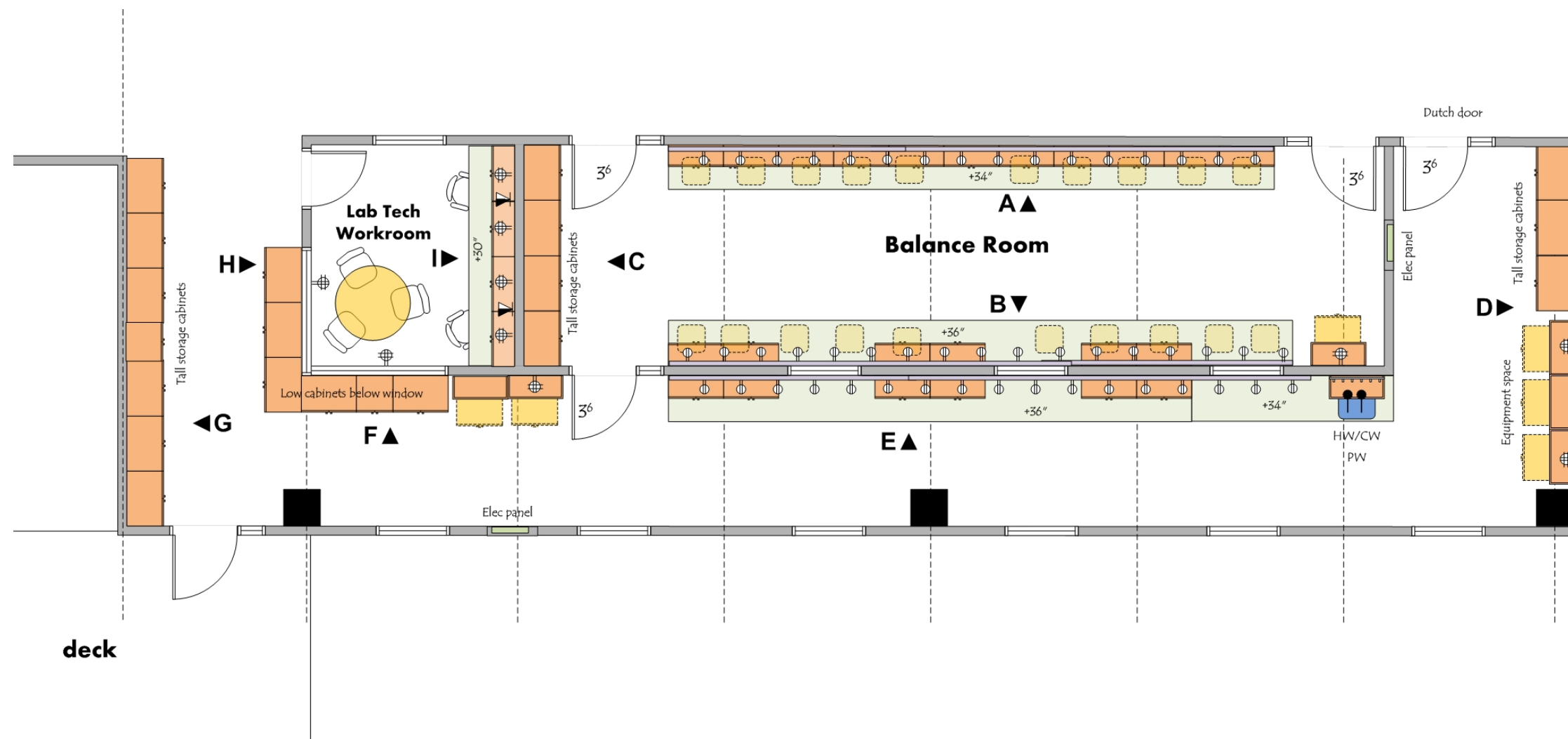


Section drawer dividers at all student island benches and at perimeter section drawers.

All student island sinks to be 16" W x 16" L x 15" D, except at accessible sink locations.

# Prep- Balance Room

## Level 2 East



### ARCHITECTURAL

Occupancy: B  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 9'-0" acoustic tile  
 Doors: 3<sup>6</sup>x8<sup>0</sup>with window  
 Daylight: Clerestory window and/or view windows  
 Light attenuation: blinds at all windows  
 Acoustic Attenuation: NC 40 or less  
 Security: key or card key access

### STRUCTURAL

Vibration attenuation: 4,000 micro inches/sec or less

### MECHANICAL

Hours of operation: 6 am to 11 pm  
 Temperature: : 66-74 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Exhaust on emergency power supply  
 (6) air changes per hour occupied  
 (4) air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient  
 Air supply diffusers to be located such that they do not blow air onto balance locations at benchtop

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Data & Wireless data  
 208v power at equipment space in prep area  
 Lighting: indirect fluorescent @ 60 f.c.  
 task lights below wall cabinets

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water (PW) at sinks

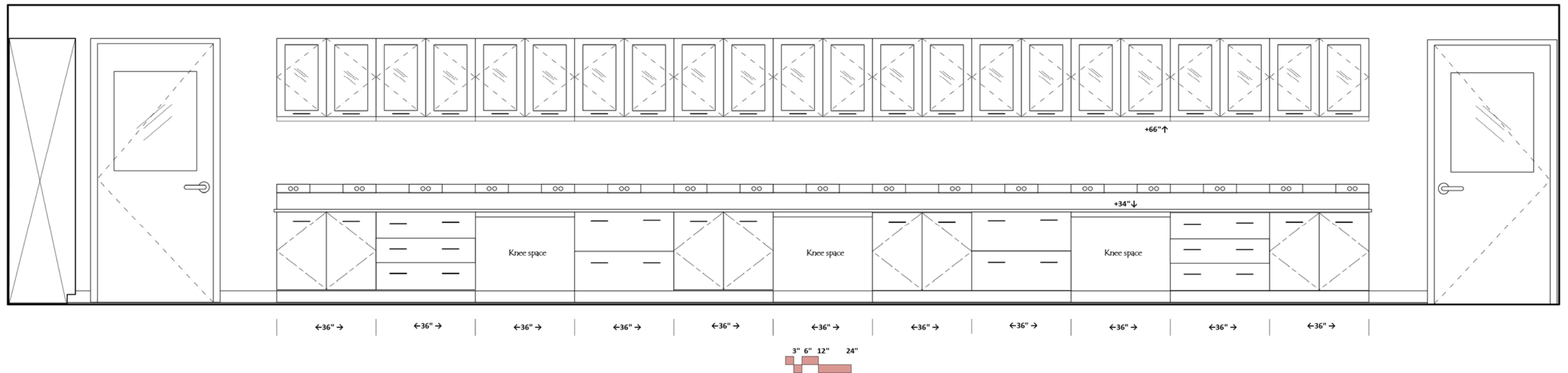
### CONTRACTOR FURNISHED EQUIPMENT

Wood casework (bamboo)- base cabinets, wall cabinets, tall cabinets  
 Tables  
 Resin tops and sinks; Faucets & fittings

### COLLEGE FURNISHED EQUIPMENT

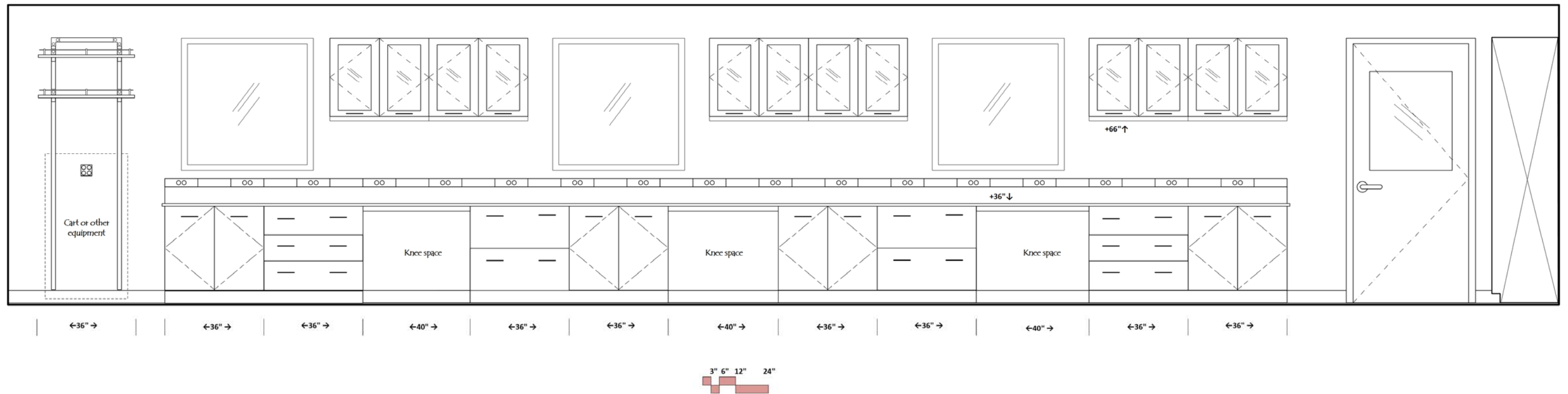
Chairs  
 Benchtop analytical instruments  
 Scientific equipment  
 paper towel dispenser

# Prep- Balance Room Elevation A



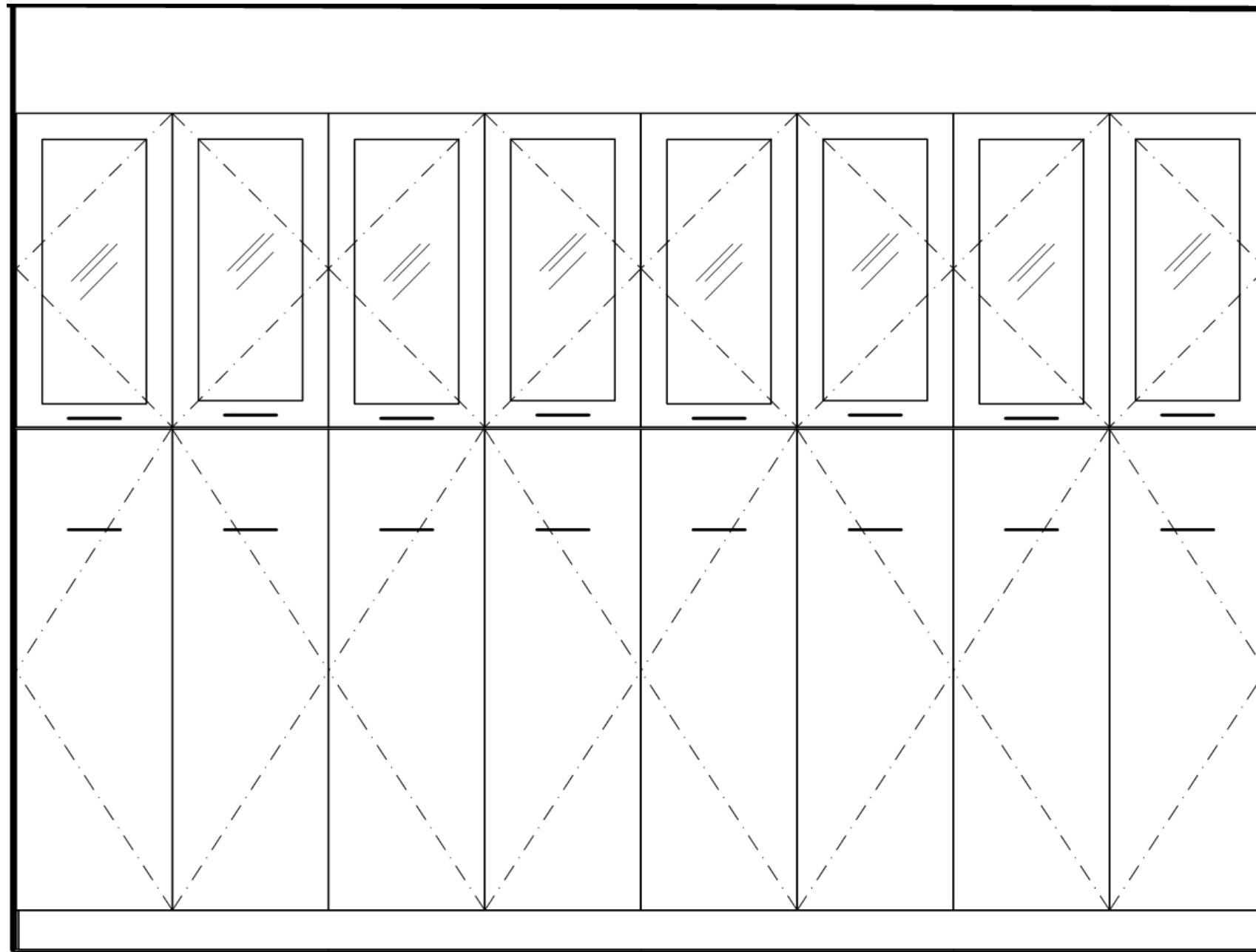
# Prep- Balance Room

## Elevation B



# Prep- Balance Room

## Elevation C

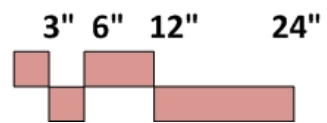


←36" →

←36" →

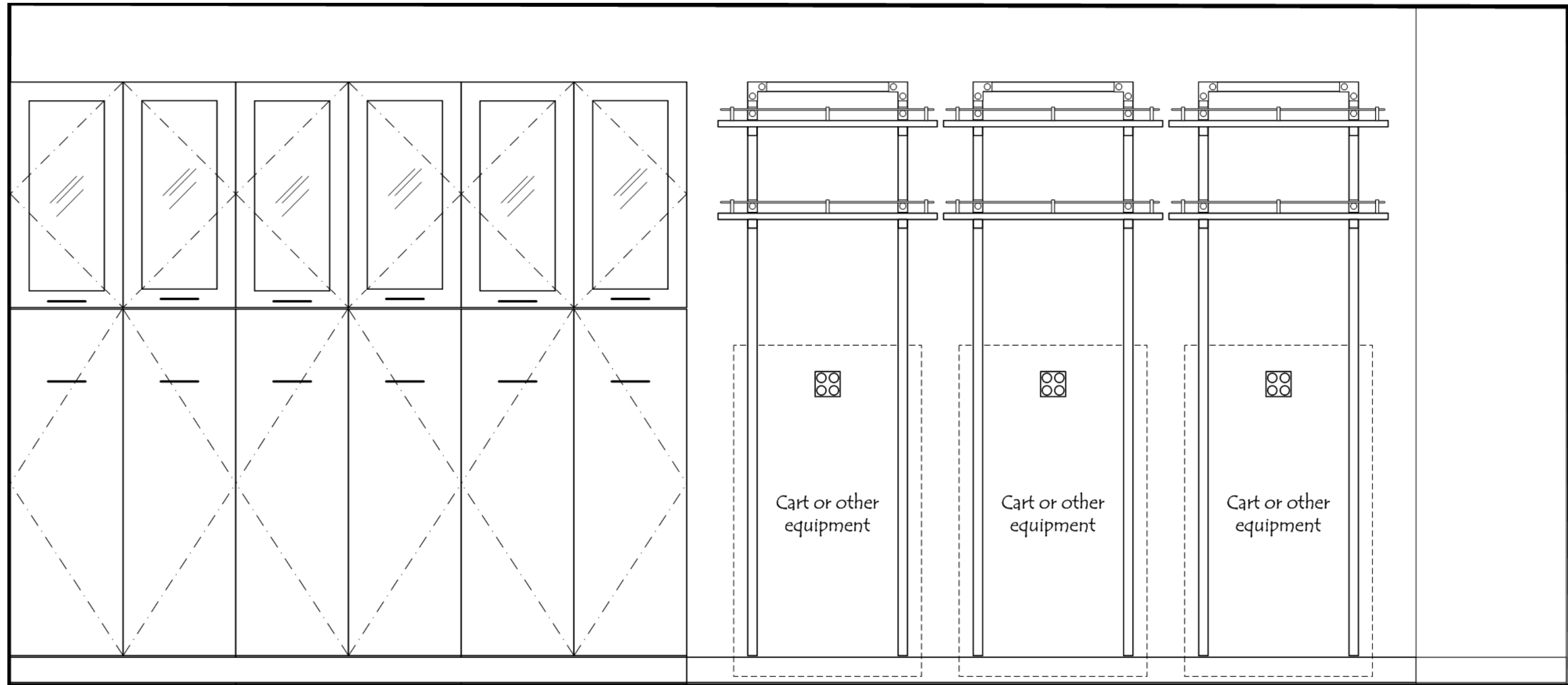
←36" →

←36" →





# Prep- Balance Room Elevation D



←36" →

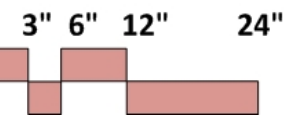
←36" →

←36" →

←36" →

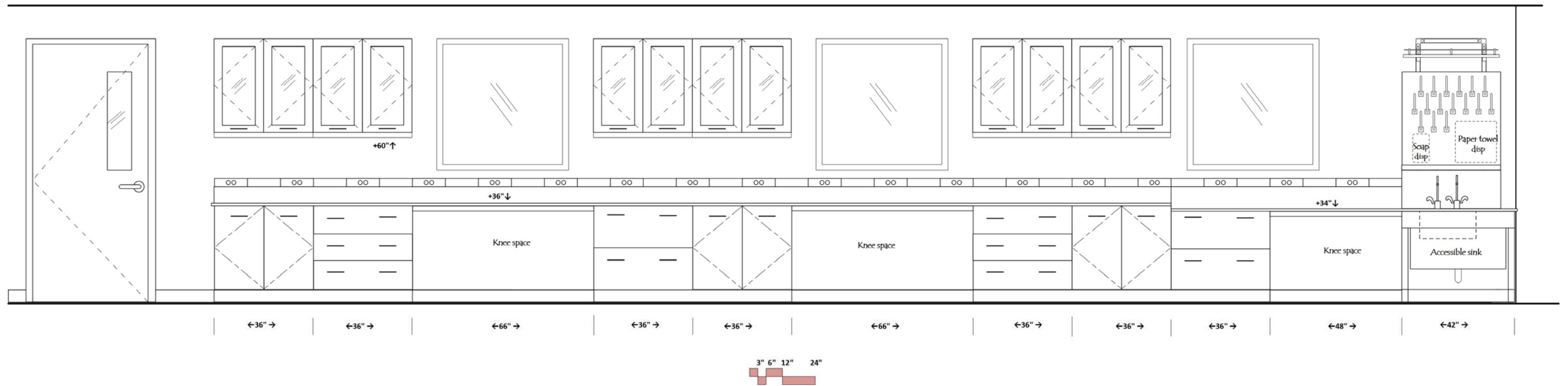
←36" →

←36" →



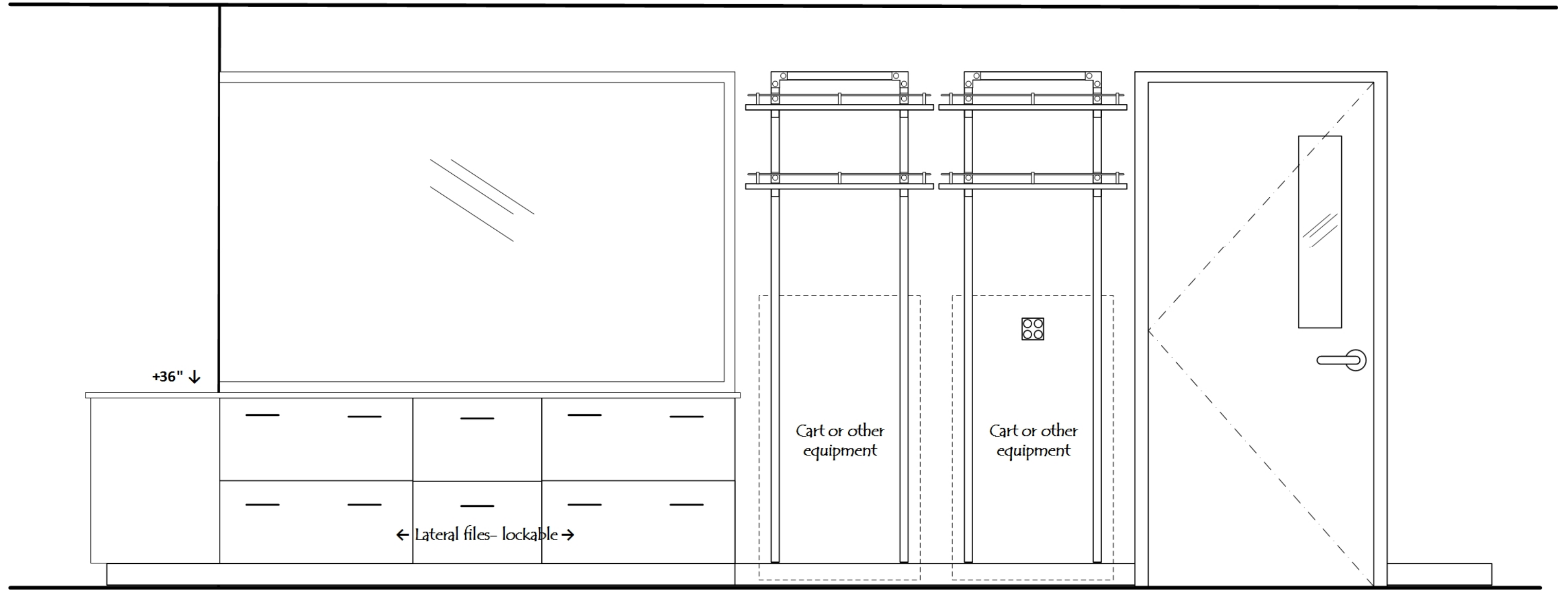
# Prep- Balance Room

## Elevation E



# Prep- Balance Room

## Elevation F



+36" ↓

← Lateral files- lockable →

Cart or other equipment

Cart or other equipment

←24" →

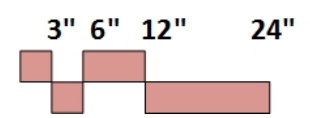
←36" →

←24" →

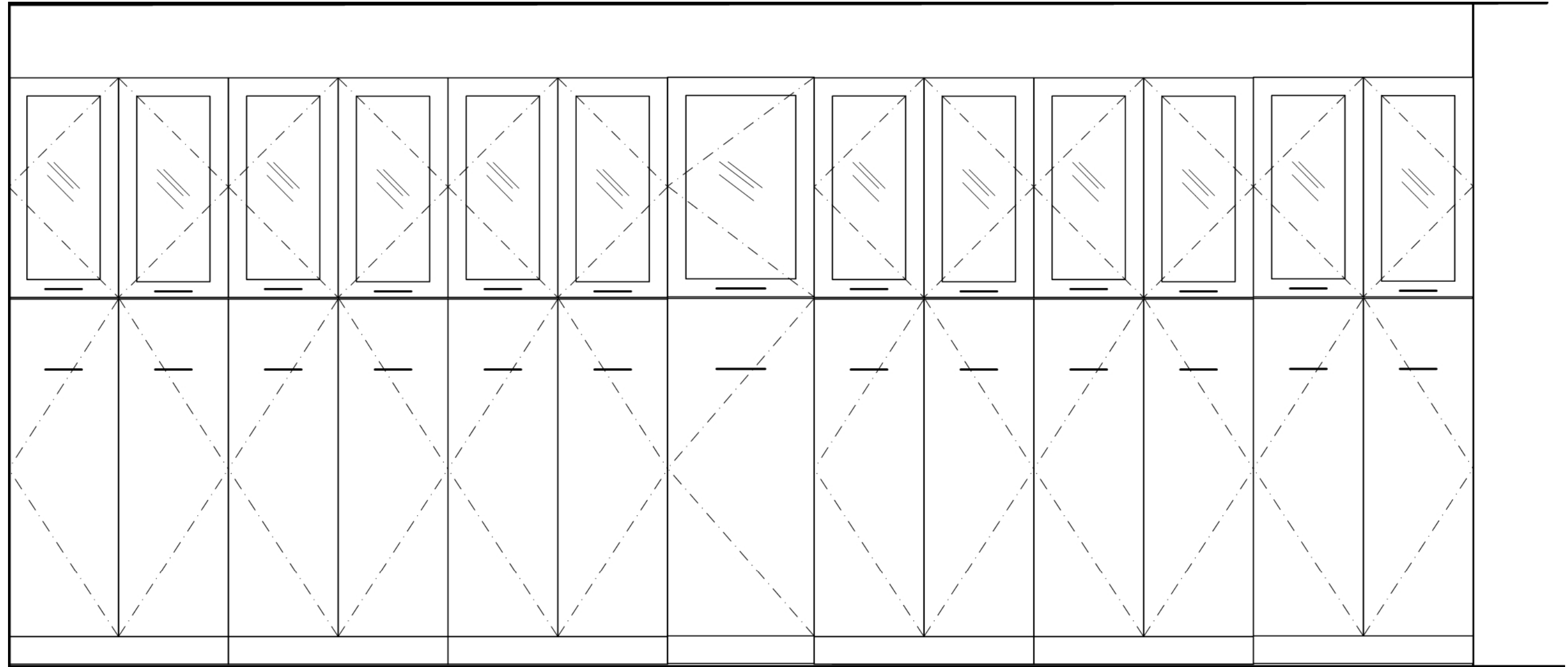
←36" →

←36" →

←36" →



# Prep- Balance Room Elevation G



←36" →

←36" →

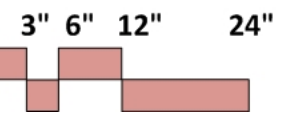
←36" →

←24" →

←36" →

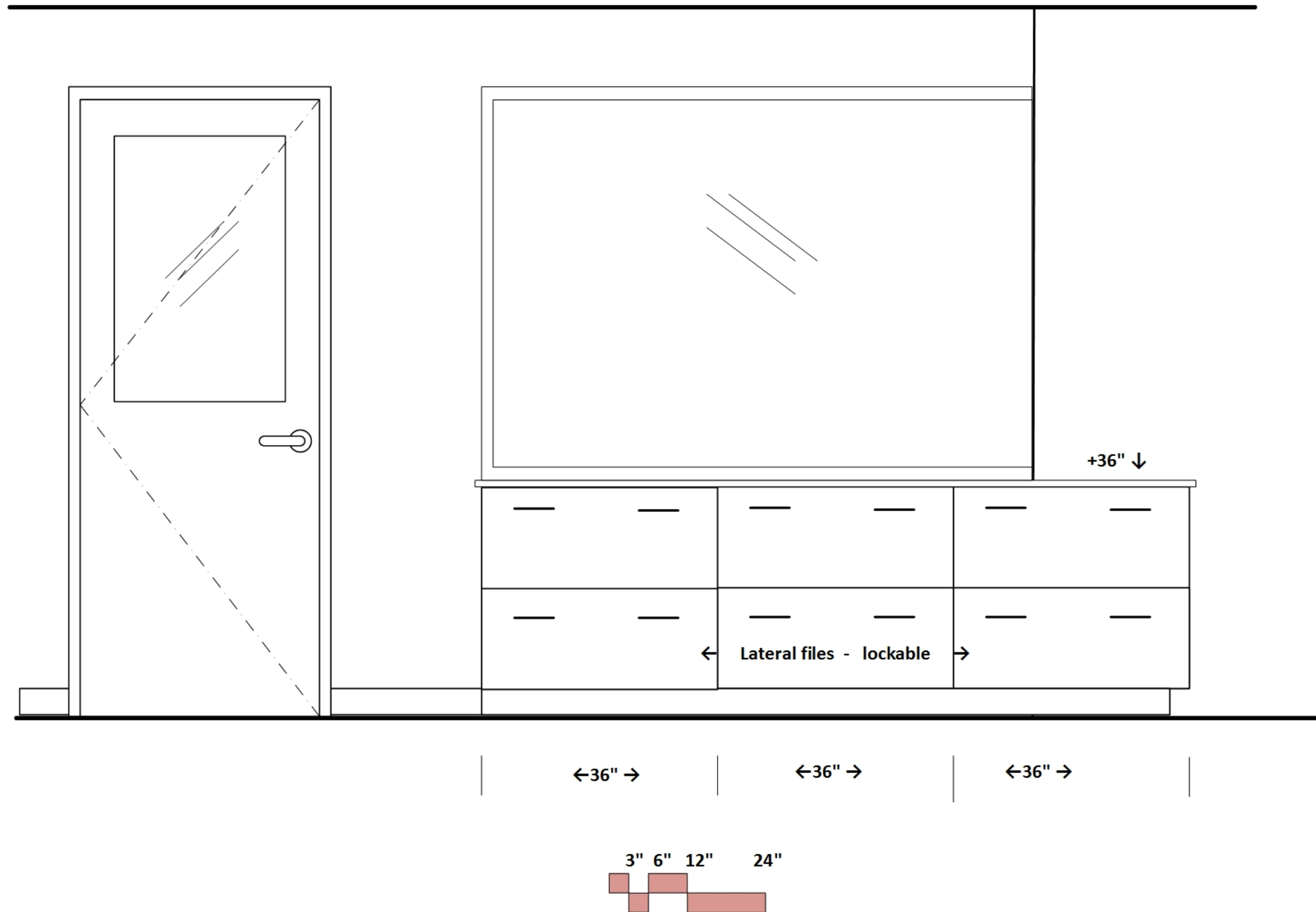
←36" →

←36" →

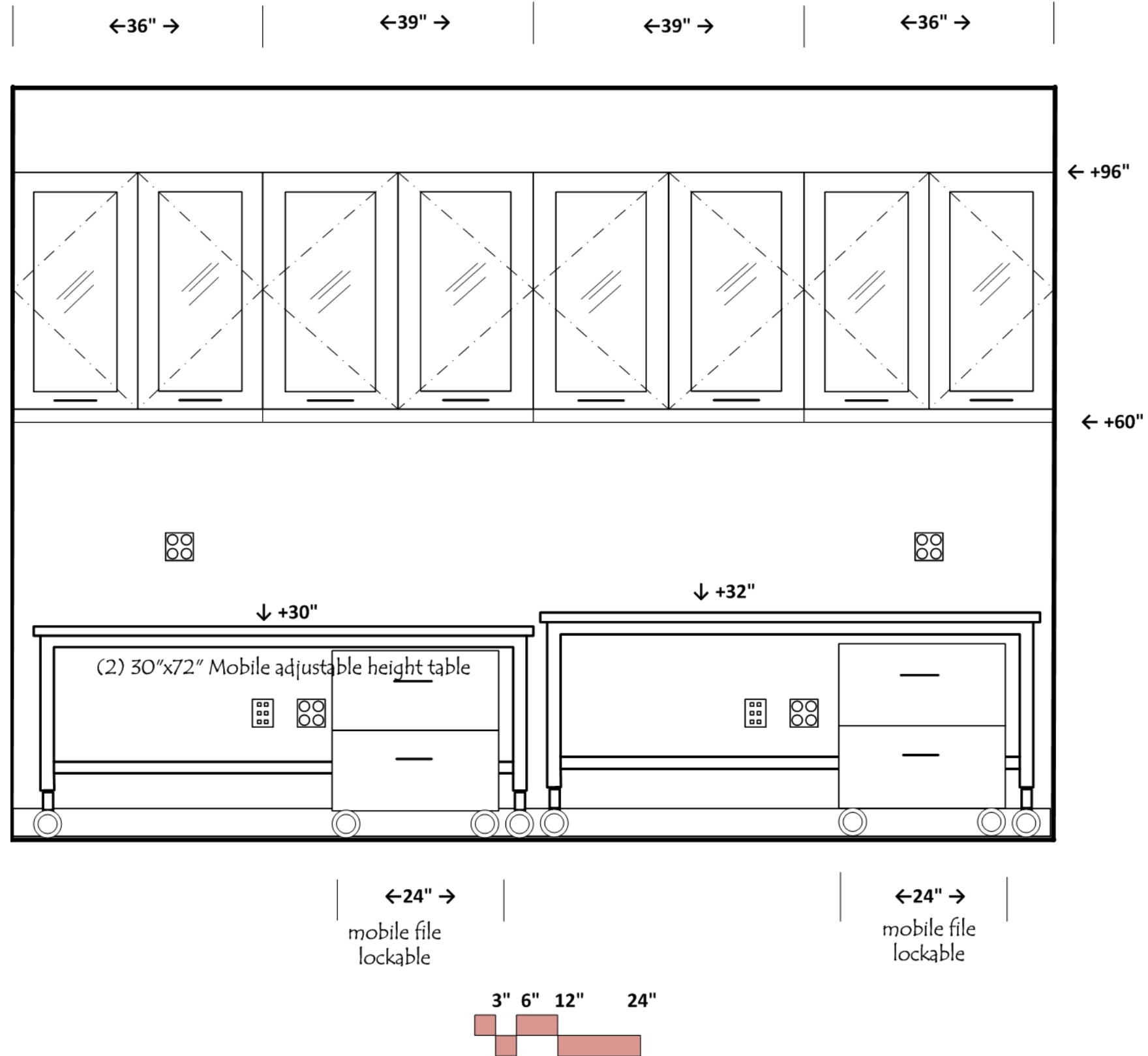


# Prep- Balance Room

## Elevation H

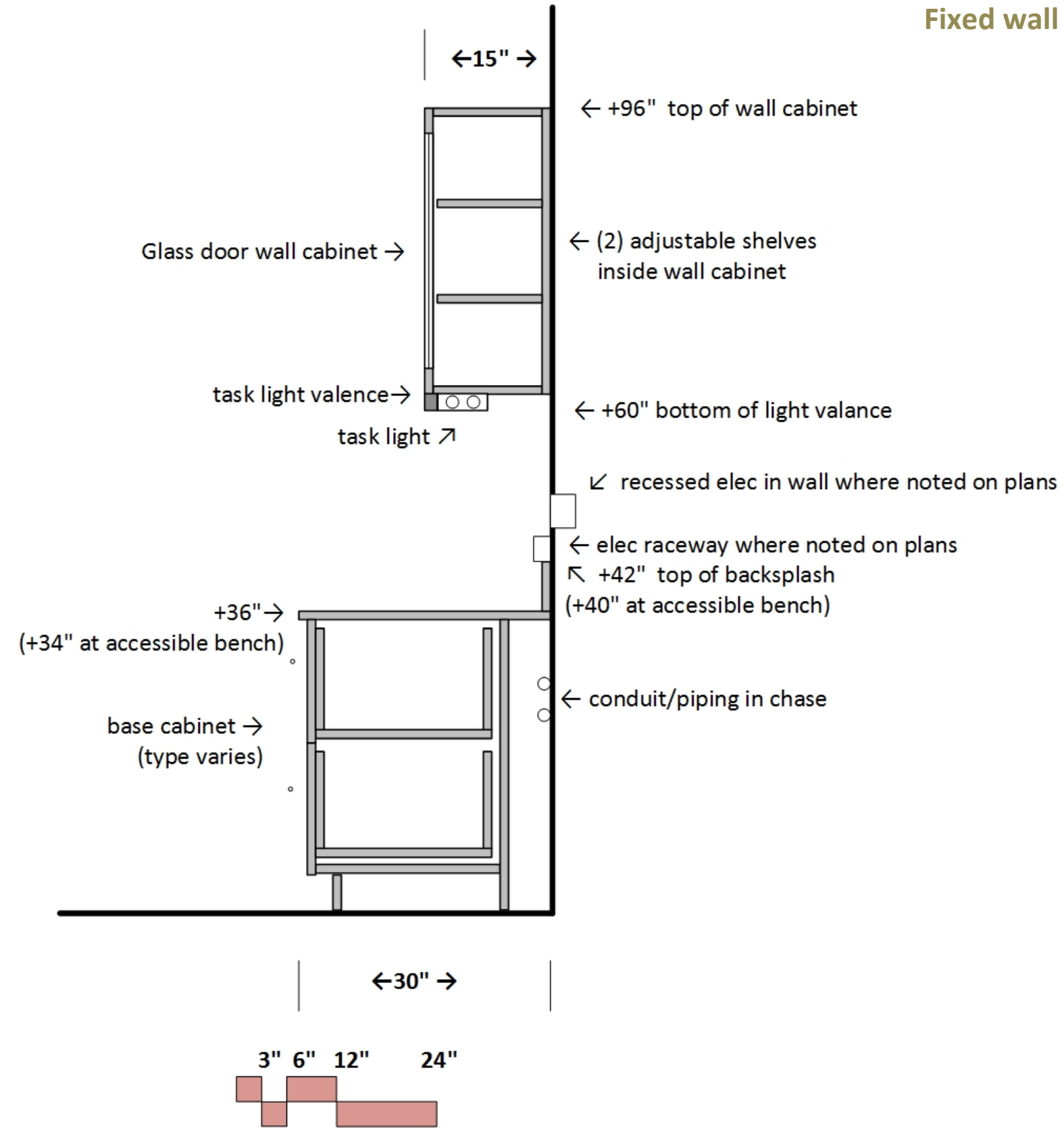


# Prep- Balance Room Elevation I



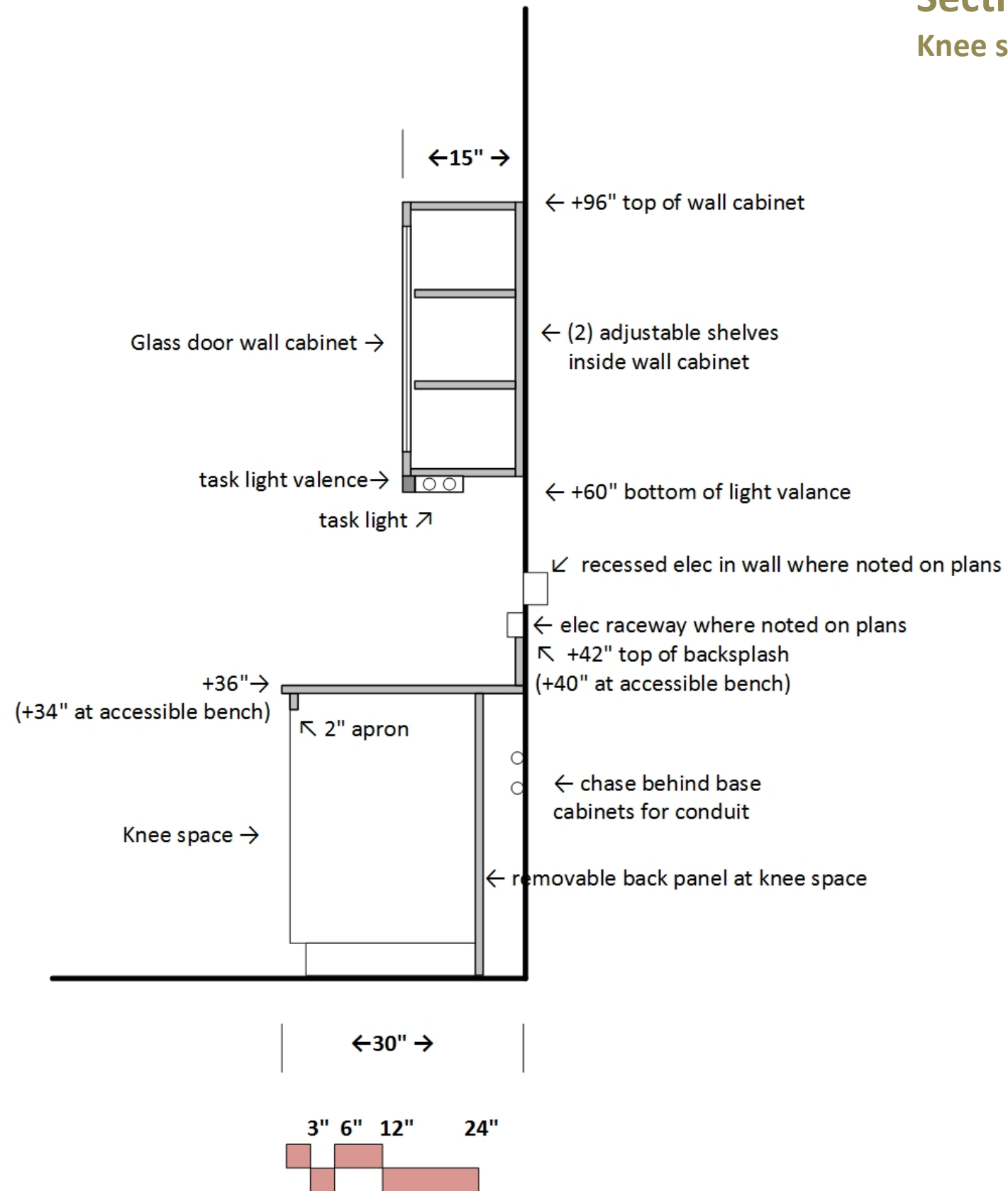
# Section Detail 01

## Fixed wall bench, wall cabinet above



## Section Detail 02

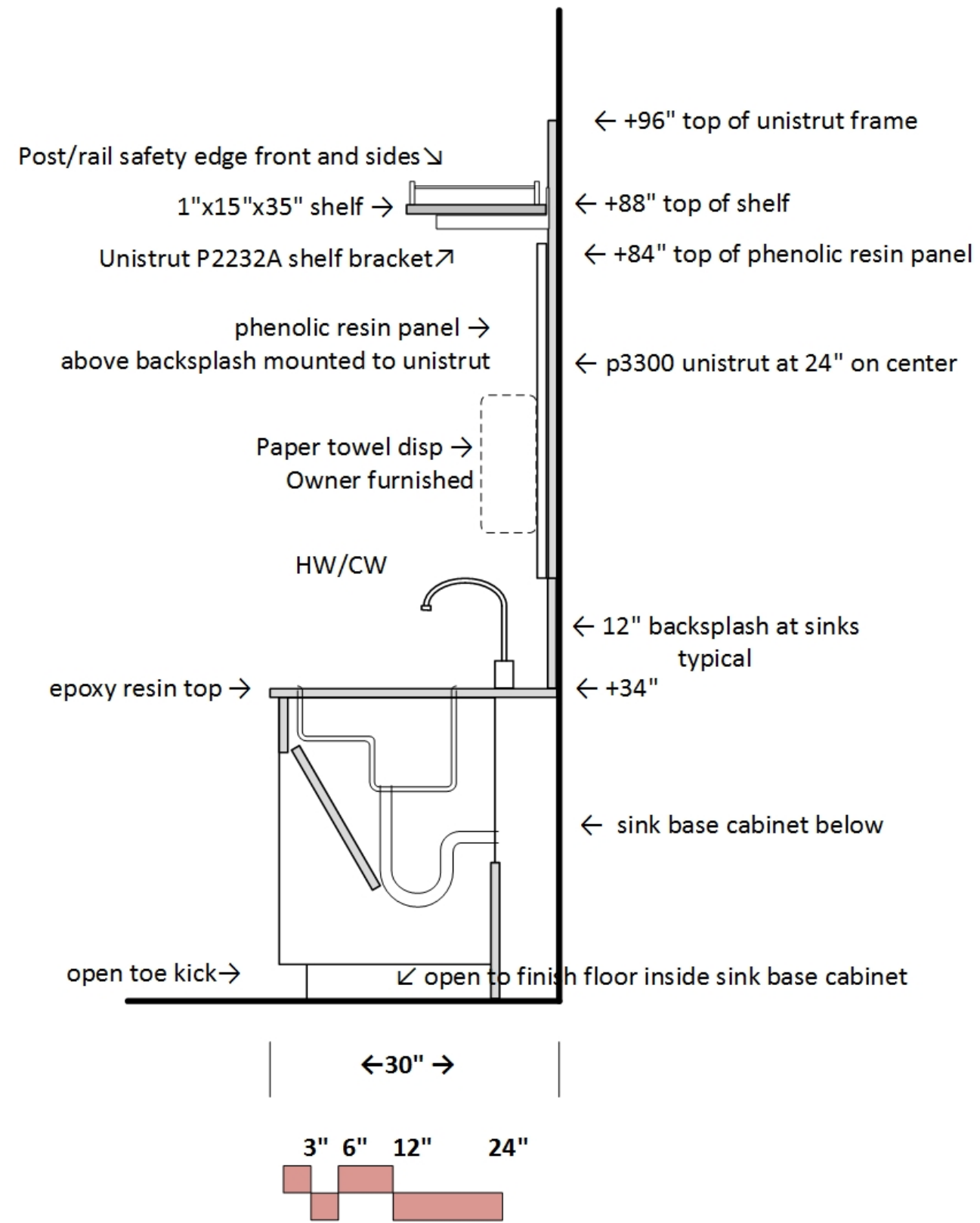
### Knee space, wall cabinet above





## Section Detail 03

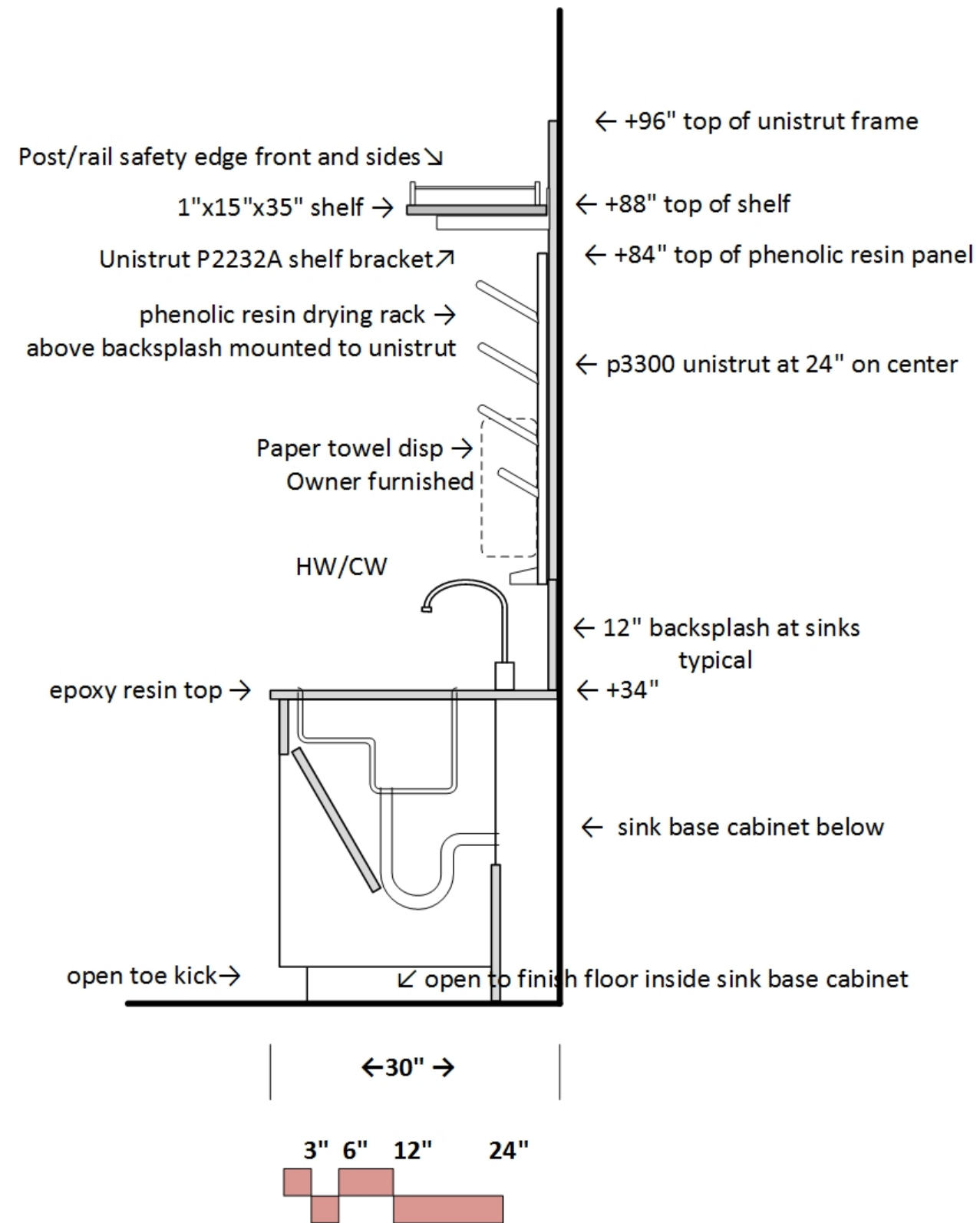
### Accessible lab sink at wall bench (without drying rack)



**Note: all sinks in teaching labs do not have drying racks.**

## Section Detail 04

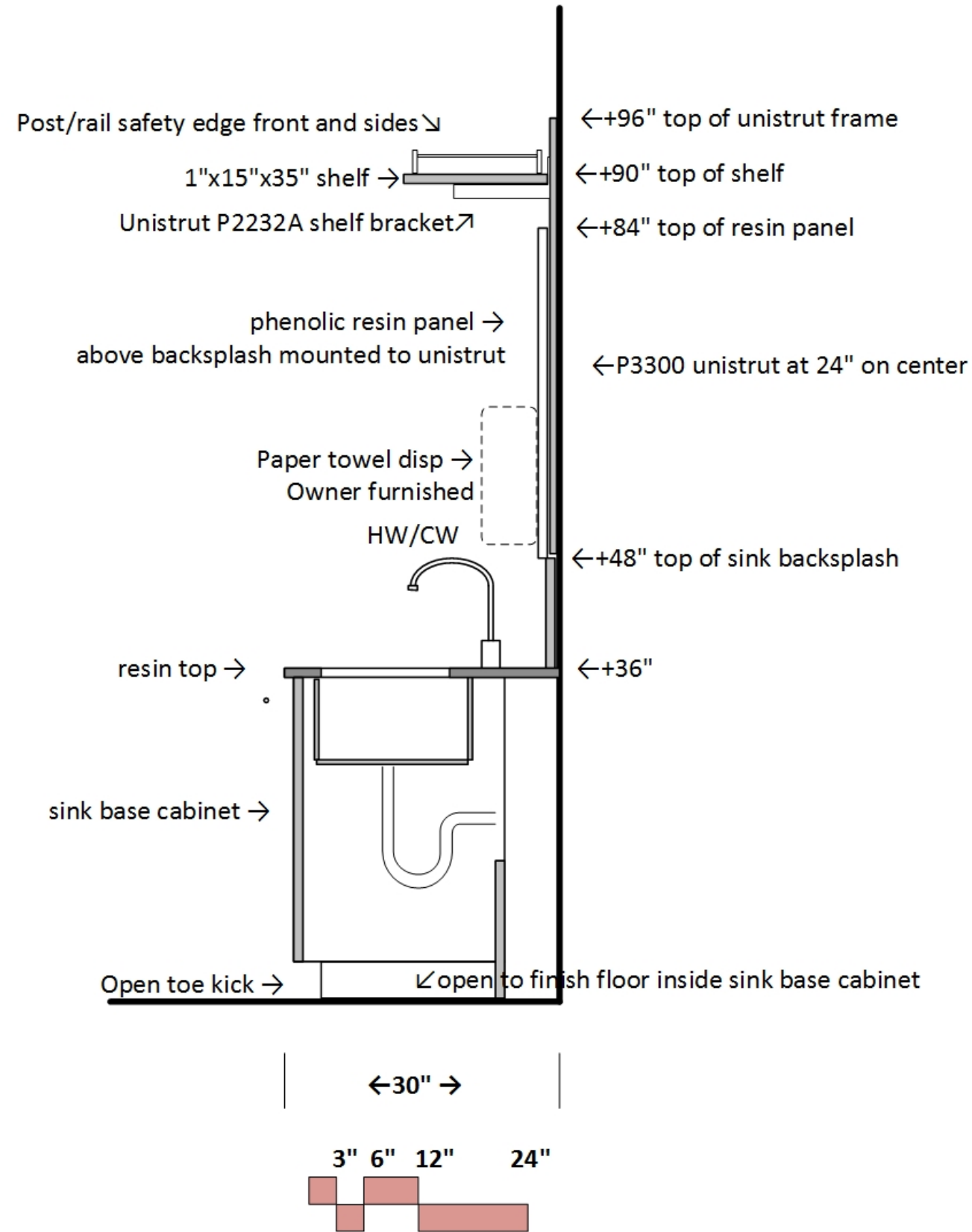
### Accessible prep sink at wall bench (with drying rack)



**Note: all sinks in prep areas have drying racks, except for  
Physics/Astronomy Prep area.**

## Section Detail 05

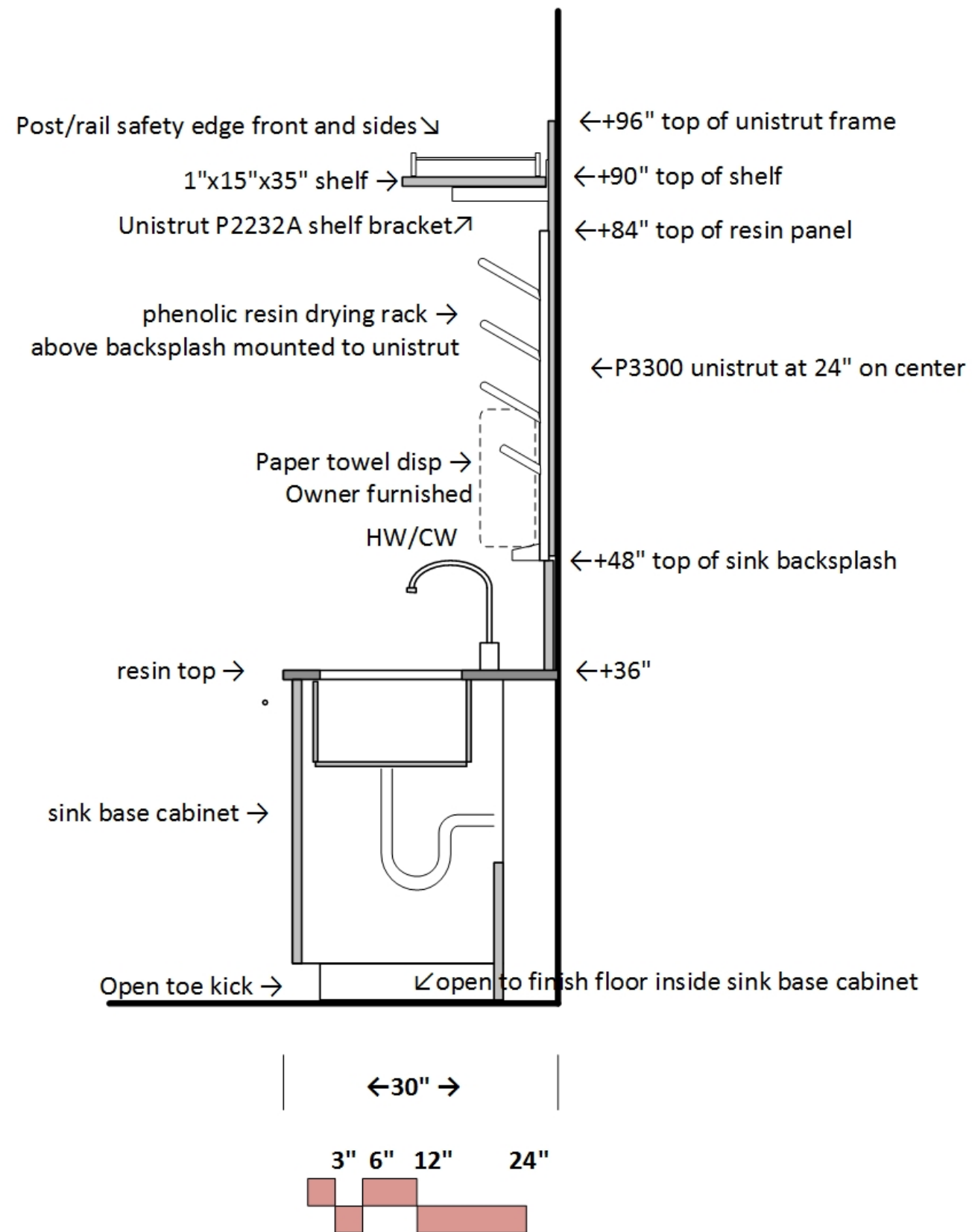
Standard lab sink at wall bench  
(without drying rack)



Note: all sinks in teaching labs do not have drying racks.

## Section Detail 06

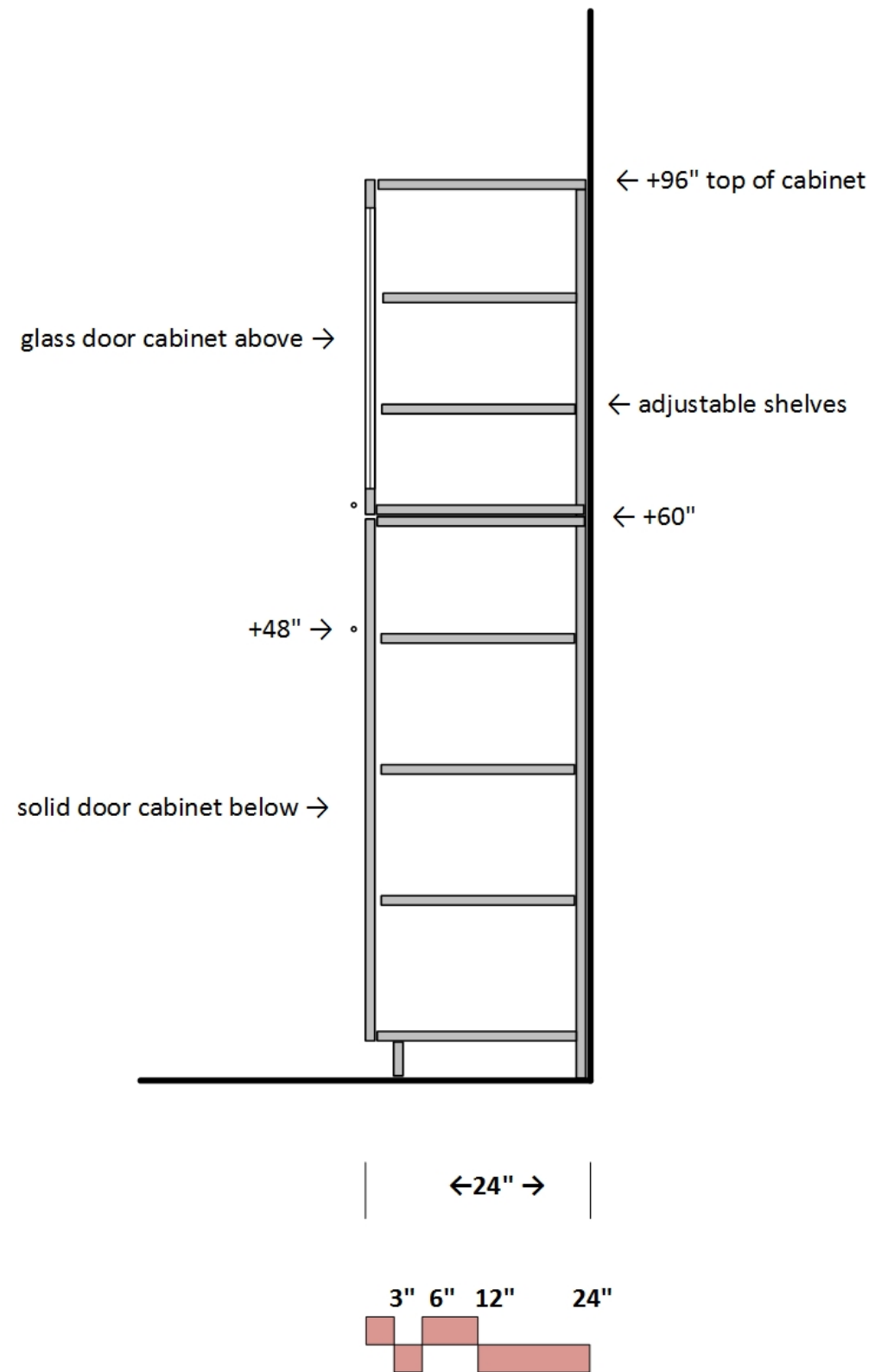
Standard prep sink at wall bench  
(with drying rack)



Note: all sinks in prep areas have drying racks, except for Physics/Astronomy Prep area.

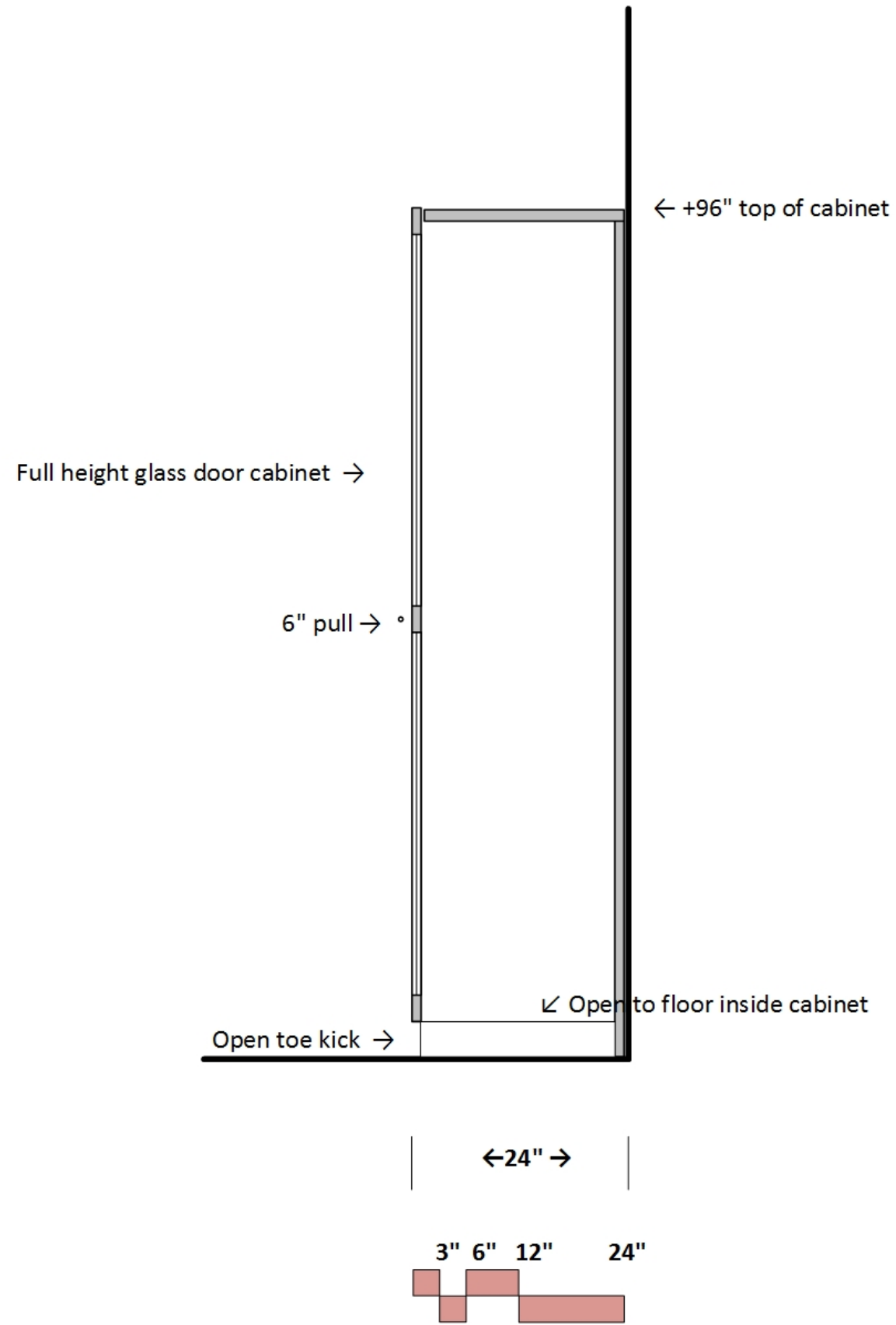
# Section Detail 07

## Tall Storage Cabinet



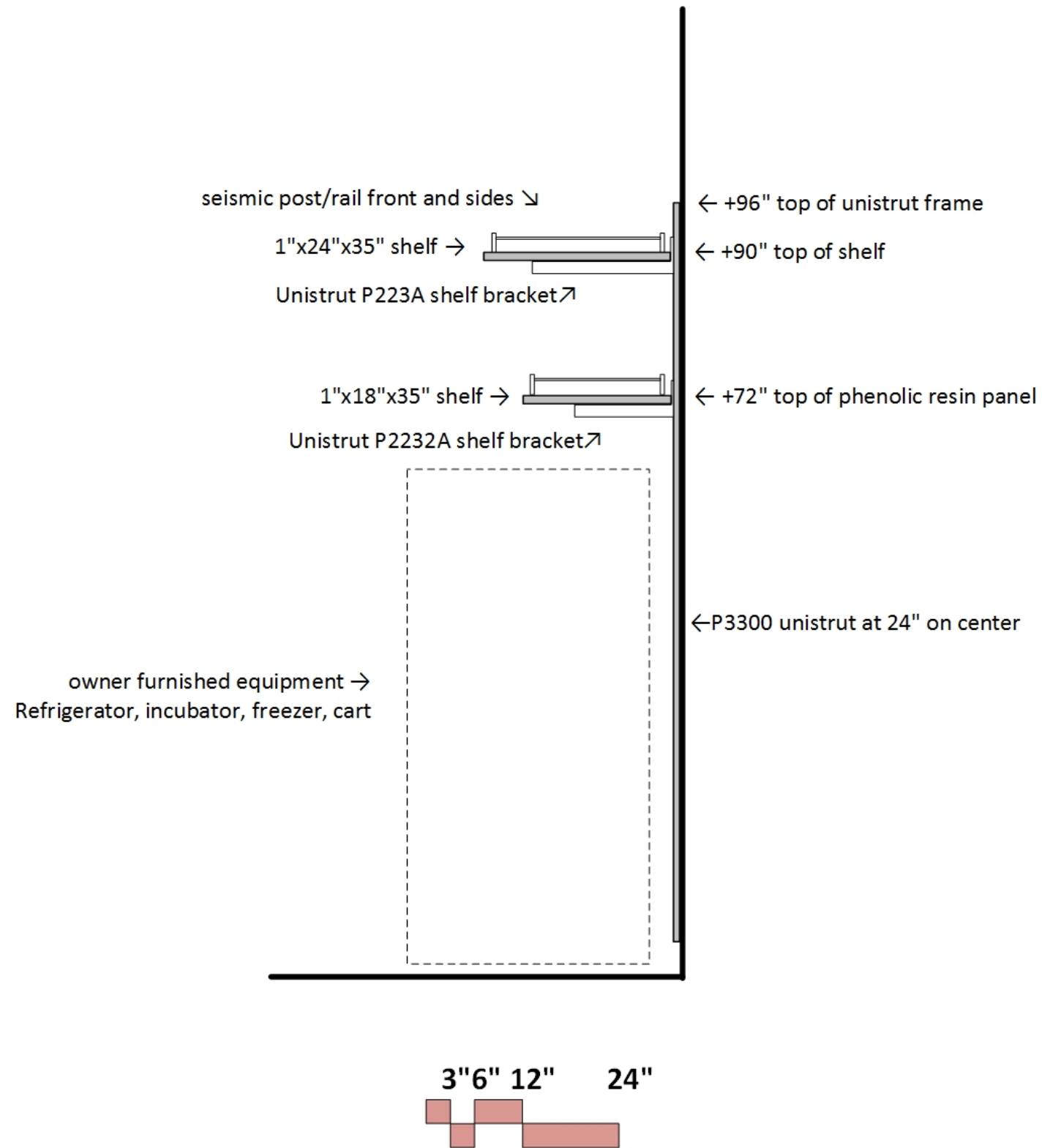
# Section Detail 08

## Tall Skeleton Cabinet



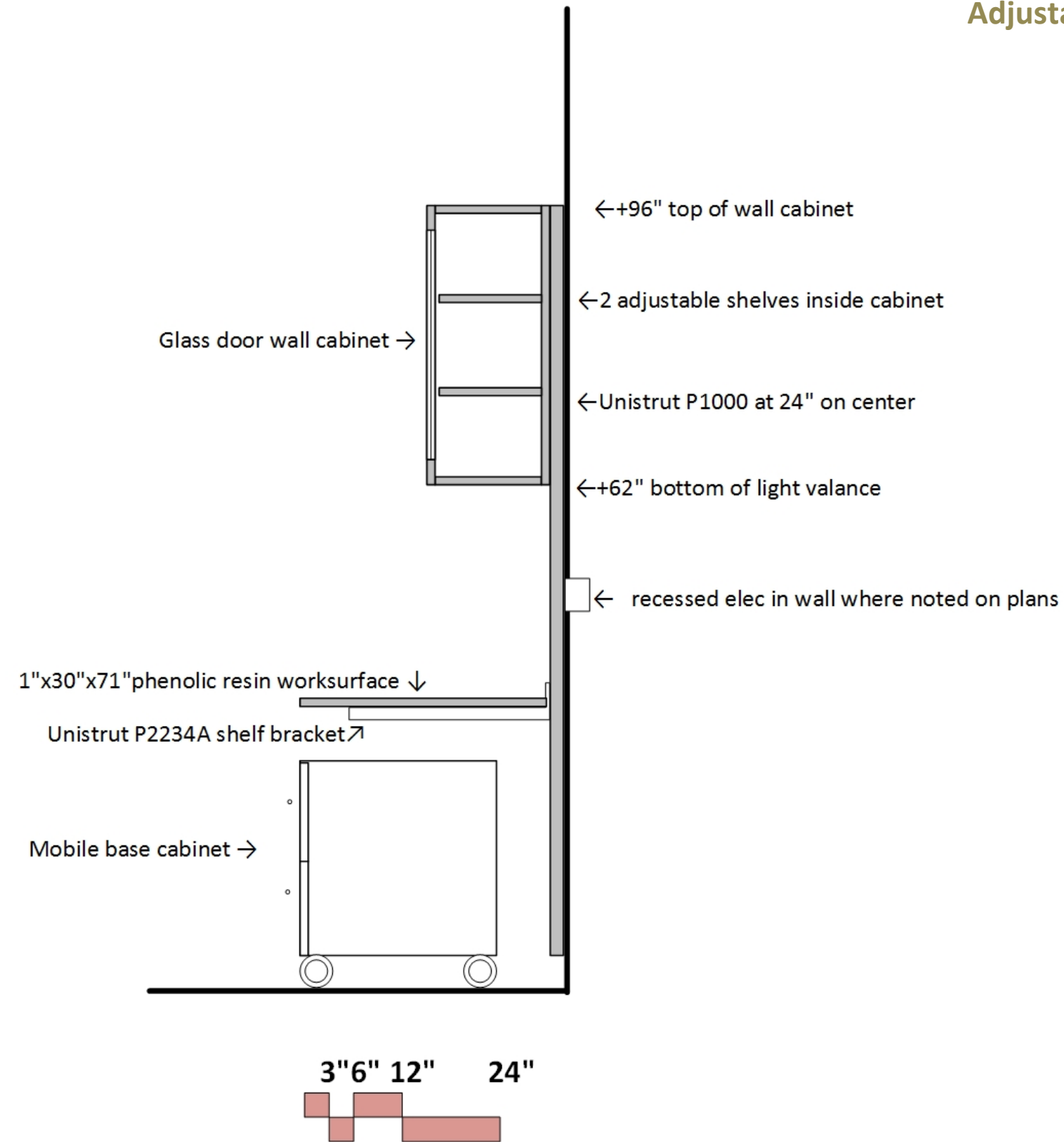
# Section Detail 09

## Equipment space



# Section Detail 10

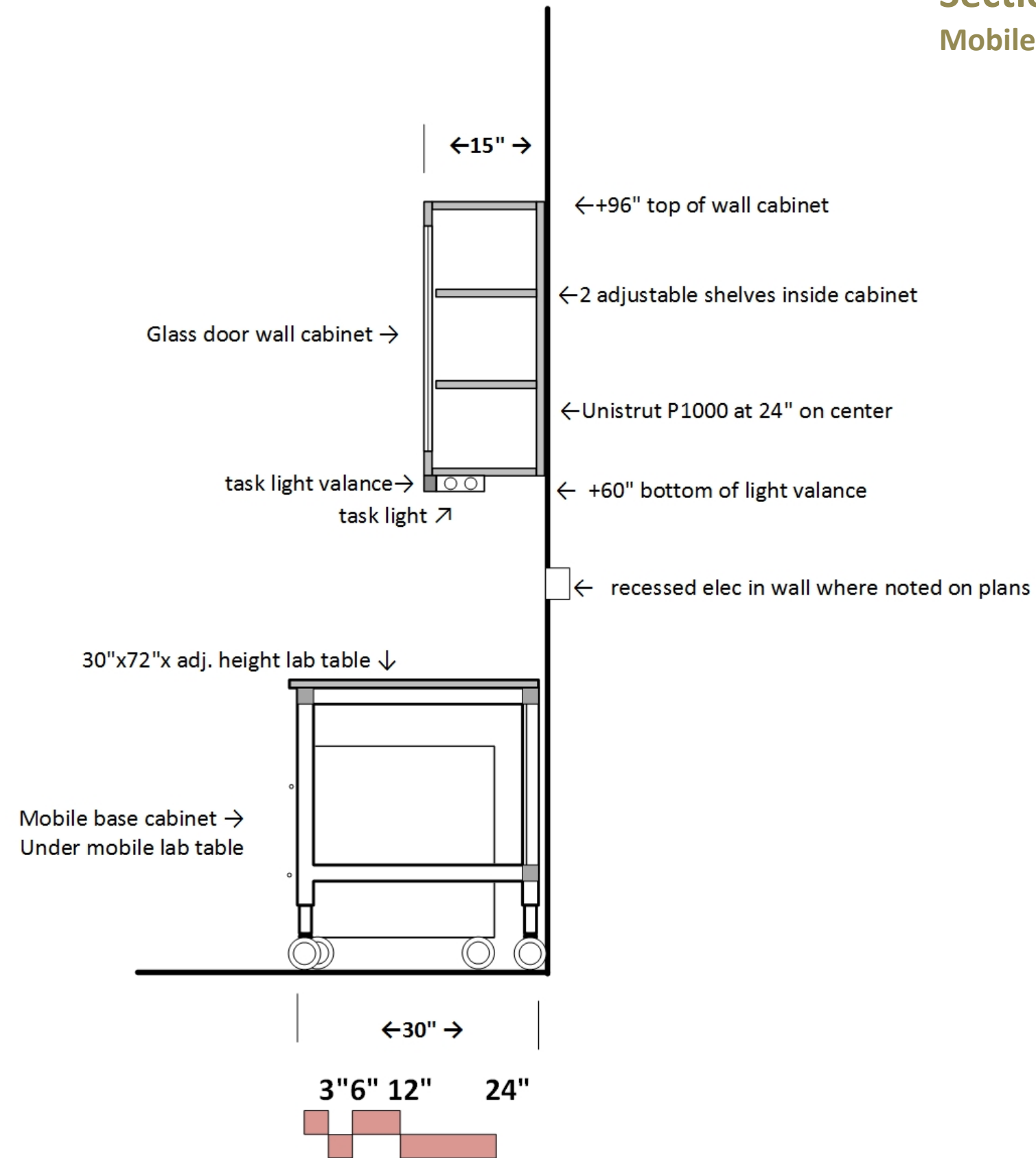
## Adjustable wall bench with cabinet above





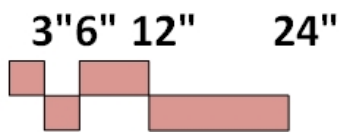
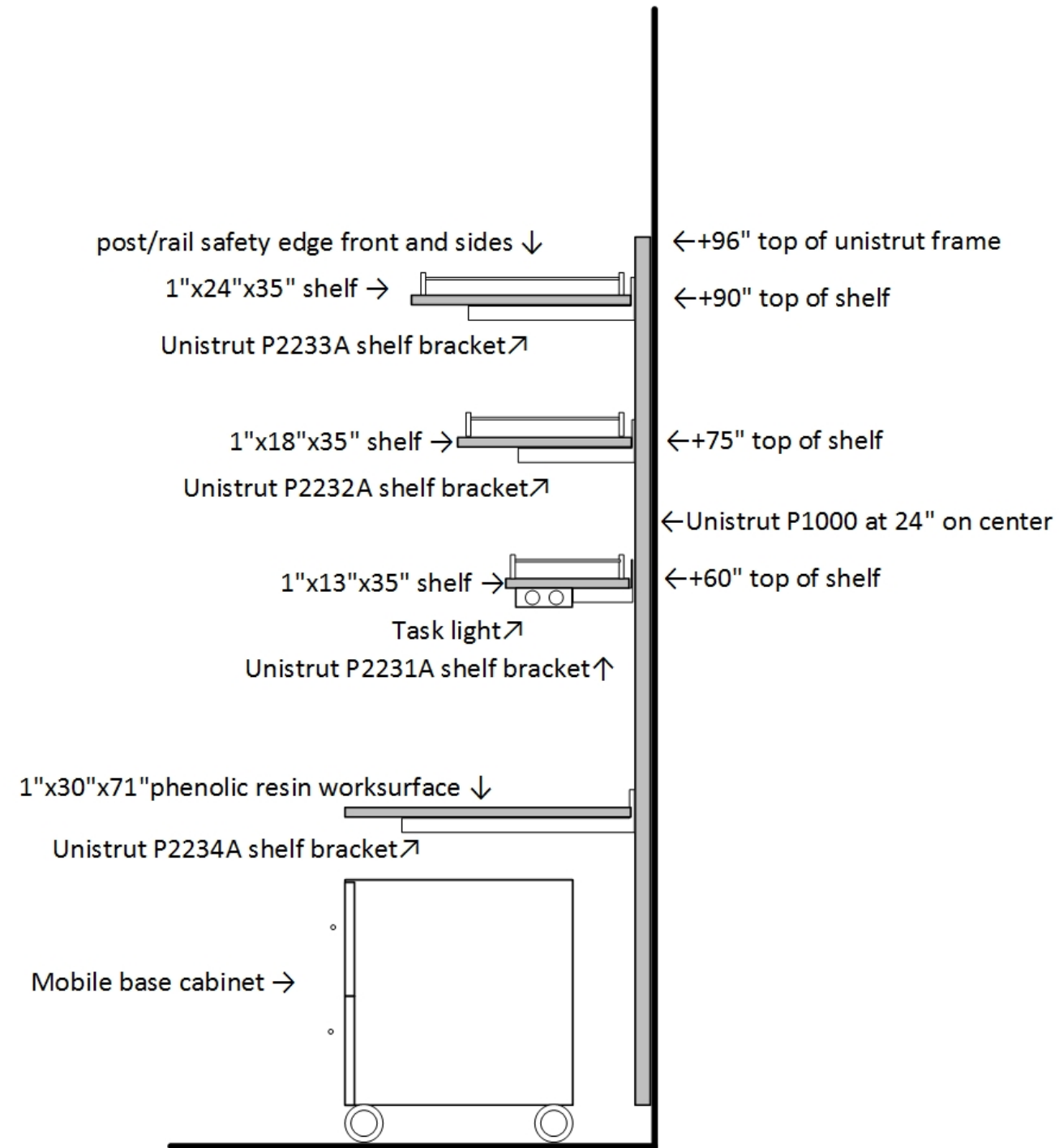
# Section Detail 11

## Mobile lab bench with cabinet above



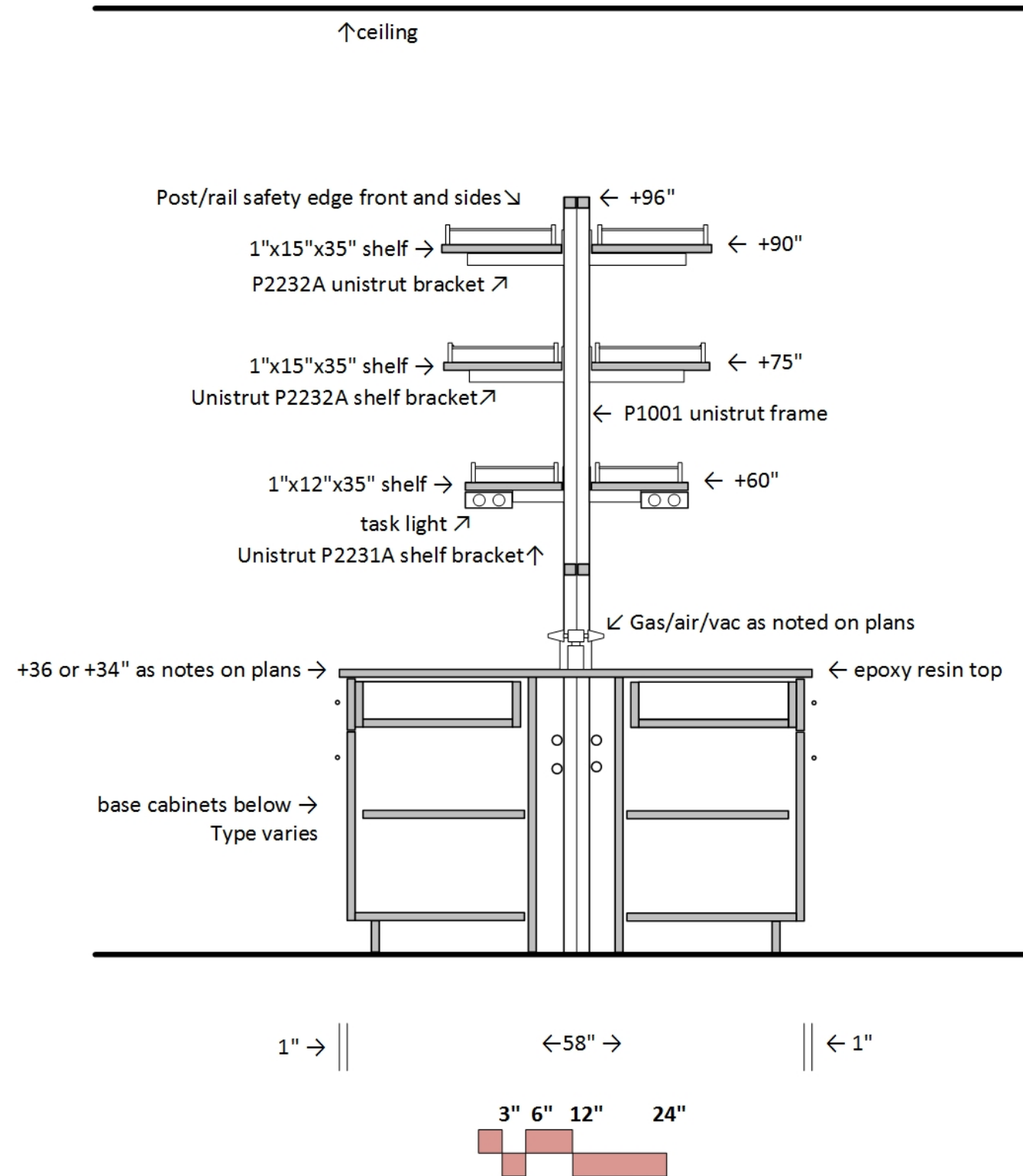
## Section Detail 12

Adjustable wall bench with shelves above



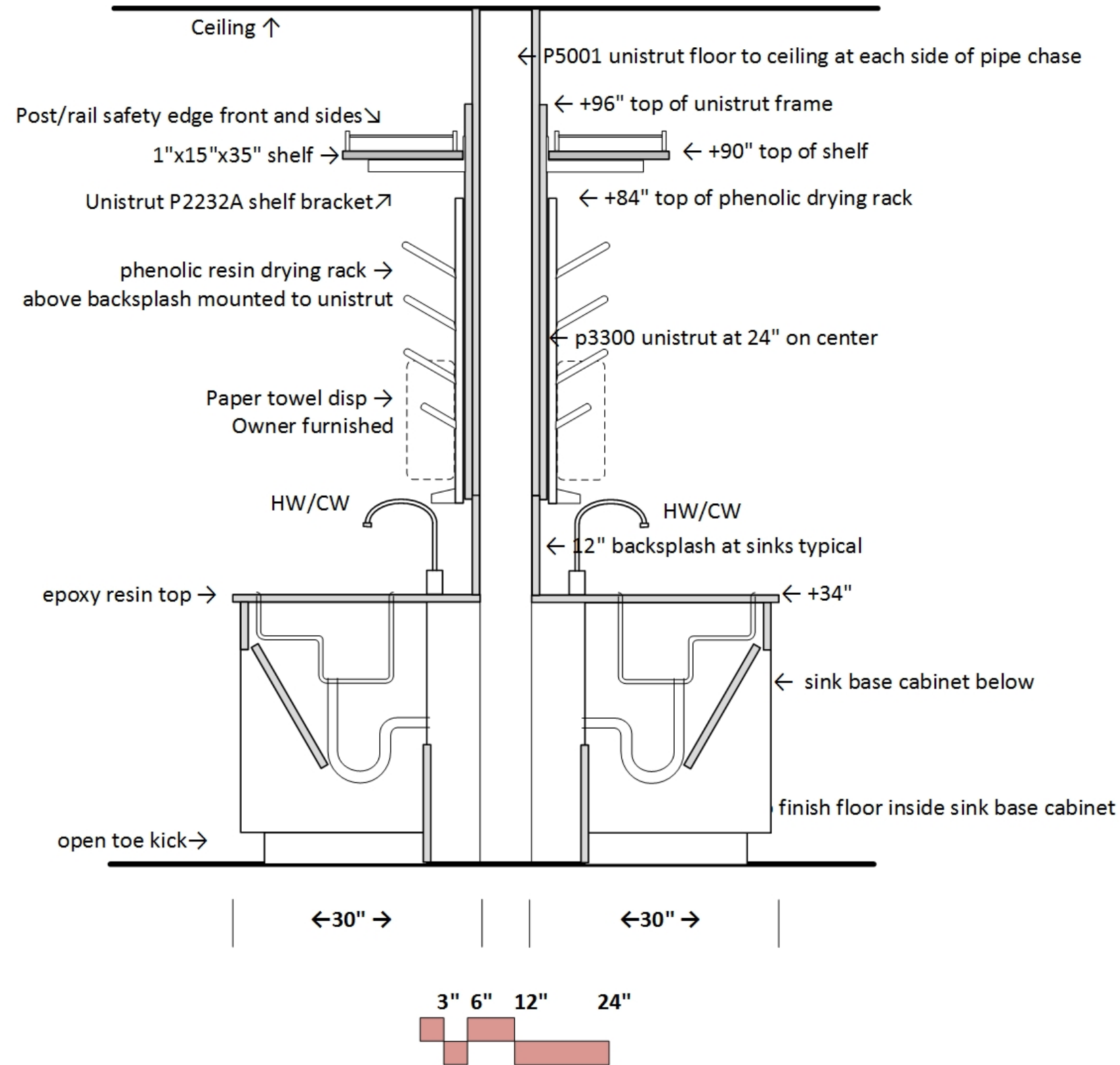
# Section Detail 13

## Peninsula bench with shelves above



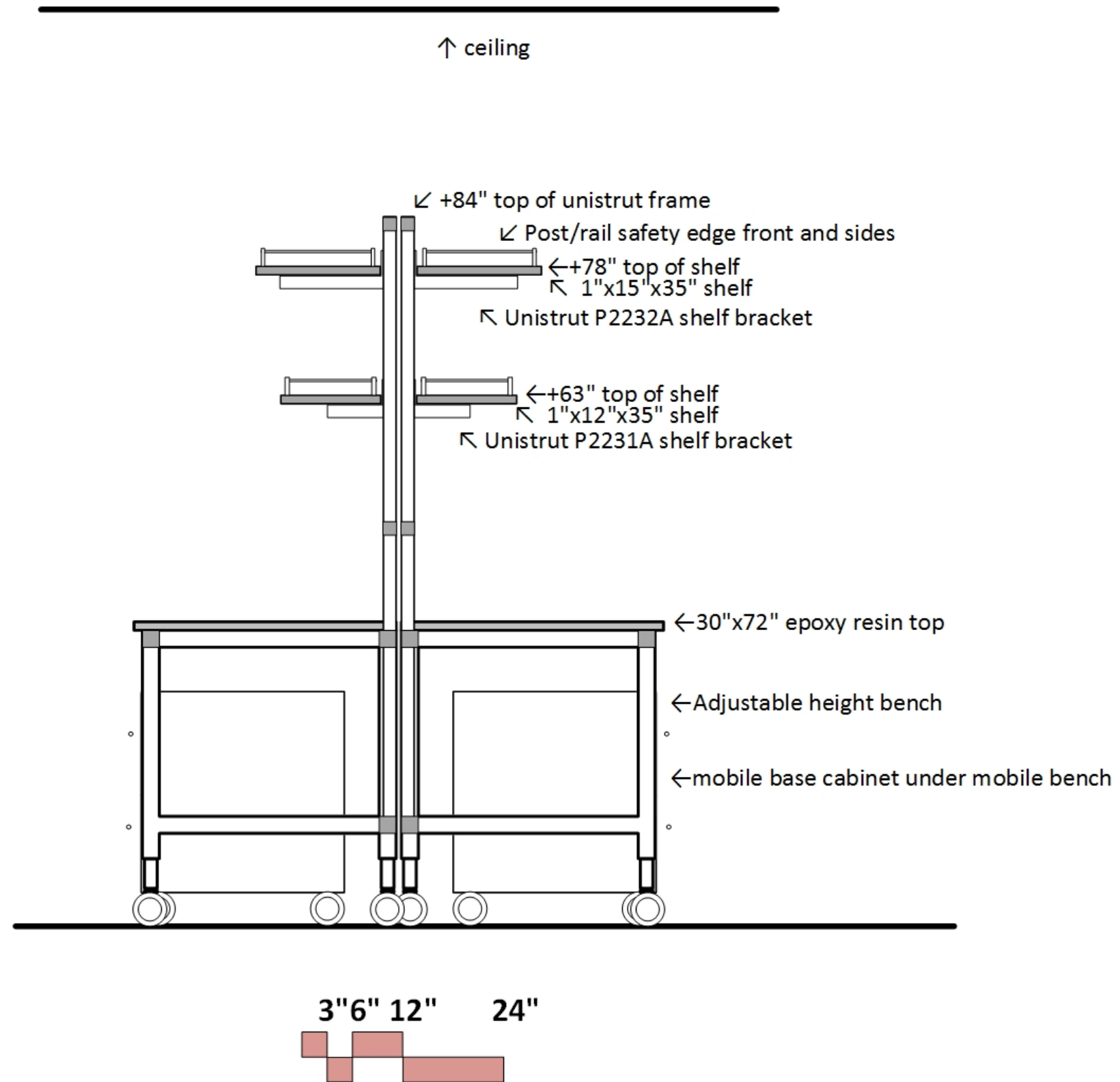
# Section Detail 14

## Peninsula bench with sinks



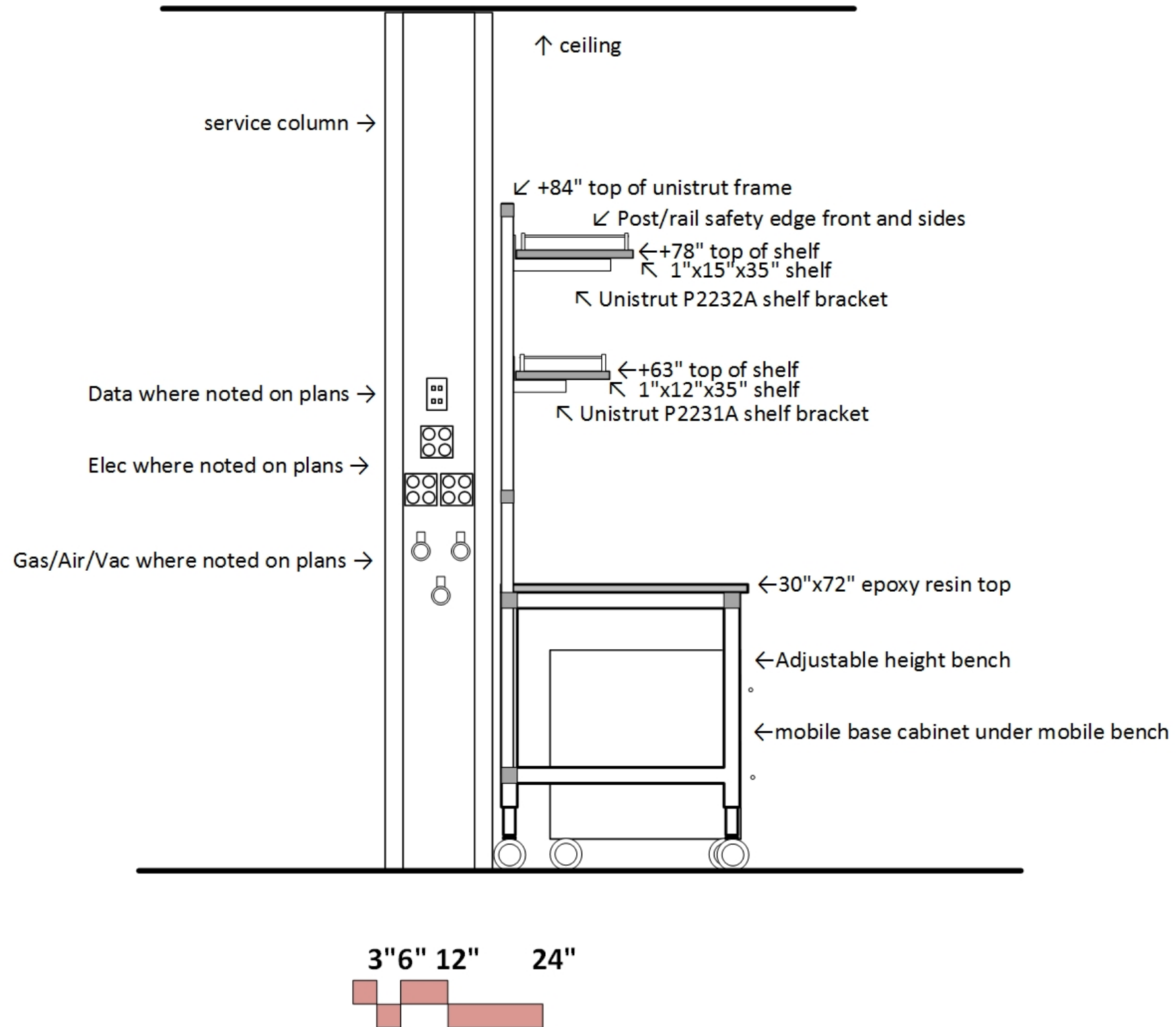
# Section Detail 15

## Mobile lab bench- back-to-back



# Section Detail 16

## Mobile lab bench



# Fume Hood Cut Sheet

All fume hoods VAV  
Fume Hoods shall be maximum depth of 36" from face of back wall to front face of fume hood

## Protector® XStream™ Laboratory Hoods



Protector XStream Laboratory Hood 9840600 is shown with Spill Stopper Work Surface 9849800, Protector Acid Storage Cabinet 9901100 and Protector Standard Storage Cabinet 9900100. Blower, ductwork, work surface and base cabinets must be ordered separately.

All models conform to the following regulations and standards:

- SEFA 1-2002
- NFPA 45-2000
- ASTM E84-01
- ASHRAE 110-95
- ANSI Z9.5-1993
- UL 3101-1/61010-1
- CAN/CSA C22.2 No. 1010.1
- UL 1805
- CE Conformity Marking (230 volt models)<sup>†</sup>

Fixed models feature:

- Two pre-plumbed service fixtures with forged brass valves, lower right side with brass tubing for gas and lower left side with copper tubing for cold water. Components for converting either or both fixtures to air and vacuum are provided. **Inlet tubing is not provided.**
- One pre-wired 115 volt, 20 amp electrical duplex receptacle on lower right side.

All models require (not included):

- **Remote Blower.** See back pocket.
- **Ductwork.** See back pocket.
- **Work Surface.** See pages 92-95.
- **Base Cabinet or Stand.** See pages 96-106.

Optional accessories for on-site installation include:

- **Service Fixture Kits.** See page 107.
- **Electrical Duplex Kits.** See page 108.
- **Guardian Jr. and Digital Airflow Monitor Kits.** See page 108.
- **Distillation Grid Kits.** See page 110.
- **Sash Stop Kits.** See page 108.
- **Snuffer Fire Extinguishers.** See page 110.
- **Ceiling Enclosure and Rear Finish Panel Kits.** See page 109.

<sup>†</sup> U.S. Patent No. 6,461,233

<sup>†</sup> pending

<sup>†</sup> Heights of switches, electrical receptacle and service fixtures meet requirements of ADA.

■ Exclusive Feature

All models feature:

- Modified by-pass airflow design.
- Ergonomic air foil with aerodynamic Clean-Sweep\* airflow openings.
- Upper Dilution Air Supply.\*
- Glacier white, dry powder epoxy-coated steel exterior.
- Chemical-resistant, fiberglass-reinforced, composite panel liner and pre-set Rear Downflow Dual Baffle System\* with flame spread less than 25 per ASTM E-84
- 3/16" thick tempered safety glass vertical-rising sash with epoxy-coated aluminum sash handle with large radius and perforations.\*

- Removable front and side panels and front and interior service access panels for access to plumbing and electrical wiring.
- Pre-wired T8 fluorescent lighting, ADA-compliant light and blower switches for 115 volt, 60 Hz operation.
- Sash stop located at 18" sash opening position.
- Epoxy-coated stainless steel, 12.81" ID exhaust connection(s).

Contact Labconco at 800-821-5525 or 816-333-8811 for ordering information on explosion-proof lighting and other sash configurations and for blower sizing assistance.

## Ordering Information

Protector® XStream™ Laboratory Hoods

ASHRAE 110-95 tests show less than 0.05 ppm leak rate when tested at 4.0 fpm; at OSHA-approved 60, 80, and 100 fpm face velocity and sash positions of 18" and 28". To ensure performance at 60 fpm, Labconco engineers challenged the Protector XStream Hood at less

than ideal conditions such as 30 fpm cross drafts, modified ASHRAE test procedures and average face velocities lower than 60 fpm. Contact Labconco for a technical paper with complete ASHRAE test data.

### Total Exhaust CFM and Static Pressure @ 18" Sash Opening (60% open)

Nominal Width	100 fpm		80 fpm		60 fpm		CFM Savings at 60 fpm vs. 100 fpm	Total Average Annual Dollar Savings at 60 fpm vs. 100 fpm*
	s.p.	s.p.	s.p.	s.p.	s.p.	s.p.		
4 feet	470	0.11'	380	0.07'	280	0.04'	190	\$760
5 feet	610	0.13'	490	0.08'	370	0.05'	240	\$960
6 feet	750	0.15'	600	0.10'	450	0.06'	300	\$1200
8 feet	1060	0.12'	850	0.08'	640	0.04'	420	\$1680

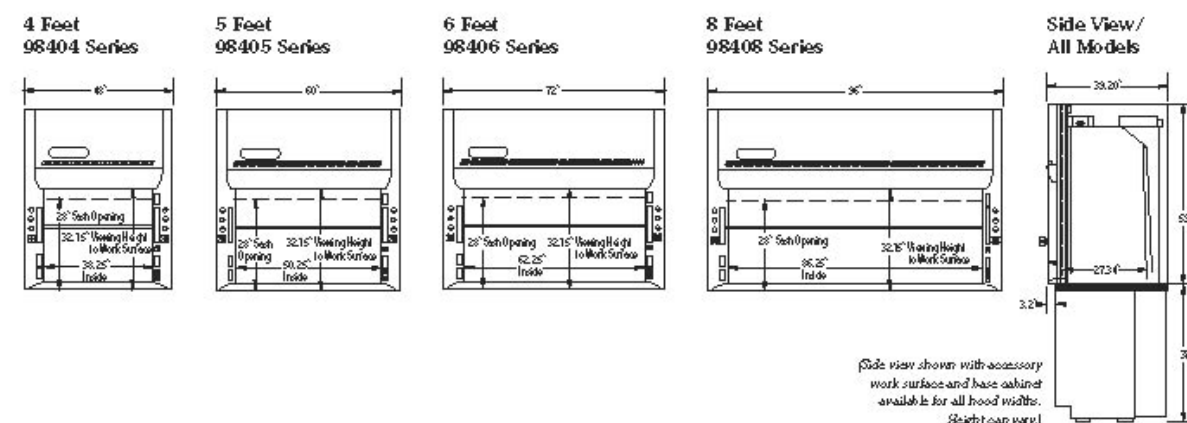
### Total Exhaust CFM and Static Pressure @ 28" Sash Opening (100% open)

Nominal Width	100 fpm		80 fpm		60 fpm		CFM Savings at 60 fpm vs. 100 fpm	Total Average Annual Dollar Savings at 60 fpm vs. 100 fpm*
	s.p.	s.p.	s.p.	s.p.	s.p.	s.p.		
4 feet	730	0.25'	590	0.13'	440	0.08'	290	\$1160
5 feet	960	0.30'	770	0.19'	580	0.11'	380	\$1520
6 feet	1180	0.36'	940	0.23'	710	0.13'	470	\$1880
8 feet	1660	0.28'	1330	0.18'	1000	0.10'	660	\$2640

\*Based on average annual dollars per CFM usage of \$4.00; fume hood operating 24 hours a day and 5 days per week (6240 hours per year).

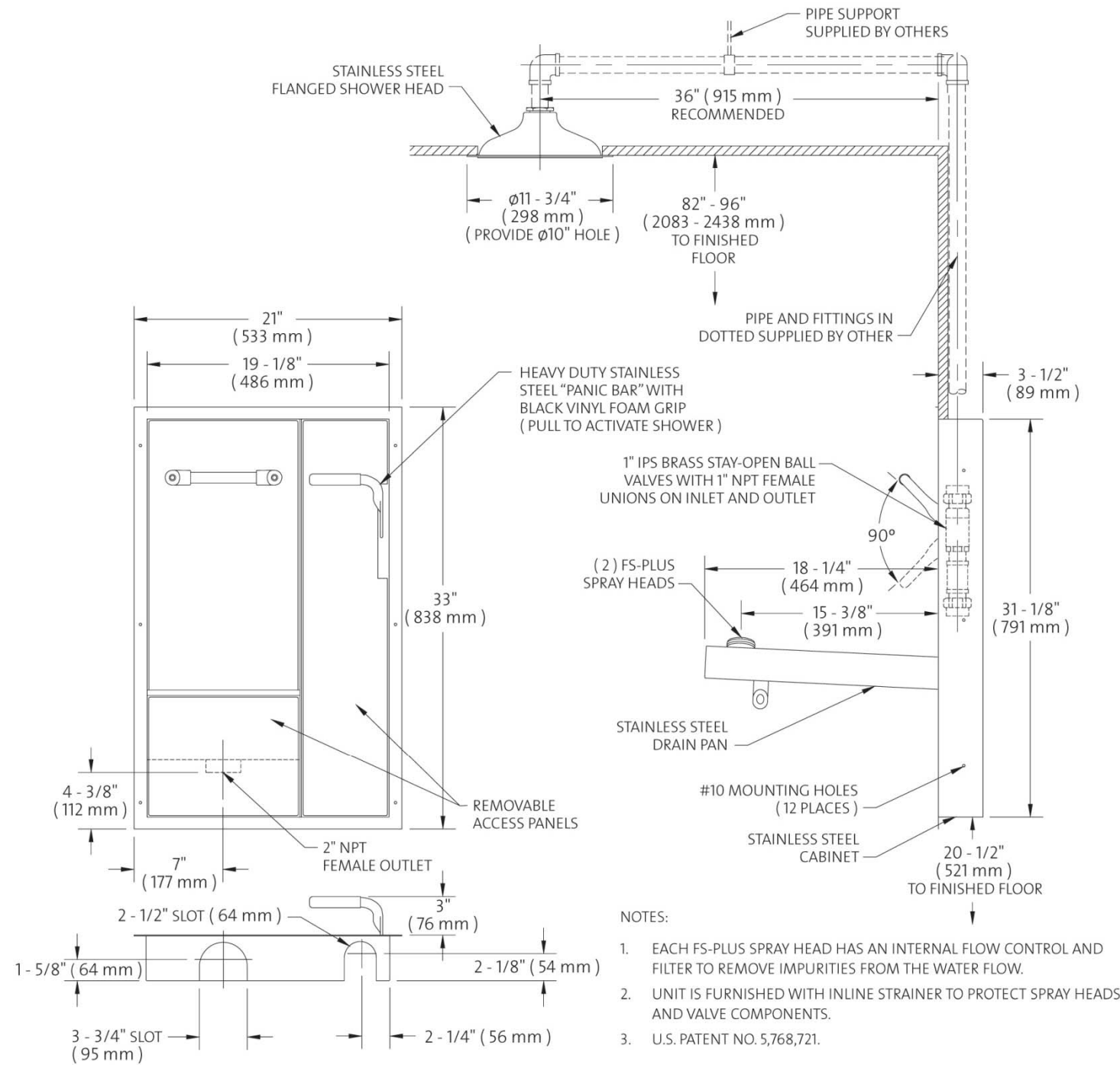
Catalog Number	Nominal Width	Electrical Requirements	Exterior Depth	Interior Working Depth	Fluorescent Lamps	Service Fixtures	Electrical Duplex	Exhaust Collar(s)	Shipping Wt. lbs./kg
9840400	4 feet	115 volts, 60 Hz	39.20"	27.3"	(2) 25 watt	None	None	12.81" ID	400/181
9840401	4 feet	115 volts, 60 Hz	39.20"	27.3"	(2) 25 watt	2	1	12.81" ID	400/181
9840402**	4 feet	230 volts, 50 Hz	39.20"	27.3"	(2) 25 watt	None	None	12.81" ID	400/181
9840403**	4 feet	230 volts, 50 Hz	39.20"	27.3"	(2) 25 watt	2	None	12.81" ID	400/181
9840500	5 feet	115 volts, 60 Hz	39.20"	27.3"	(2) 32 watt	None	None	12.81" ID	460/209
9840501	5 feet	115 volts, 60 Hz	39.20"	27.3"	(2) 32 watt	2	1	12.81" ID	460/209
9840502**	5 feet	230 volts, 50 Hz	39.20"	27.3"	(2) 32 watt	None	None	12.81" ID	460/209
9840503**	5 feet	230 volts, 50 Hz	39.20"	27.3"	(2) 32 watt	2	None	12.81" ID	460/209
9840600	6 feet	115 volts, 60 Hz	39.20"	27.3"	(2) 32 watt	None	None	12.81" ID	520/236
9840601	6 feet	115 volts, 60 Hz	39.20"	27.3"	(2) 32 watt	2	1	12.81" ID	520/236
9840602**	6 feet	230 volts, 50 Hz	39.20"	27.3"	(2) 32 watt	None	None	12.81" ID	520/236
9840603**	6 feet	230 volts, 50 Hz	39.20"	27.3"	(2) 32 watt	2	None	12.81" ID	520/236
9840800	8 feet	115 volts, 60 Hz	39.20"	27.3"	(4) 25 watt	None	None	(2) 12.81" ID	700/318
9840801	8 feet	115 volts, 60 Hz	39.20"	27.3"	(4) 25 watt	2	1	(2) 12.81" ID	700/318
9840802**	8 feet	230 volts, 50 Hz	39.20"	27.3"	(4) 25 watt	None	None	(2) 12.81" ID	700/318
9840803**	8 feet	230 volts, 50 Hz	39.20"	27.3"	(4) 25 watt	2	None	(2) 12.81" ID	700/318

\*\*International electrical configuration



Side view shown with accessory work surface and base cabinet available for all hood widths. Height can vary.

- **SSBF2160** Recessed Safety Station with Drain Pan, Stainless Steel Shower Head
- **SSBF2162** Recessed Safety Station with Drain Pan and Daylight Drain, Stainless Steel Shower Head







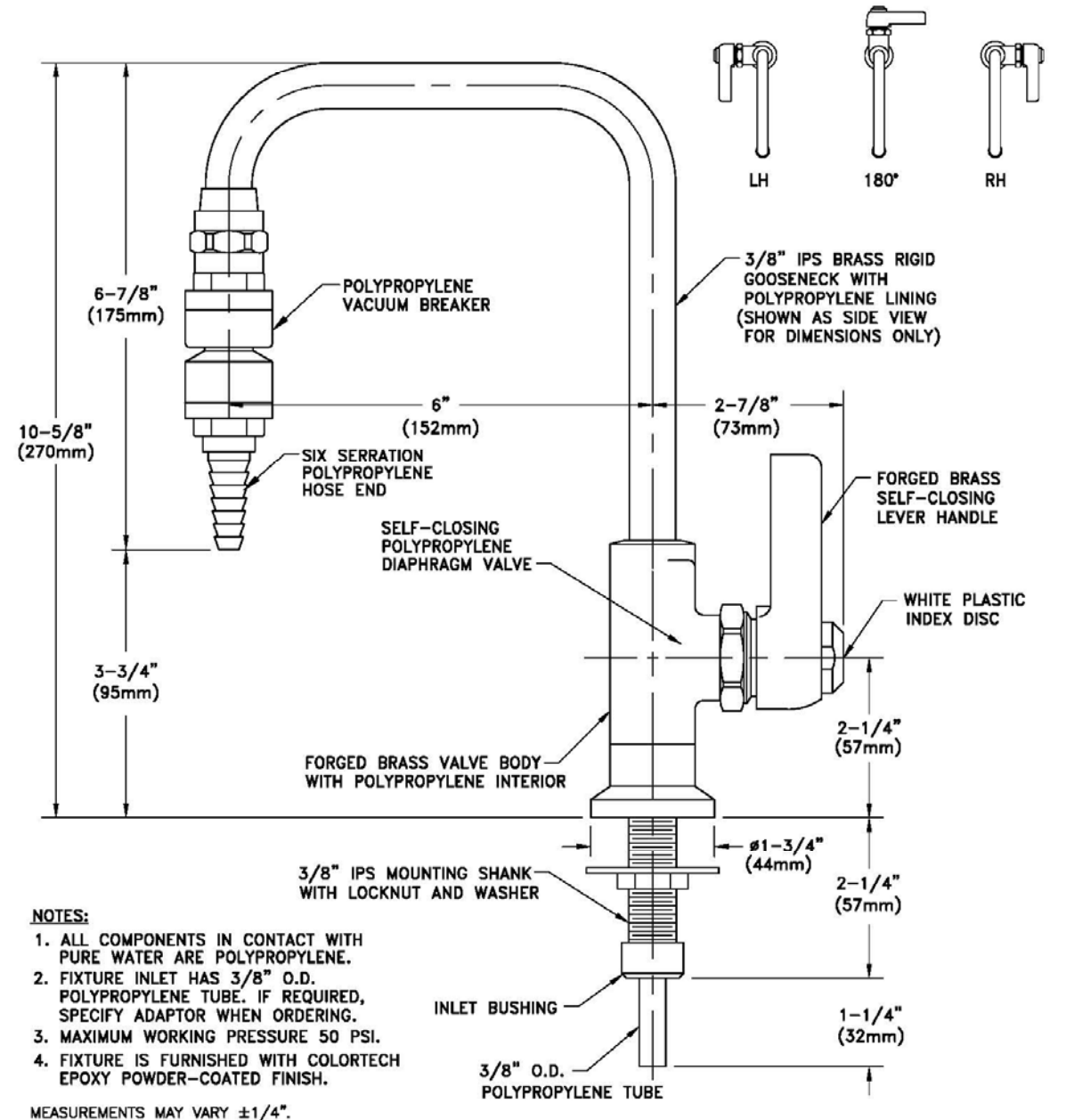
# COLORTECH

701 West Erie Street Phone 312 666 5500  
Chicago, Illinois 60610 Fax 312 666 8597

Laboratory Service Fixtures by  
WaterSaver Faucet Co.

## CT7853SC-7110-LE

DECK MOUNTED FIXTURE FOR DISTILLED, DEIONIZED AND ULTRA-PURE WATER WITH ALL-POLYPROPYLENE INTERIOR LINING, 6" RIGID GOOSENECK, SELF-CLOSING OPERATION, POLYPROPYLENE VACUUM BREAKER AND LEVER HANDLE



**NOTES:**

1. ALL COMPONENTS IN CONTACT WITH PURE WATER ARE POLYPROPYLENE.
2. FIXTURE INLET HAS 3/8" O.D. POLYPROPYLENE TUBE. IF REQUIRED, SPECIFY ADAPTOR WHEN ORDERING.
3. MAXIMUM WORKING PRESSURE 50 PSI.
4. FIXTURE IS FURNISHED WITH COLORTECH EPOXY POWDER-COATED FINISH.

MEASUREMENTS MAY VARY  $\pm 1/4"$ .

Drawing Number: \_\_\_\_\_

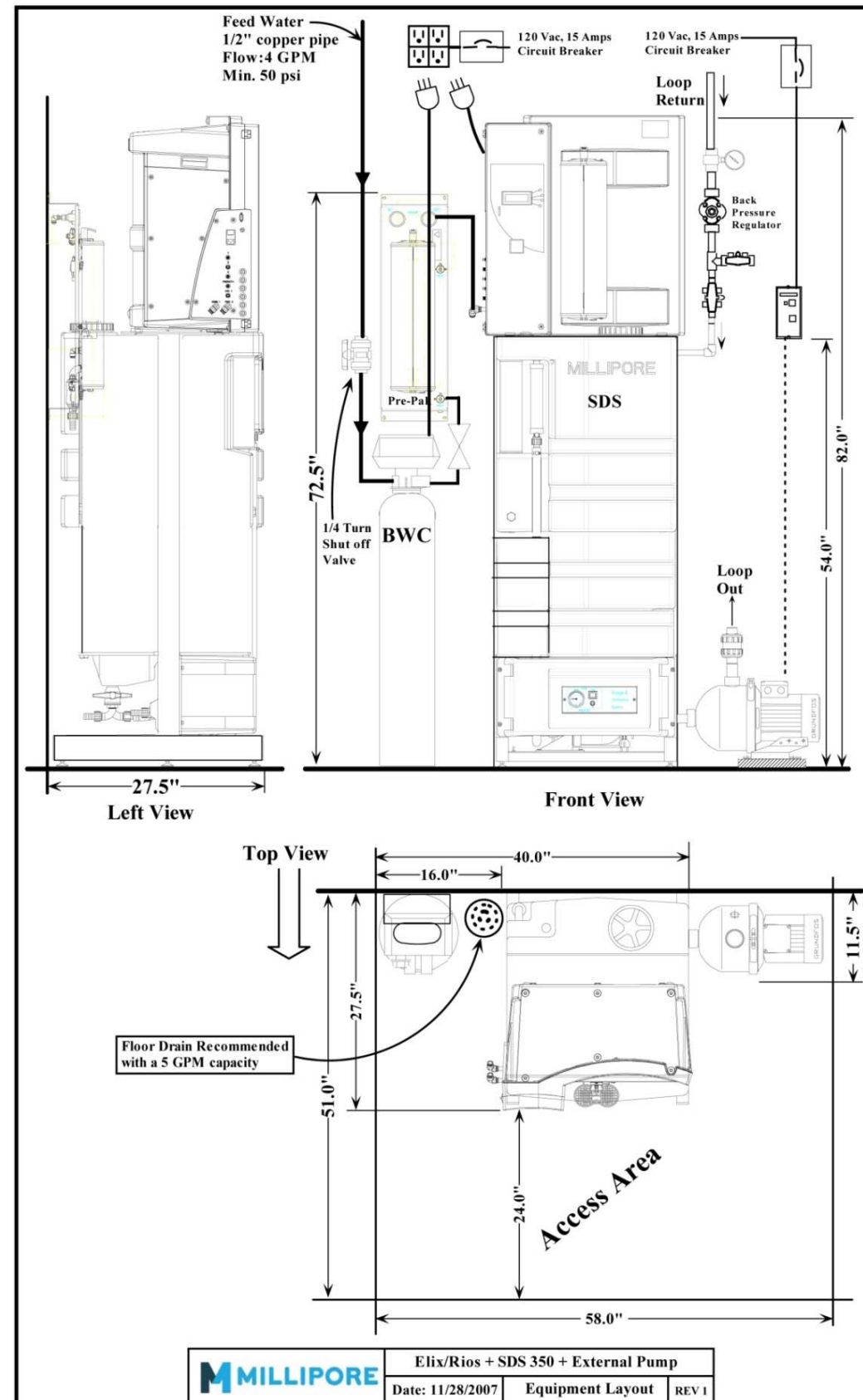
Revision Number: 090497-WK

# Pure Water System

Manufacturer may change to PureTec.

Located in chem prep area 2nd floor.

Looped distribution to all lab sinks with recirculating pure water supply. Unpigmented polypropylene piping with recirc loop to sink.





# PRODUCT DIMENSIONS

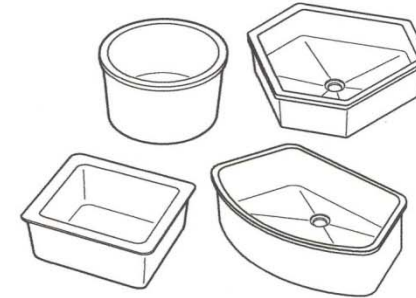
DOMESTIC SIZES

## Sink Cut Sheet

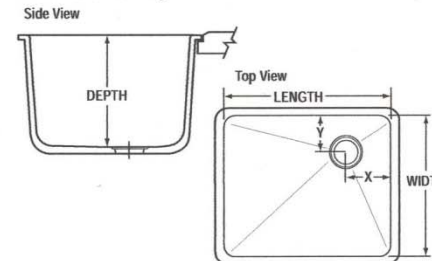
### Standard Dropln® Sinks

Sink No.	Outlet	Wgt (lb)	Dimensions (in)				
			Inside Bowl			Outlet Location	
			Length	Width	Depth	X	Y
D01C	Center	9	9.0	6.0	5.8	4.5	3.0
D03C	Center	16	12.0	8.0	5.8	6.0	4.0
A05	Corner	18	14.0	10.0	5.0	3.5	3.5
D05	Corner	22	14.0	10.0	6.2	3.5	3.5
D05C	Center	24	14.0	10.0	6.2	7.0	5.0
D10	End	20	16.0	8.0	6.8	4.5	4.0
D10C	Center	22	16.0	8.0	6.8	8.0	4.0
D15	Corner	30	16.0	12.0	8.0	3.5	3.5
D15C	Center	31	16.0	12.0	8.0	8.0	6.0
D19	Corner	42	16.0	16.0	9.6	3.5	3.5
D20	Corner	32	16.0	16.0	7.5	3.5	3.5
D22C	Center	30	18.0	6.5	6.8	9.0	3.3
D24(C)	Center	30	18.0	14.0	10.5	9.0	6.8
A25	Corner	35	18.0	15.0	5.0	3.5	3.5
D25	Corner	39	18.0	15.0	7.9	3.5	3.5
D30	Corner	53	18.0	15.0	11.0	3.5	3.5
D30C	Center	50	18.0	15.0	10.8	9.0	7.5
D33E	End	59	21.0	17.0	9.8	4.5	8.5
D45	Corner	64	21.5	15.5	11.0	3.5	3.5
D50C	Center	48	24.0	16.0	8.0	12.0	8.0
D52	Corner	77	24.0	18.0	11.0	3.5	3.5
A55	Corner	47	25.0	15.0	4.8	3.5	3.5
D55	Corner	61	25.0	15.0	10.0	3.5	3.5
D59	Corner	61	28.0	15.0	11.8	3.5	3.5
DRS12	Center	18	12.0	Round	7.8	Center	

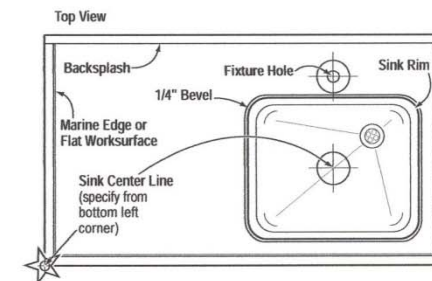
### Dropln® Sink Styles



### Dimensions Key



### Installation Detail

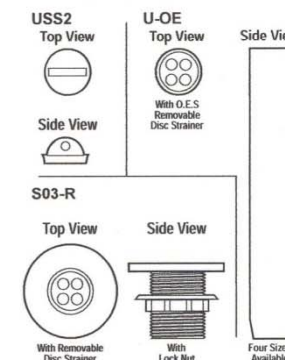


### Special Order Dropln® Sinks

Sink No.	Outlet	Wgt (lb)	Dimensions (in)				
			Inside Bowl			Outlet Location	
			Length	Width	Depth	X	Y
D06*	Center	34	12.0	12.0	12.0	6.0	6.0
A07*	Corner	24	14.0	14.0	5.0	3.5	3.5
D08*	Corner	25	15.0	8.0	6.0	3.5	3.5
D09*	Corner	25	15.0	8.0	10.8	3.5	3.5
D21*	Corner	58	16.0	16.0	15.0	3.5	3.5
A26*	Corner	39	18.0	15.0	5/11	4.5	5.5
D32	Corner	49	18.0	15.0	15.8	3.5	3.5
D51*	Corner	60	24.0	16.0	9.6	3.5	3.5
D54*	Corner	45	25.0	15.0	8.0	3.5	3.5
D57*	Corner	71	25.0	15.0	13.6	3.5	3.5
D58*	Corner	79	25.0	15.0	17.8	3.5	3.5
D61	End	94	30.0	16.0	17.8	4.5	7.5
D65C*	Center	98	35.5	19.5	9.8	17.8	9.8
D68**	End	70	30.0	16.0	10.0	4.75	8.0
D70C*	Center	95	24.0	16.0	15.5	8.0	12.0
D100**	Center	29	22.5	Hexagon	5.0	Center	
D200**	End	64	30.9	Hexagon	7.0	15.5	8.0
DRS10*	Center	14	10.0	Round	7.8	Center	
DHC20*	End	82	30.0	Hexagon	7.0	Center	
D99*	End	56	32.0	Semi-Circle	10.0	11.5	4.5

All sinks are available at both plants unless they are Special Order Sinks, available as noted:  
 \* Available only from Taylor, TX, plant (colors: Black Onyx, Gray, Graphite, Tan, Forest Green and Steel Blue).  
 \*\* Available only from Canton, MI, plant (colors: Black Onyx, Gray and Alpine White).  
 ♿ ADA compliant sinks are designated by this symbol.  
 All Dimensions are nominal. Exterior dimensions vary by MFG location. Cutsheets available upon request.

### Outlets & Accessories



Accessible sink:  
 A26: 18"Lx15"Wx5/11"D  
 located at all accessible sink locations

Large Lab Sink:  
 D61: 30"Lx16"Wx17.8"D

Standard Lab Sink:  
 D59: 28"Lx15"Wx11.8"D

Chemistry Student Island Sink:  
 D06: 12"Lx12"Wx12"D

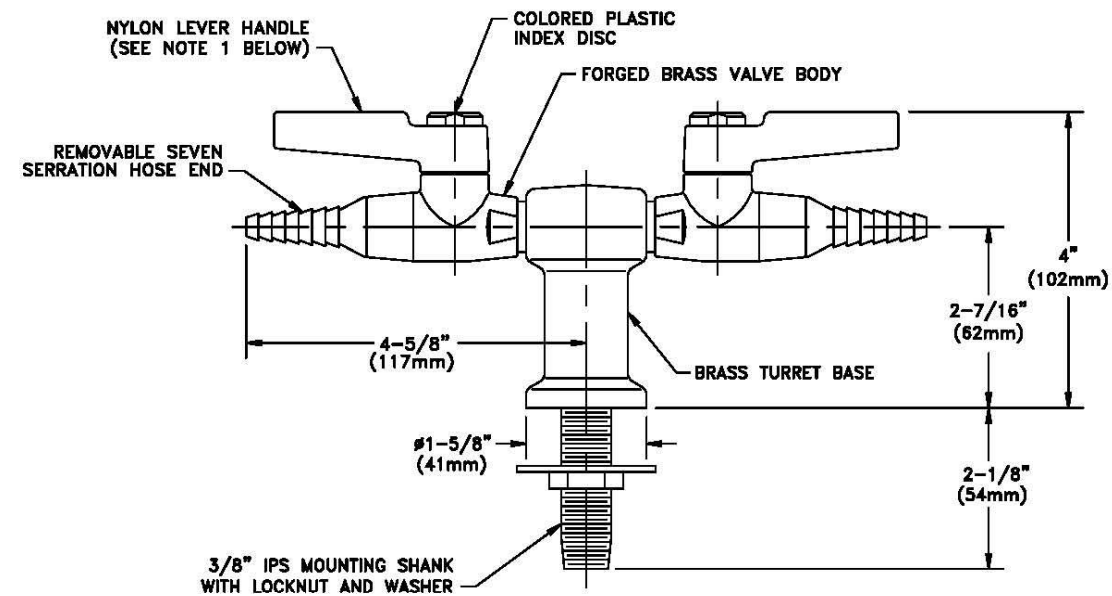
# Gas/Vacuum/Air Valve Cut Sheet

## COLORTECH

701 West Erie Street Phone 312 666 5500  
Chicago, Illinois 60610 Fax 312 666 8597

Laboratory Service Fixtures by  
WaterSaver Faucet Co.

**CT4200-232SWSA**  
DECK MOUNTED TURRET BASE WITH TWO LABORATORY BALL VALVES AT 180° AND MOUNTING SHANK



Single Turret Valve at wall bench or service column

Double Turret Valve at island bench or peninsula bench

**NOTES:**

1. VALVE IS FURNISHED WITH A BLACK NYLON LEVER HANDLE AS STANDARD. A COLORED NYLON HANDLE AND A CHROME PLATED FORGED BRASS HANDLE ARE ALSO AVAILABLE.
2. VALVE IS FACTORY ASSEMBLED AND TESTED AT 125 PSI. MAXIMUM WORKING PRESSURE IS 75 PSI.
3. VALVE IS CERTIFIED FOR GAS SERVICE BY CANADIAN STANDARDS ASSOCIATION UNDER STANDARD ANSI Z21.15-1997/CGA9.1-M97.
4. FIXTURE IS FURNISHED WITH COLORTECH WHITE POWDER-COATED FINISH.

MEASUREMENTS MAY VARY  $\pm 1/4$ ".

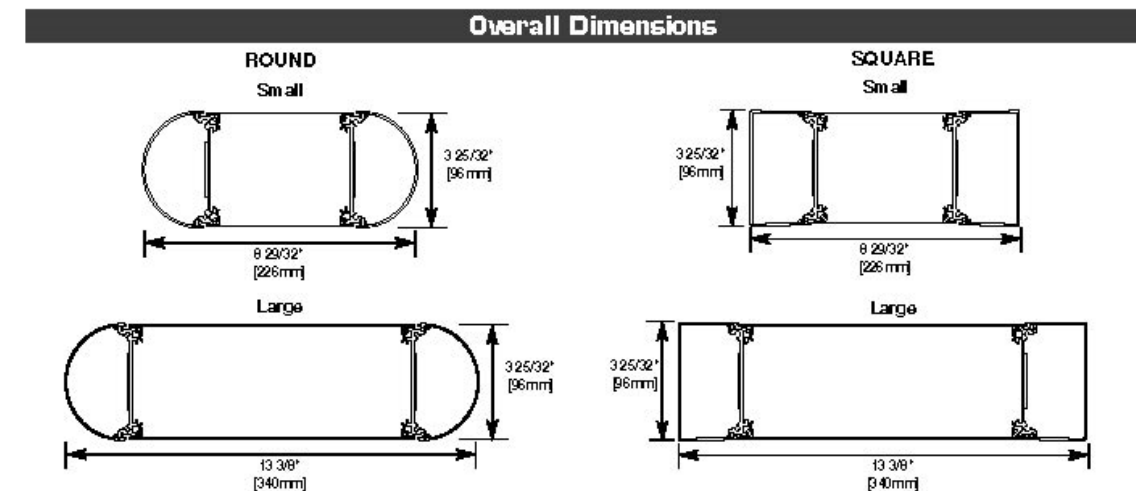
Drawing Number: \_\_\_\_\_

Revision Number: 082406-SJP

# Service Column Cut Sheet

Round-Large

Locate between mobile lab benches in Prep Areas



**Vista Series Wire Fill Capacity for Communication**

	CABLE/WIRE SIZE	O.D.		ONE SQUARE END CHANNEL	ONE ROUND END CHANNEL	SMALL CENTER	LARGE CENTER	ONE SQUARE EXTENSION	ONE ROUND EXTENSION
		Inches	[mm]						
UNSHIELDED TWISTED PAIR	Cat 3, 2-pair, 24 AWG	0.140	[3.6]	190	150	40	80	131	94
	Cat 3, 3-pair, 24 AWG	0.150	[3.8]	166	131	34	68	114	82
	Cat 3, 4-pair, 24 AWG	0.190	[4.8]	103	81	22	44	71	51
	Cat 3, 25-pair, 24 AWG	0.410	[10.4]	22	17	4	8	15	11
	Cat 5e, 4-pair, 24 AWG	0.220	[5.6]	77	61	16	32	53	38
	Cat 6, 4-pair, 24 AWG	0.250	[6.3]	59	47	12	24	41	29
SHIELDED TWISTED PAIR	Type1 22 AWG	0.390	[9.9]	24	19	4	8	16	12
	Type 2, 22 AWG	0.465	[11.8]	17	13	2	4	11	8
	Type 3, 24 AWG	0.245	[6.2]	62	49	12	24	42	30
COAXIAL	RG58/U, 20 AWG	0.195	[5.0]	98	77	20	40	67	48
	RG58/U, 22 AWG	0.242	[6.1]	63	50	12	24	43	31
	RG6/U, 22 AWG	0.242	[6.1]	63	50	12	24	43	31
	RG6/U, 18 AWG	0.270	[6.9]	51	40	10	20	25	25
TWINAXIAL	100 Ohm	0.330	[8.4]	34	27	60	12	23	71
FIBER OPTIC		0.180	[4.6]	103	81	22	44	71	51

\*Capacity range is calculated at 40% of raceway area as stated in a proposed revisions to the Commercial Building Standard for Telecommunication Pathways & Spaces, EIA/TIA-569. Actual wire fill capacity may vary based on applications, cable types, and number, as well as type of fittings. (Fittings may cause additional variances to the fill capacity.)

**Vista Wire Fill Capacity for Power**

Capacity of Compartment	WIRE SIZE THHN/THWN				
	6 AWG	8 AWG	10 AWG	12 AWG	14 AWG
One End Channel Round or Square	7	9	16	26	35
Center (Small)	14	18	32	52	70
Center (Large)	28	36	64	104	140
One Extension Round or Square	4	6	10	16	22



The Wiremold Company  
 U.S. and International:  
 60 Woodlawn Street • West Hartford, CT 06110  
 1-800-621-0049 • FAX 860-232-2052 • Outside U.S. 860-233-6251  
 Canada:  
 850 Garsshore Street • Fergus, Ontario N1M 2W8  
 1-800-741-7957 • FAX 519-843-5680

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ED1133R4 - September 2002 - For latest specs visit [www.wiremold.com](http://www.wiremold.com)



# Undercounter Washer Cut Sheet

Provide RO water for rinse cycle  
Model 4400431- 208v

## SteamScrubber® Laboratory Glassware Washers

### SPECIFICATIONS & ORDERING INFORMATION



SteamScrubber Laboratory Glassware Washer 4400330 is shown with 48-Pin Insert 4591601, Petri Dish Insert 4589701, Bulk Tube Insert 4542100, Utensil Holder 4542500 and BOD Bottle Insert 4589201.



#### All models feature:

- Upper and lower standard open racks of Type 304 stainless steel
- LCD information center, Display button, Run/Cancel button, scroll buttons and selection buttons to program and monitor cycles
- Pump to recirculate 96 gal/min (363 liters) when operated on 115 Volts, 60 Hz and 230 Volts, 50 Hz and 112 gal/min (424 liters/min) on 230 Volts, 60 Hz
- Drain pump to evacuate over 7 gal/min (26 liters/min)
- Purified water pump to bring non-pressurized or pressurized purified water into the tank for up to six pure water rinses
- Steam generator that produces hot vapor before the WASH 2 cycle (RINSE ONLY and PLASTIC programs excluded)
- Aluminum-backed insulation and fiberglass blanket for thermal and sound insulation
- Operation at 58 decibels
- Manual-fill detergent dispenser for powder or liquid detergent
- Manual-fill rinse aid solution dispenser
- Forced air drying programmable up to 99 minutes and from 38-70°C (100-158° F)
- Seven factory-set cycle programs: RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, SCIENCE PLUS, and DRY ONLY. All 208/230 Volt models have three additional programs for a total of ten: INTENSE, INTENSE PLUS and EXTREME.
- Two user-set cycle programs
- Alarms with display for HOT GLASS, PLEASE WAIT, WATER LOW, WATER HIGH, OVERFLOW, LIQ DETER, RINSE AID DRAIN FAIL and LOW TEMP. Audible alarms self cancel after one minute.
- User-set delayed start (up to 8 hours)

- Type 304 stainless steel top, door, tank, upper, middle and lower wash arms. Freestanding models also have stainless steel exterior sides and top.
- One-piece, stainless steel, fine mesh particle drain filter
- Four leveling feet
- 3/8" Female NPT inlet fitting for hot tap water connection
- Factory-installed drain hose and band clamp
- Two year warranty on parts and labor
- Made in the U.S.A.
- IQ/OQ available. Visit [www.labconco.com](http://www.labconco.com) or call 800-821-5525.

#### All models conform to:

- UL 3101-1/61010-1
- CAN/CSA C22.2 No. 1010-1
- CE Conformity Marking (208/230 Volt models only)

#### All models require:

- Minimum inlet water temperature 49° C (120° F)
- Recommended inlet water temperature 60° C (140° F)
- Minimum purified water pressure 0 psi
- Water consumption per fill 3.4 gallons (13 liters)
- Hot tap water pressure at the washer 20-120 psi (138-827 KPa)
- Hot tap water flow rate 1.25 gallons (4.7 liters) per minute
- 3/8" OD copper tubing for connection to the water inlet valve
- Purified water with supply piping minimum 3/8" ID to permit at least 0.9 gallon (3.4 liters) per minute flow

#### Options include:

- Freestanding and undercounter styles
- Water temperature to 82° C (180° F) on 115 Volt models and 93° C (199° F) on 230 Volt models
- Clear tempered safety glass viewing window and 25-watt interior light that illuminates when door is latched

#### Optional accessories and companion products on pages 18 - 22 include:

- Base Stand
- Upper and Lower Spindle Racks
- Baskets and Inserts
- Freestanding-to-Mobile Conversion Kits
- Drain Water Cooling Kit
- LabSolutions Detergents and Rinse
- ScrubberMate Cart, Glassware Carts and Carboy Caddy
- WaterPro RO Stations and accessories

Catalog #	Style	Electrical Requirements	Maximum Internal Water Temperature	Viewing Window and Light	Overall Dimensions with Door Closed	Shipping Weight
4400320	Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4400321	Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4400330	Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4400331	Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4400420	Freestanding	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)
4400421	Freestanding	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)
4400430	Freestanding	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)
4400431	Freestanding	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)

Exclusive Labconco feature

## SteamScrubber® Laboratory Glassware Washers

### FEATURES & BENEFITS

For washing and drying primarily beakers and other wide-mouth or specialized glassware.

**Steam generator.** Produces hot vapor to penetrate and soften dried contaminants for more effective cleaning.

**Forced air drying system.** Hot air is blown into the tank to dry glassware. No separate dryer or oven is needed.

**Dual pumps,** one for washing and one for draining, reduce the potential for cross contamination.

**Powerful pump recirculates water at a high rate** to dislodge dried contaminants for thorough cleaning. Water recirculates at 96 gal/min (363 liters/min) on 115 Volt, 60 Hz and 230 Volt, 50 Hz models and 112 gal/min (424 liters/min) on 230 Volt, 60 Hz models.

**Versatile rack options.** The standard open racks are interchangeable with optional upper and lower spindle racks. Additional racks are sold separately. See page 18.

**User-set delayed start (up to 8 hours)** may be programmed so that the washer operates during off-peak hours when electricity may be less expensive and more plentiful.

**Up to 6 pure water rinses may be programmed.** A built-in purified water pump draws from a storage tank or pressurized source for final rinses.

**360° rotating upper, middle and lower wash arms** distribute water and detergent.

**Full two year warranty.** Is provided against defects in materials and workmanship.

**Attractive and durable Type 304 stainless steel door and tank.** Freestanding models also have stainless steel sides and top.



**INCLUDES Upper and lower stainless steel standard open racks.** Accommodate a variety of accessory inserts holding the broadest range of glassware. Inserts are sold separately. See pages 18 and 19.

**Sanitizing high heat.** Water temperature reaches 93° C (199° F) on 230 Volt models to sanitize glassware and for enhanced washing, rinsing and faster drying.

**Detergent dispenser for powder or liquid detergent.** Releases a manually premeasured amount ensuring clean labware.

**Quiet, energy-efficient operation at 58 decibels.** Aluminum-backed, sound-deadening insulation and fiberglass blanket absorb noise and optimize internal tank temperature to conserve energy.

**Rinse solution dispenser.** Allows manual addition of mildly acidic rinse to alter pH and eliminate alkaline detergent carry-over. The dispenser holds approximately 170 milliliters, enough for 40 or more cycles.

**Alarms sound and/or display on the LCD** to alert the user to abnormal or unsafe events such as HOT GLASS and OVERFLOW.

**Optional clear tempered safety glass viewing window with 25-watt interior light** allows observation of the cycle in progress. Available standard on some models.

**ETL-listed.** Washers carry the ETL mark signifying they are certified to UL Standard 3101-1/61010-1 and CAN/CSA C22.2 No. 1010.1.

**CE Mark.** Washers conform to the CE (European Community) requirements for electrical safety and electromagnetic compatibility.



Exclusive Labconco feature



## POLY ACID-CORROSIVE SAFETY STORAGE CABINET

### Corrosive Cabinet Cut Sheet

Anatomy/Biology Prep

External exhaust per Div. 23- 25 cfm per cabinet section

2" diameter exhaust at each side of cabinet- one for lower section; one for top section; each at 50 cfm exhaust



#### EAGLE Poly Acid/Corrosive Safety Cabinet

Eagle's new non-metallic "Poly Acid Cabinets" are constructed of 100% polyethylene for excellent resistance to harmful acid vapors and spills, making these cabinets suitable for storing aggressive chemicals such as sulphuric, hydrochloric and nitric acids.

Independent upper and lower compartments allow for segregation of reactive chemicals. Includes two 3/8" threaded inserts on top sides for wall anchors. The base of the cabinet is flush to floor and sides. Bottom shelves remove for easy cleaning of sump areas. Available in blue, shown here, or [white](#).

CRAP-44 Poly Acid Safety Cabinet

EAGLE Poly Acid/Corrosive Cabinet					
Model	Capacity	Door Specs	Shelves	Size (WxDxH)	Weight
CRA-P44	44 gal.	4 Manual Closing	8	35" x 22" x 65"	130 lbs.
<a href="#">CRA-P44W</a>	44 gal.	4 Manual Closing	8	35" x 22" x 65"	130 lbs.



## **EAGLE** MODEL 4510 SAFETY CABINET



### **EAGLE Model 4510 Safety Cabinet**

Constructed of 18-gauge steel, sides, top, bottom, and doors are double-walled with a 1 1/2" air space between walls. Both vents, with 2" threaded fittings, have fire baffle and cap. Cabinets come in yellow high gloss powder finish with red warning, plus grounding attachment, 3-point key lock, and 2" raised, leakproof door sill. Each shelf is adjustable, supported by 4 brackets, and can support 350 pounds. Features 2 self-closing doors. FM approved.

#### **SPECIFICATIONS**

**CAPACITY:** 45 gallons

**SHELF DEPTH:** 14.75"

**SHELVES:** 2

**DIMENSIONS:** 43" x 18" x 65"

**WEIGHT:** 353 lbs.



**Model 4510 Safety Cabinet**

# Electrical Pedestal Cut Sheet

Provided by Div 26- shown for reference only

# C0322 – 300 lb Cube Ice Machine

Prodigy® Modular Cube Ice Maker



Shown on B322S bin.

## Features

Prodigy® cubers use significantly less energy and water than other cube ice machines, exceeding Federal energy efficiency regulations.

AutoAlert™ indicator lights constantly communicate about operating status and actually signal your staff when it's time to descale, sanitize, and more—making upkeep practically foolproof.

The patented WaterSense adaptive purge control delivers maximum reliability by reducing scale buildup for a longer time between cleanings.

Preventative maintenance is simpler than ever with easily-removed panels allowing clear access to internal components and a diagnostic code display insuring the right fix the first time. Reusable air filter is easily removable from the outside.

All external panel components are crafted for optimal aesthetic appeal through superior fit and finish.

An optional advanced feature Smart-Board™ provides NAFEM data protocol and additional operational data that can be displayed on-screen or transmitted remotely, resulting in early alert and fast diagnosis of operating issues.

An optional Vari-Smart™ ultrasonic ice level control sensor allows you flexibility to program ice levels, for up to 7 days, keeping just the right amount of freshly made ice in the bin.

## 24 Hour Volume Production

Air Cooled			Water Cooled		
70°F/21°C	AHRI		70°F/21°C	AHRI	
50°F/10°C	90°F/32°C		50°F/10°C	90°F/32°C	
lb/kg	Water	lb/kg	lb/kg	Water	lb/kg
356/162	255/116		366/166	280/127	

## Modular Bin Options

Model Number	Dimensions W" x D" x H"	AHRI Certified Bin Capacity lb/kg	Application Capacity lb/kg	Finish	Ship Weight lb/kg
B322S	22 x 34 x 44	290/132	370/168	SS	140/64



Bin: B322S

## Cube Ice



Small Cube  
7/8" x 7/8" x 3/4"  
(2.22 x 2.22 x .95 cm)

Medium Cube  
7/8" x 7/8" x 7/8"  
(2.22 x 2.22 x 2.22 cm)

Common ice form, ideal for mixed drinks.

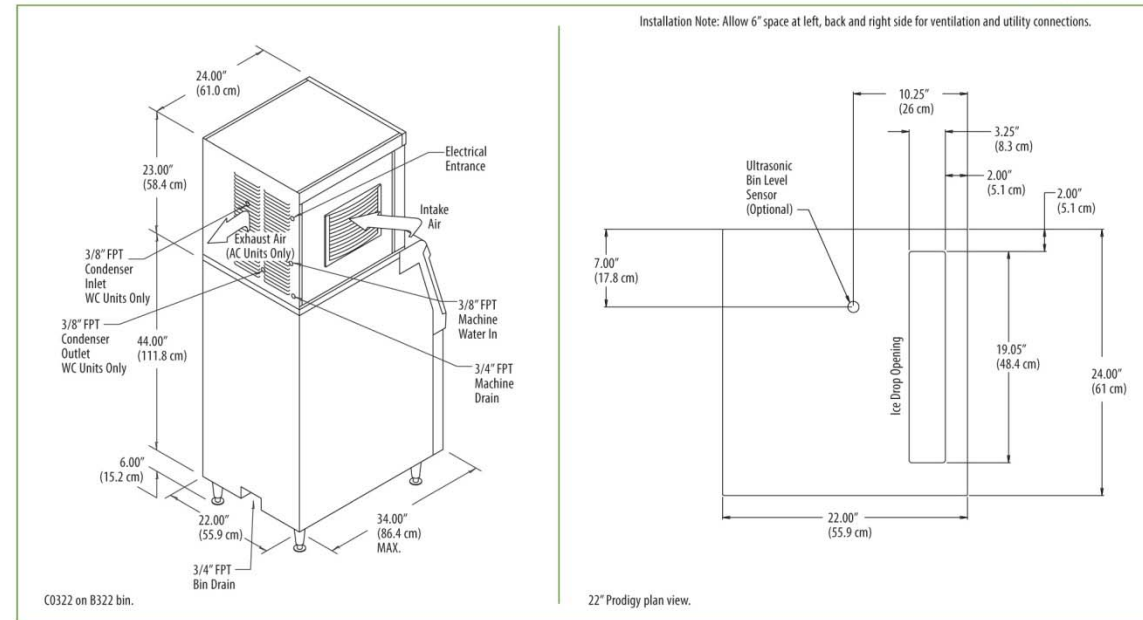
## Warranty

- 3 years parts and labor on all components.
- 5 years parts and labor on the evaporator.
- 5 years parts on the compressor and condenser.

Warranty valid in North, South & Central America. Contact factory for warranty in other regions.



C0322 – 300 lb Cube Ice Machine



## Specifications

Model Number*	Condenser Unit	Basic Electrical Volts/Hz/Phase	Max. Fuse Size or HACR Circuit Breaker (amps)	Circuit Wires	Min. Circuit Ampacity	Energy Consumption kWh/100 lb (45.4 kg) 90°F(32°C)/70°F(21°C)	Water Usage Gallons/100 lb (liters/45.4 kg)	
							Potable 90°F(32°C)/70°F(21°C)	Condenser 90°F(32°C)/70°F(21°C)
C0322MA-1	Air	115/60/1	15	2	12.7	6.6	19.0/72.0	-
C0322MA-32	Air	208-230/60/1	15	2	6.1	6.6	19.0/72.0	-
C0322MW-1	Water	115/60/1	15	2	11.9	5.2	18.3/69.4	163.0/617.0
C0322SA-1	Air	115/60/1	15	2	12.7	6.6	19.0/72.0	-
C0322SW-1	Water	115/60/1	15	2	11.9	5.2	18.3/69.4	163.0/617.0

\* = ENERGY STAR®

## All Models

Dimensions (W x D x H):

Unit: 22" x 24" x 23"  
(55.9 x 61.0 x 58.4 cm)

Shipping Carton: 25.5" x 27.5" x 28"  
(64.8 x 69.9 x 71.1 cm)

Shipping Weight: 145 lb / 66 kg

BTUs per hour: 5,200

## Accessories

Model Number	Description
KVS	Vari-Smart™ Ice Level Control - Program ice bin levels to match ice needs.
KSBU	Smart-Board™ Advanced Control - Use additional operational data for fast diagnosis.
KSBU-N	Smart-Board™ Advanced Control with Network - Network capable.
KPAS	Prodigy Advanced Sustainability kit- Includes KVS and KSBU-N

\* Scotsman recommends all ice machines have water filtration. See Scotsman Sanitation Matrix for details.

## Operating Requirements

	Minimum	Maximum
Air Temperatures	50°F (10°C)	100°F (38°C)
Water Temperatures	40°F (4.4°C)	100°F (38°C)
Remote Cond. Temps	-20°F (-29°C)	120°F (49°C)
Water Pressures	20 PSIG (1.4 bar)	80 PSIG (5.5 bar)
Electrical Voltage	-10%	+10%

## Ice Machine Filter Cut Sheet

**Provide filter at ice machine in prep area on levels 1 and 2. Specified per Division 11, installed per Division 22.**