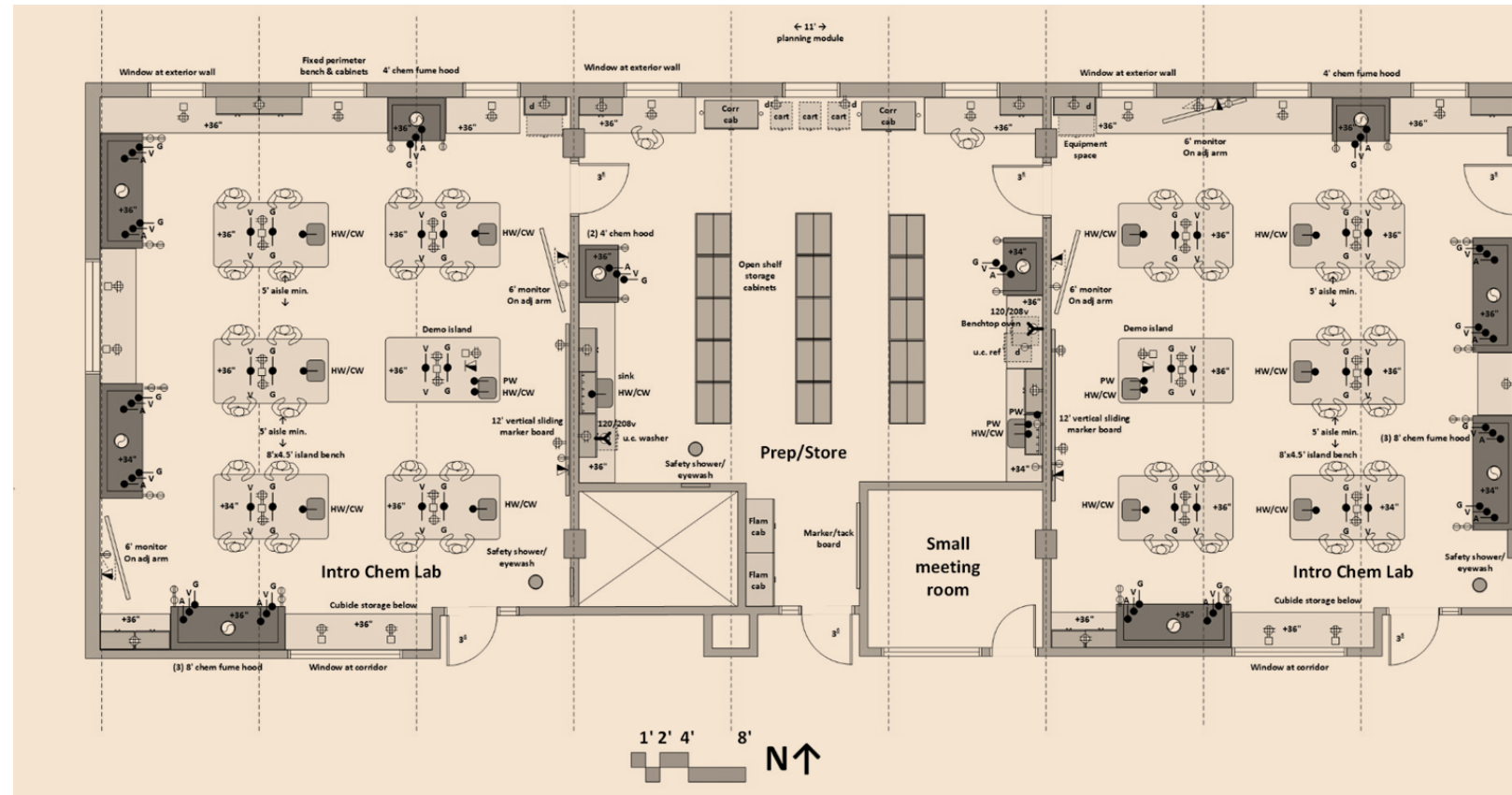


**LAB LAYOUTS-  
50% DESIGN DEVELOPMENT**  
Keck Science Center  
New Addition Labs  
Claremont Colleges  
2019 June 12- Draft #9



HERA Laboratory Planners  
Health, Education + Research Associates, Inc.  
Saint Louis, Missouri

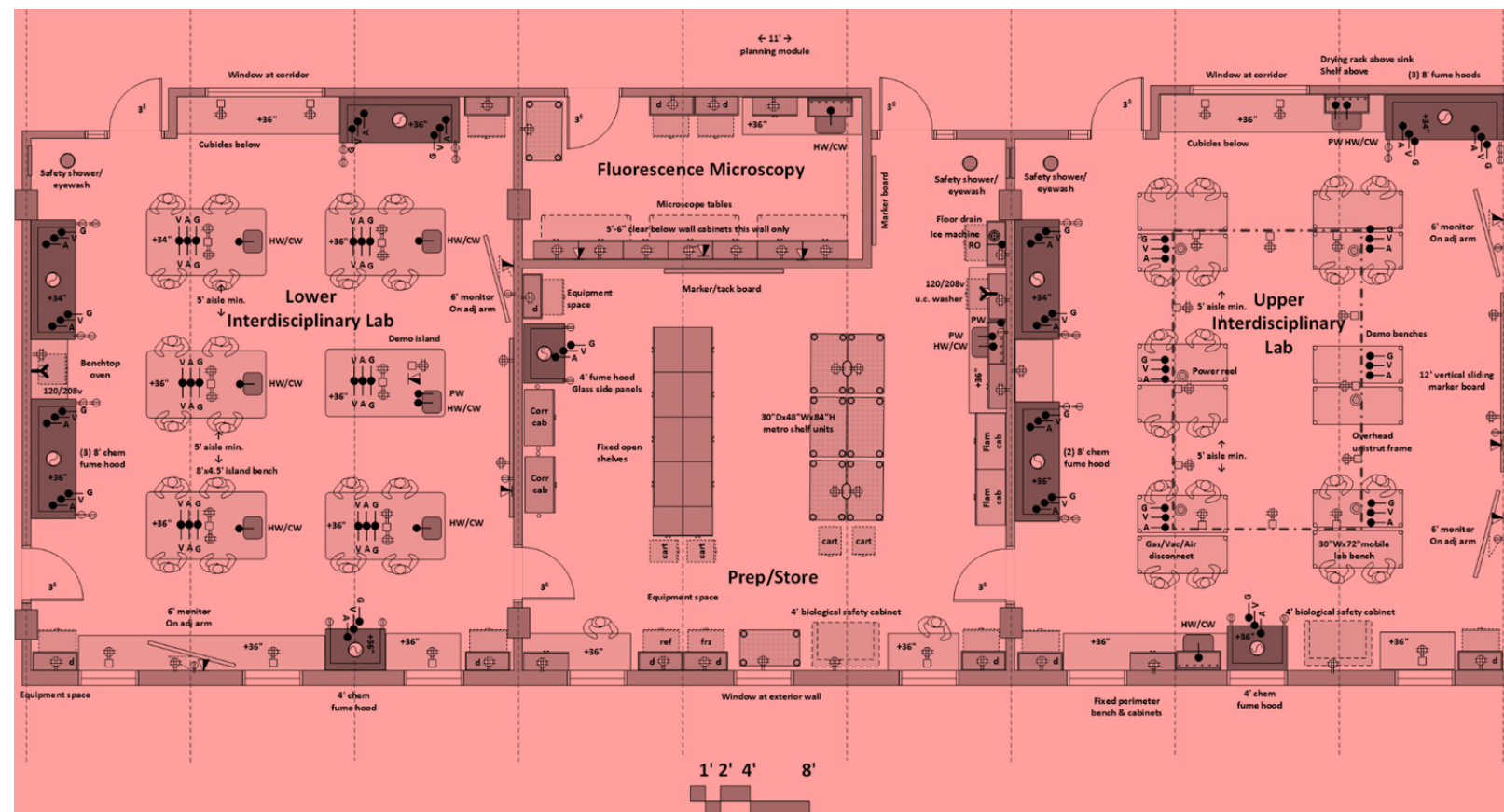
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# SUMMARY

This document is the ninth draft of the design for the new labs to be housed in the new addition of the Keck Science Center at Claremont Colleges in Claremont, California. The lab design has been updated to reflect faculty comments received to date, and design team coordination to date, and is considered to be at 50% complete for the Design Development phase.

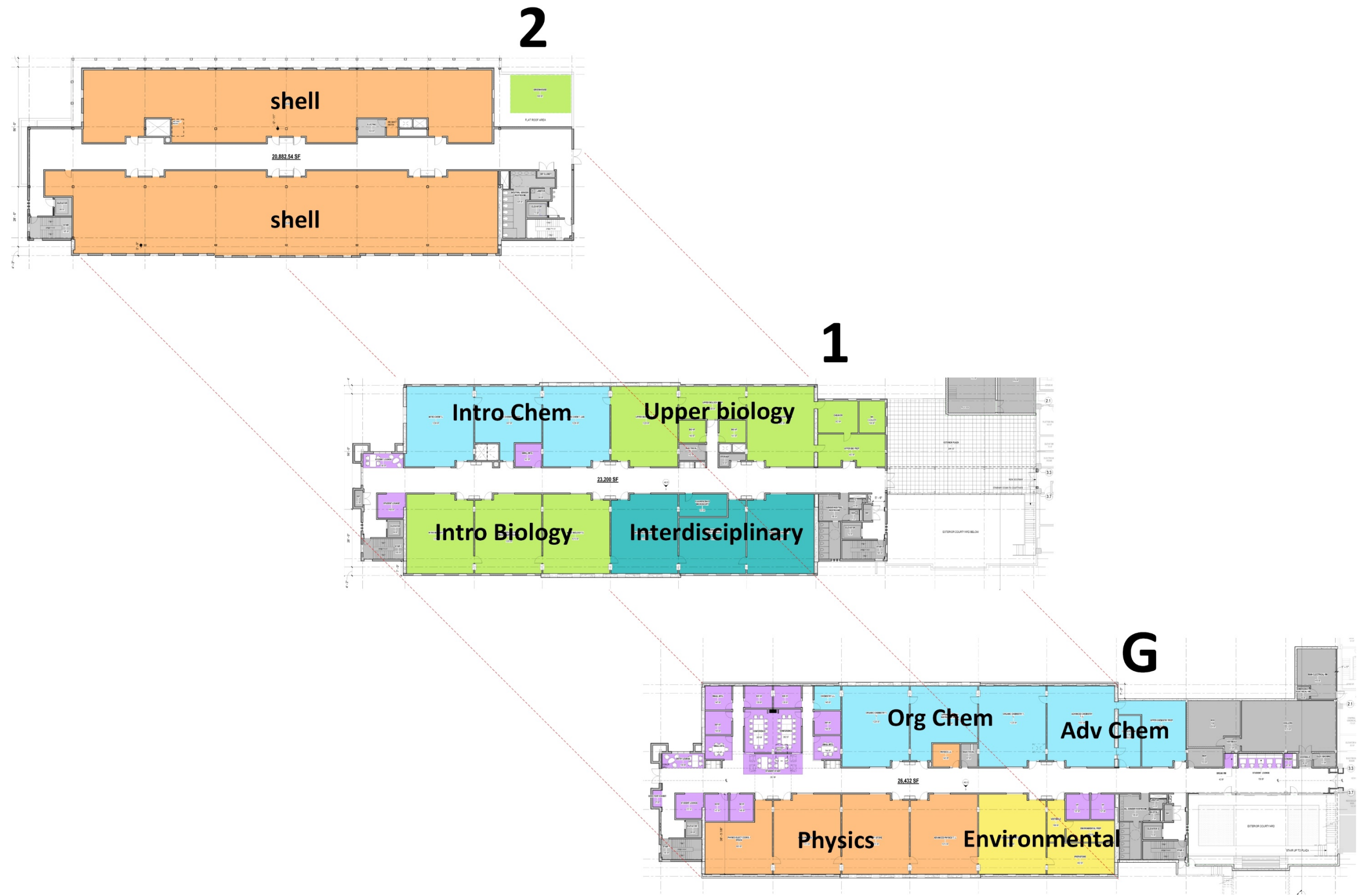


  
 Glen Berry, AIA  
 Laboratory Planning Consultant  
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**he**  
**ra**

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 Health, Education + Research Associates, Inc.  
 Saint Louis, Missouri

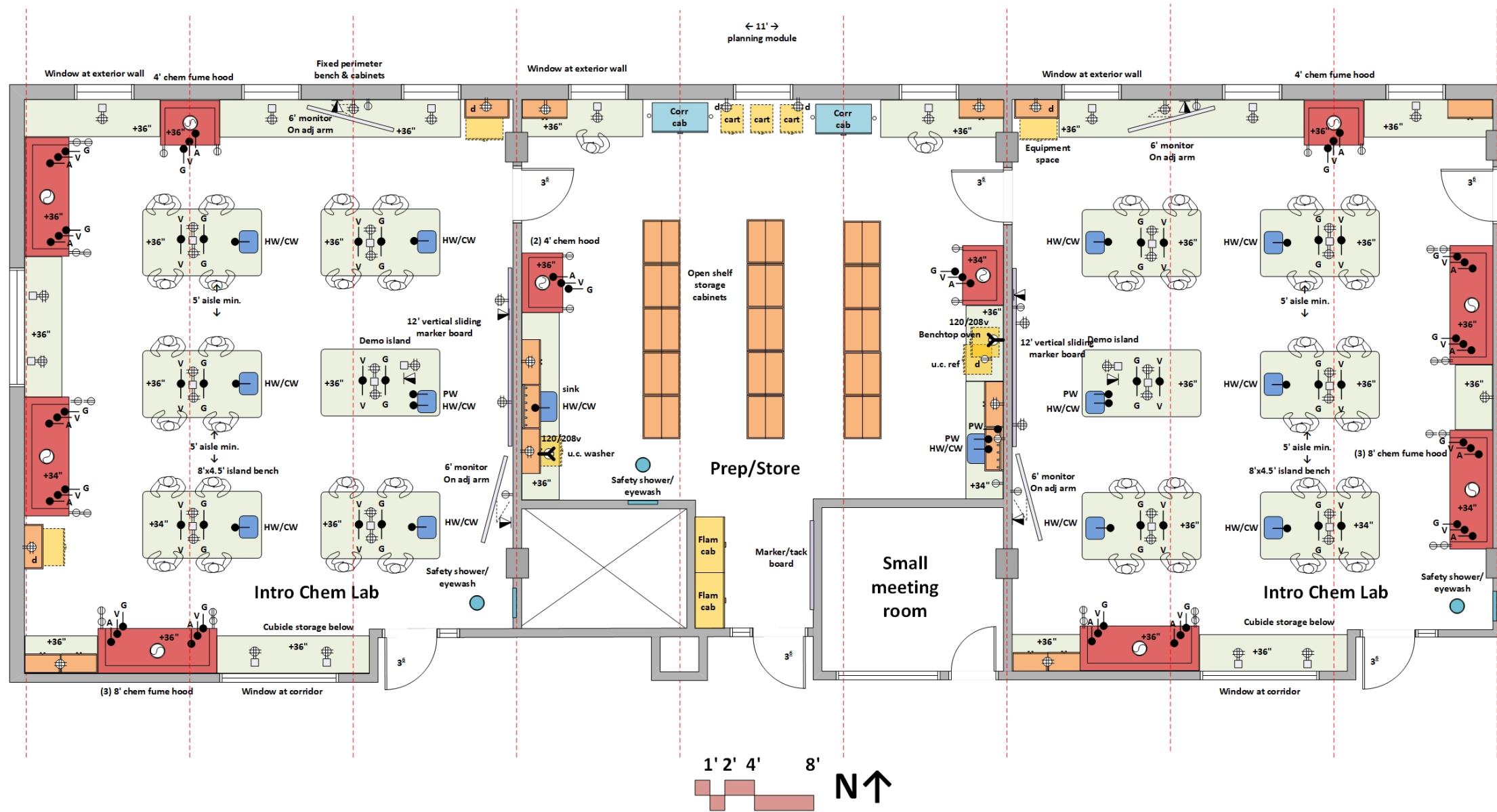
# LABS BY FLOOR



# CHEMISTRY

# INTRO CHEMISTRY TEACHING LABORATORIES & PREP/STORE

## First Level- Northeast



### ARCHITECTURAL

Occupancy: B  
 Number of Students: 20 (up to 24 if demo island is used for 4 students)  
 Floor: vinyl composition tile or sealed concrete  
 Walls: gypsum board and enamel paint  
 Ceiling: 10' acoustic tile  
 Doors: 3'x8' with window  
 Acoustic Attenuation: NC 45 or less  
 Security: digital access

### STRUCTURAL

Vibration attenuation: 2,000 microinches per second or less

### MECHANICAL

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 6 air changes per hour occupied; 4 air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Dedicated circuits at equipment space  
 Data & Wireless data  
 Lighting: indirect LED @ 650 LUX  
 Provide light switches at doors  
 2 circuits at each 8' fume hood

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water at sinks with point-of-use water polishers  
 Gas, vacuum, air at fume hoods- each side of 8' hood  
 Gas, vacuum at island benches  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

### CONTRACTOR FURNISHED EQUIPMENT

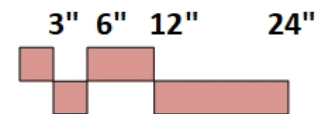
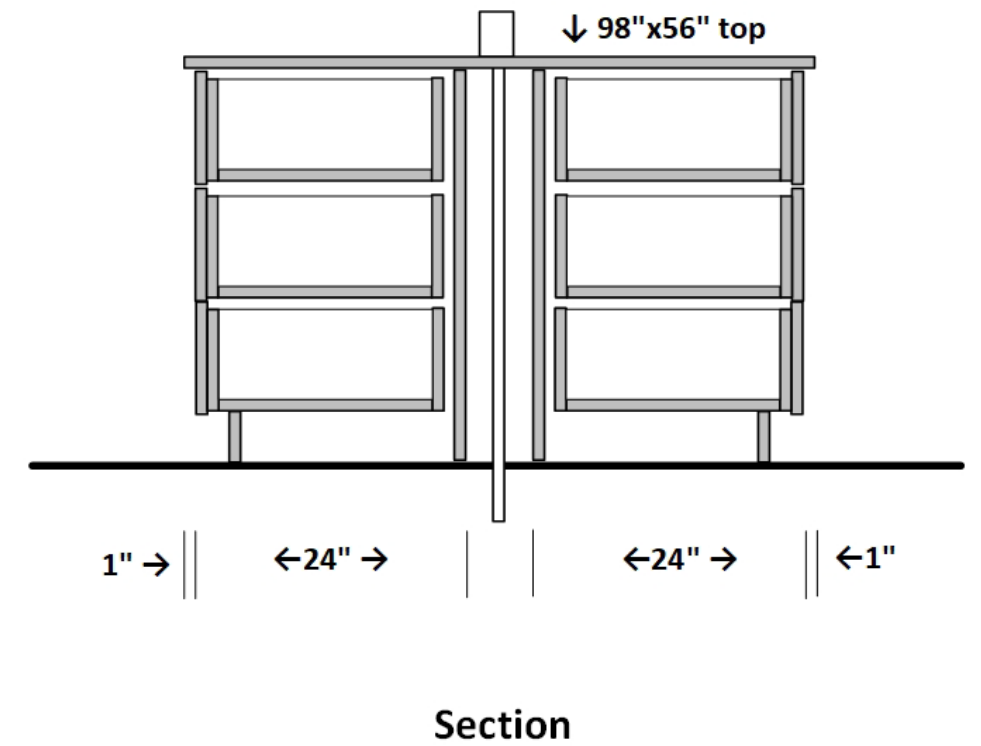
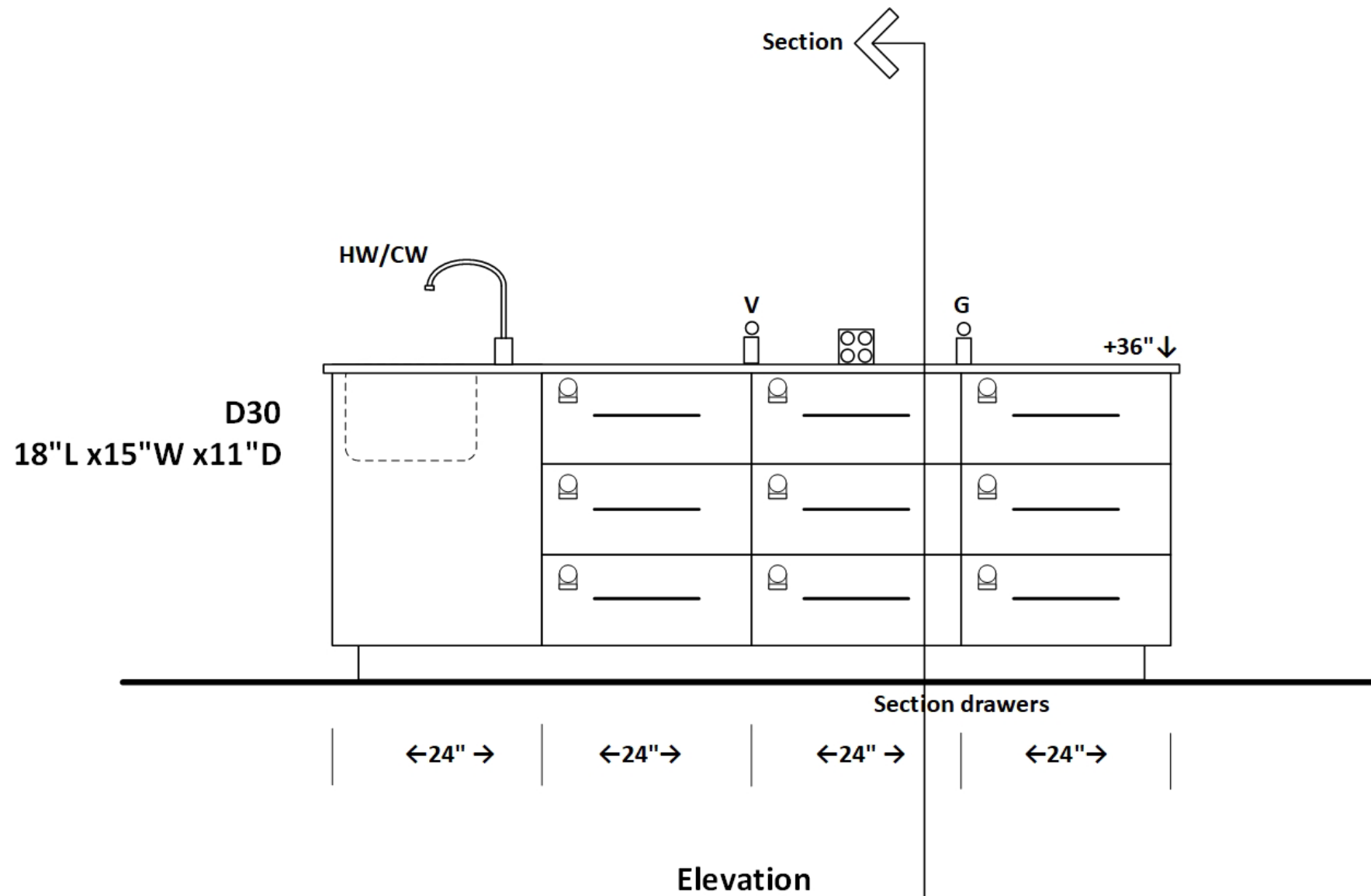
Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Backpack cabinets at lab entry  
 Epoxy resin tops and sinks; Faucets & fittings  
 Chemical fume hoods- 2 circuits per 8' hood  
 Chemical storage cabinets  
 Marker boards; monitors  
 Safety shower/eyewash; Fire Extinguisher  
 Undercounter washer

### OWNER FURNISHED EQUIPMENT

Chairs; Charts  
 Benchtop analytical instruments  
 Scientific equipment

# INTRO CHEMISTRY TEACHING LABORATORIES

## Student Island Elevation



# ORGANIC CHEMISTRY TEACHING LABORATORIES & PREP/STORE

## Ground Level- North



### ARCHITECTURAL

Occupancy: B  
 Number of Students: 20 maximum  
 Floor: vinyl composition tile or sealed concrete  
 Walls: gypsum board and enamel paint  
 Ceiling: 10' acoustic tile  
 Doors: 3'x8' with window  
 Acoustic Attenuation: NC 45 or less  
 Security: digital access

### STRUCTURAL

Vibration attenuation: 2,000 microinches per second or less  
 Consider reducing to 4,000 microinches per second or less

### MECHANICAL

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 6 air changes per hour occupied; 4 air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Dedicated circuits at equipment space  
 Data & Wireless data  
 Lighting: indirect LED @ 650 LUX  
 Provide light switches at doors  
 2 circuits at each 8' fume hood

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water at sinks via point-of-use water polisher  
 vacuum, air at fume hoods  
 Vacuum at student islands  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

### CONTRACTOR FURNISHED EQUIPMENT

Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Backpack cabinets at lab entry  
 Epoxy resin tops and sinks; Faucets & fittings  
 Chemical fume hoods- 2 circuits per 8' hood  
 Marker boards; monitors  
 Safety shower/eyewash; Fire Extinguisher  
 Undercounter washer

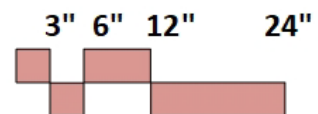
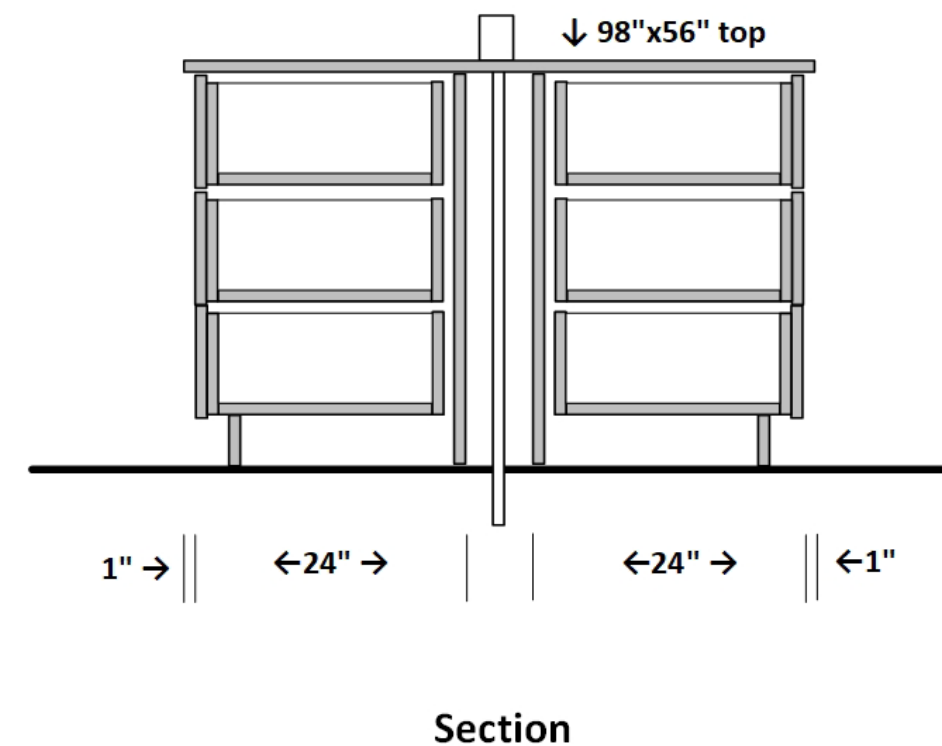
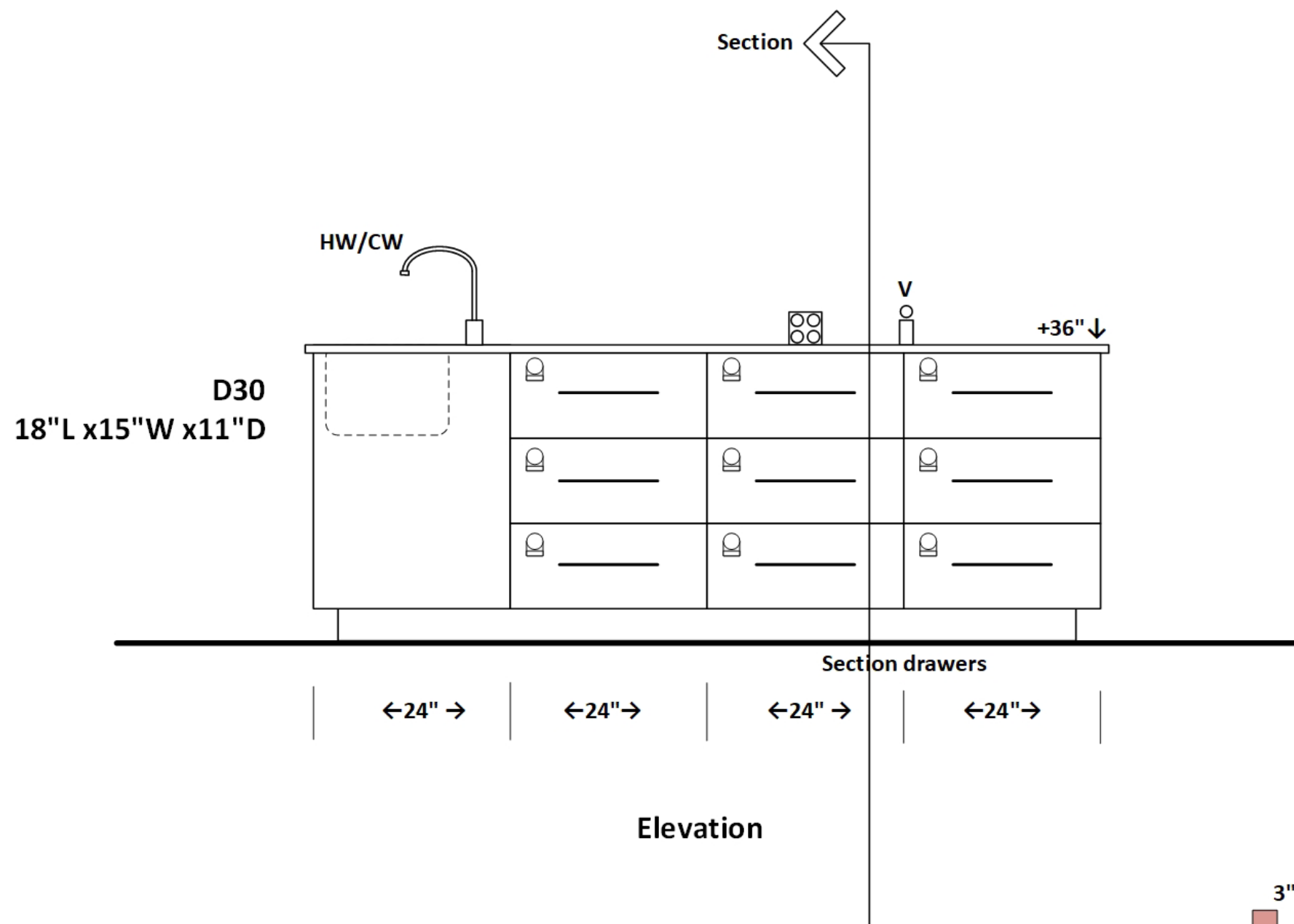
### OWNER FURNISHED EQUIPMENT

Chairs  
 Charts  
 Benchttop analytical instruments  
 Scientific equipment



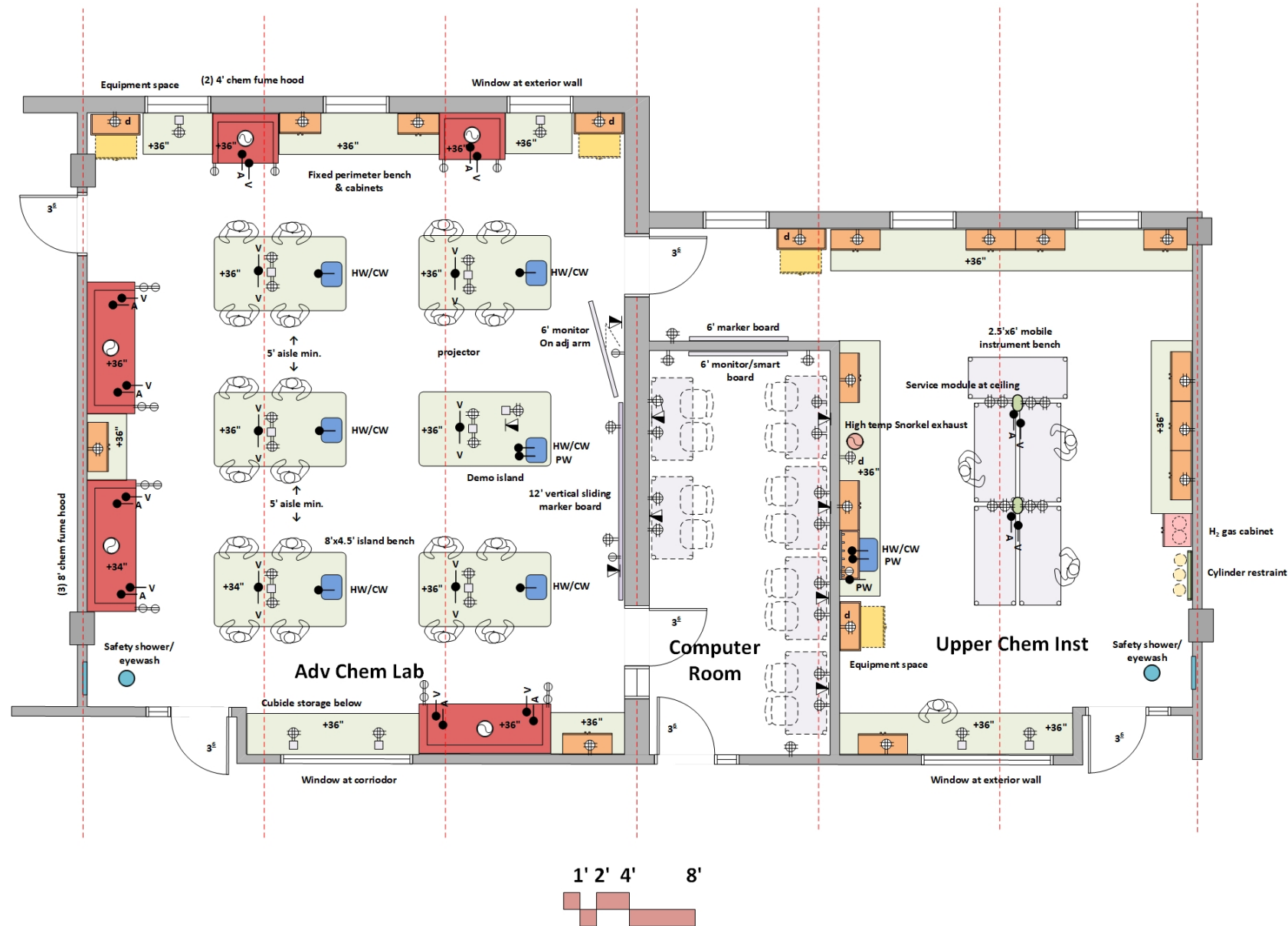
# ORGANIC CHEMISTRY TEACHING LABORATORIES

## Student Island Elevation



# ADVANCED CHEMISTRY TEACHING LABORATORY AND INSTRUMENT ROOM

## Ground Level- Northeast



### ARCHITECTURAL

Occupancy: B  
 Number of Students: 20 (up to 24 if demo island is used for 4 students)  
 Floor: vinyl composition tile  
 Walls: gypsum board and enamel paint  
 Ceiling: 10' acoustic tile  
 Doors: 3'x8' with window  
 Light attenuation: Black out curtains in Upper Chem Inst Room  
 Acoustic Attenuation: NC 45 or less  
 Security: digital access

### STRUCTURAL

Vibration attenuation: 2,000 microinches per second or less

### MECHANICAL

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 6 air changes per hour occupied; 4 air changes per hour unoccupied  
 Pressure: Negative; Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Dedicated circuits at equipment space  
 Data & Wireless data  
 Lighting: indirect LED @ 650 LUX  
 Provide light switches at doors

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water at sinks via point-of-use water polishers  
 vacuum, air at fume hoods- each side; Vacuum at student islands  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

### CONTRACTOR FURNISHED EQUIPMENT

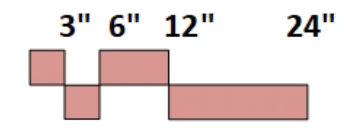
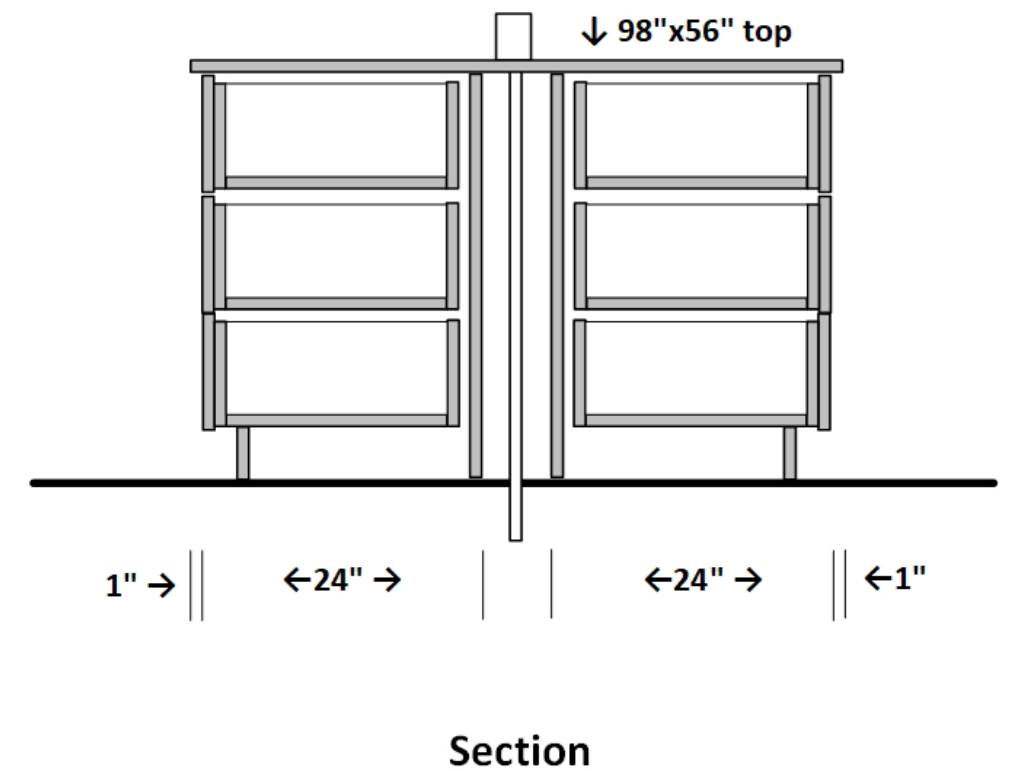
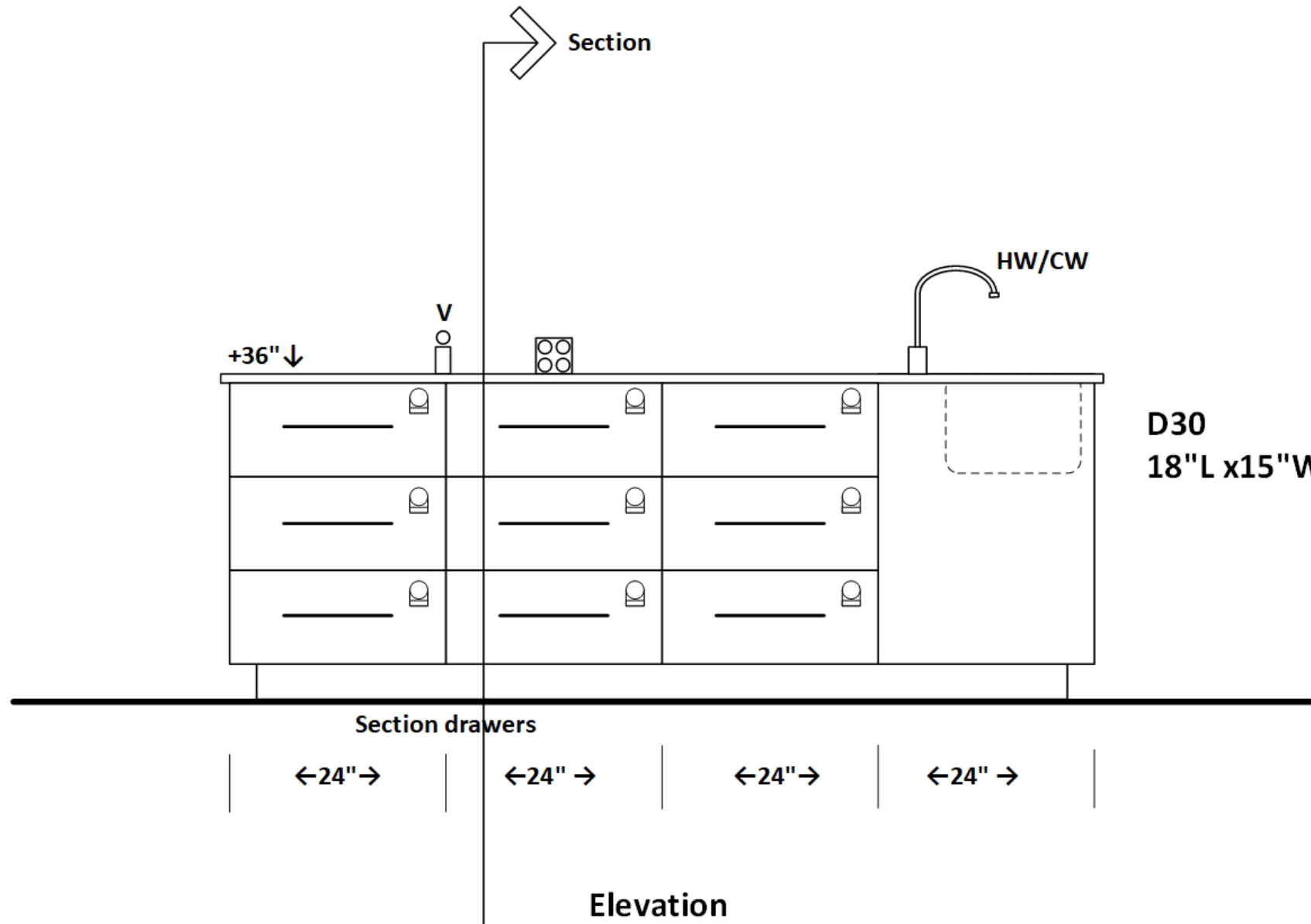
Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Mobile instrument benches  
 Backpack cabinets at lab entry  
 Epoxy resin tops and sinks; Faucets & fittings  
 Chemical fume hoods- 2 circuits per 8' hood  
 H2 Gas Cabinet; cylinder restraint  
 Marker boards; monitors  
 Safety shower/eyewash  
 Fire Extinguisher

### OWNER FURNISHED EQUIPMENT

Chairs  
 Charts  
 Benchttop analytical instruments  
 Scientific equipment  
 Computer work stations in computer room

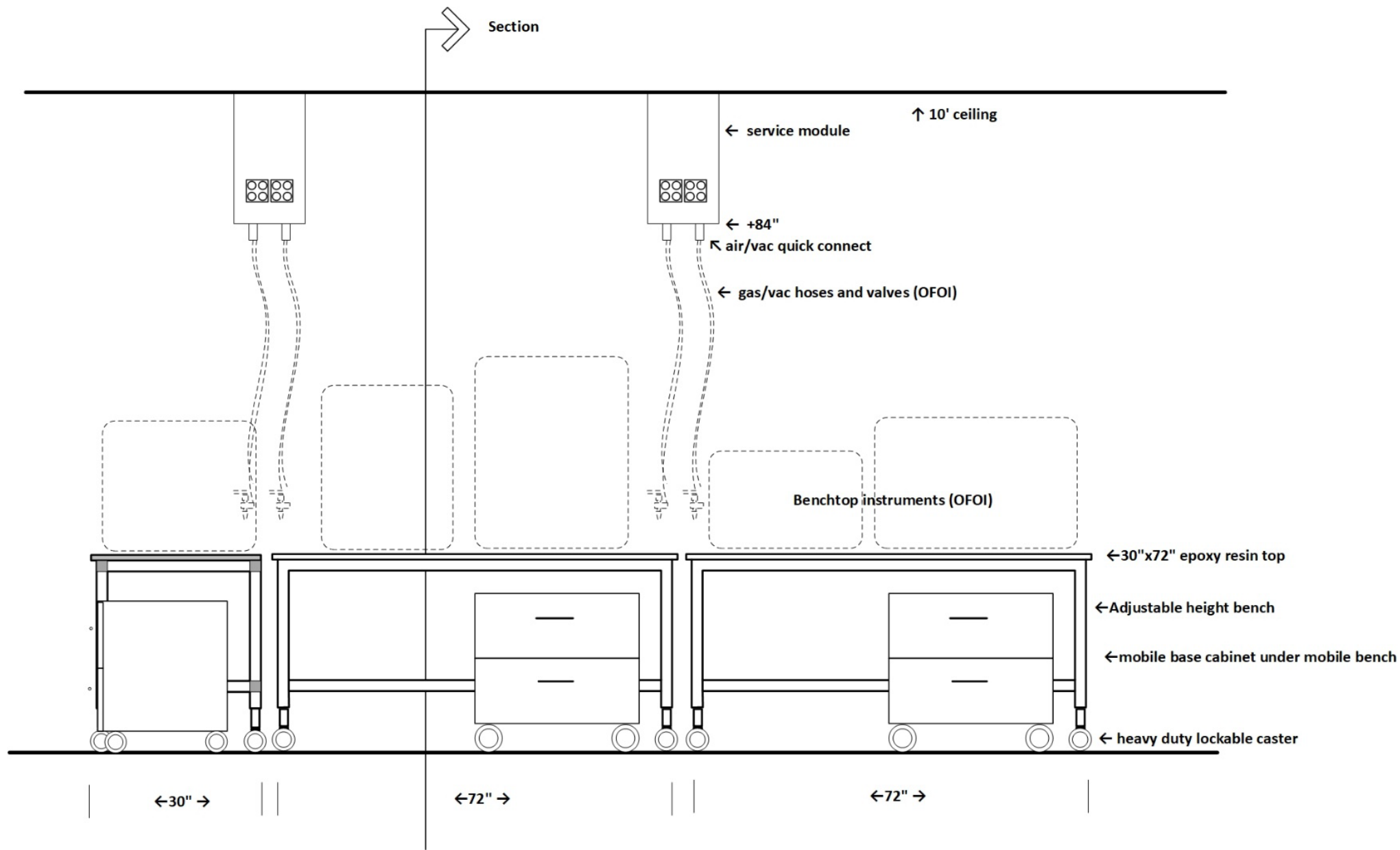
# ADVANCED CHEMISTRY TEACHING LABORATORIES

## Student Island Elevation

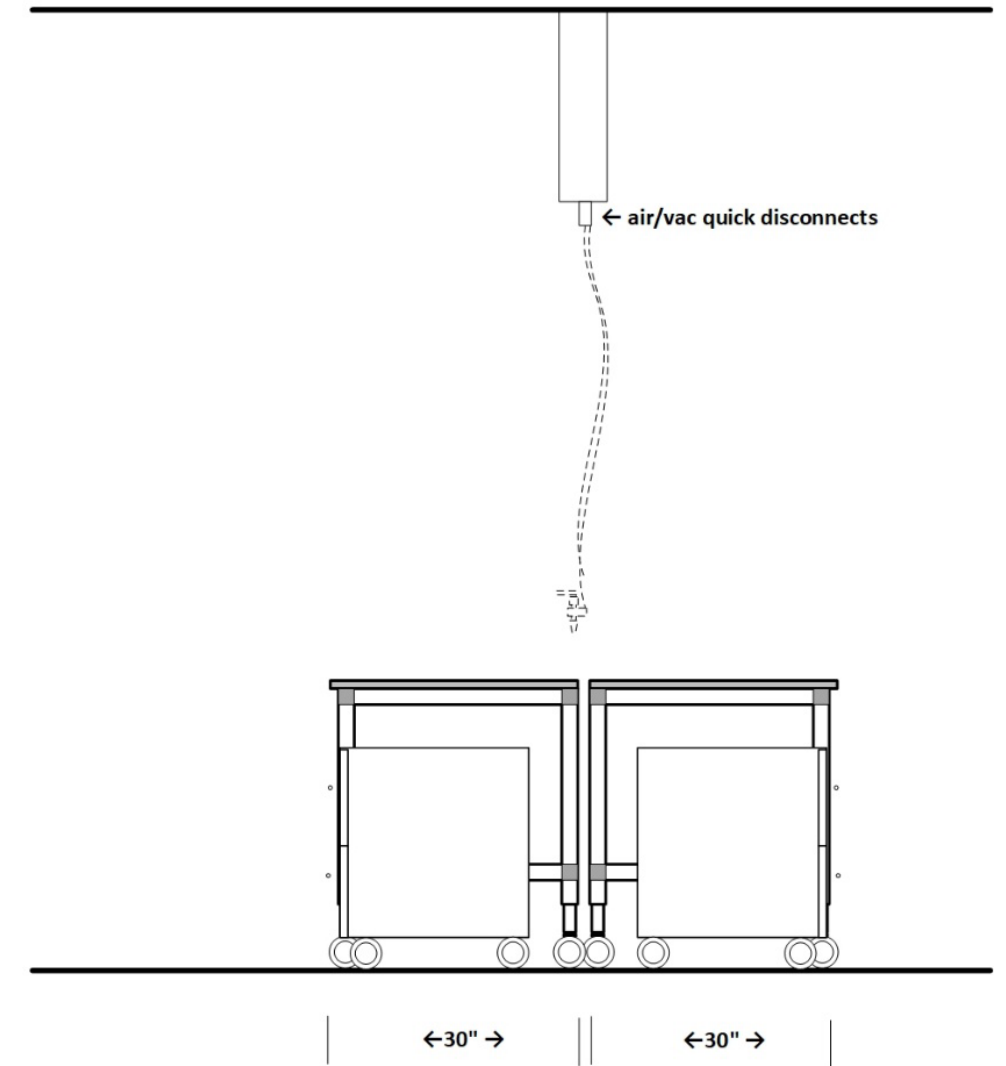
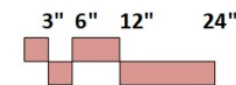


# ADVANCED CHEMISTRY TEACHING LABORATORIES

## Upper Chem Instrument Island



Elevation

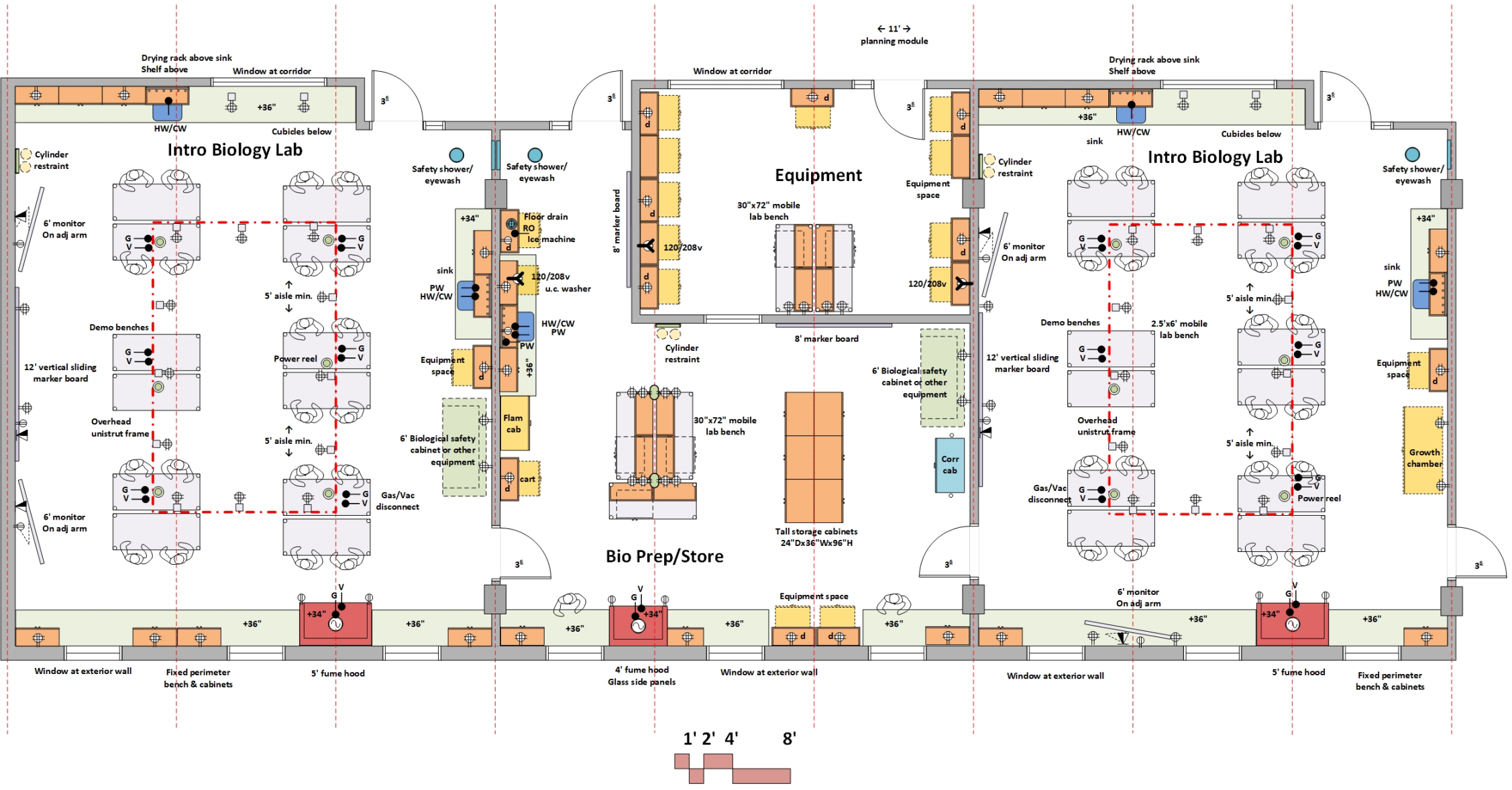


Section

# BIOLOGY

# INTRO BIOLOGY TEACHING LABORATORIES & PREP/STORE

## First Level- Southwest



**ARCHITECTURAL**

Occupancy: B  
 Number of Students: 20 (up to 24 if demo island is used for 4 students)  
 Floor: vinyl composition tile or sealed concrete  
 Walls: gypsum board and enamel paint; Ceiling: 10' acoustic lab grade tile  
 Doors: 3'x8' with window  
 Acoustic Attenuation: NC 45 or less  
 Security: digital access

**STRUCTURAL**

Vibration attenuation: 2,000 microinches per second or less  
 Consider reduction to 4,000 microinches per second or less

**MECHANICAL**

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 6 air changes per hour occupied; 4 air changes per hour unoccupied  
 Pressure: Negative; Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf

**ELECTRICAL**

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Power reels at unistrut frame at ceiling  
 Dedicated circuits at equipment space; Data & Wireless data  
 Lighting: indirect LED @ 650 LUX; Provide light switches at doors

**PLUMBING**

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water polishers at one sink per lab  
 Gas, vacuum at fume hood  
 Gas, vacuum disconnect at overhead unistrut frame  
 CO<sub>2</sub> for Genetics Lab- cylinders or ???  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

**CONTRACTOR FURNISHED EQUIPMENT**

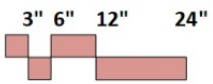
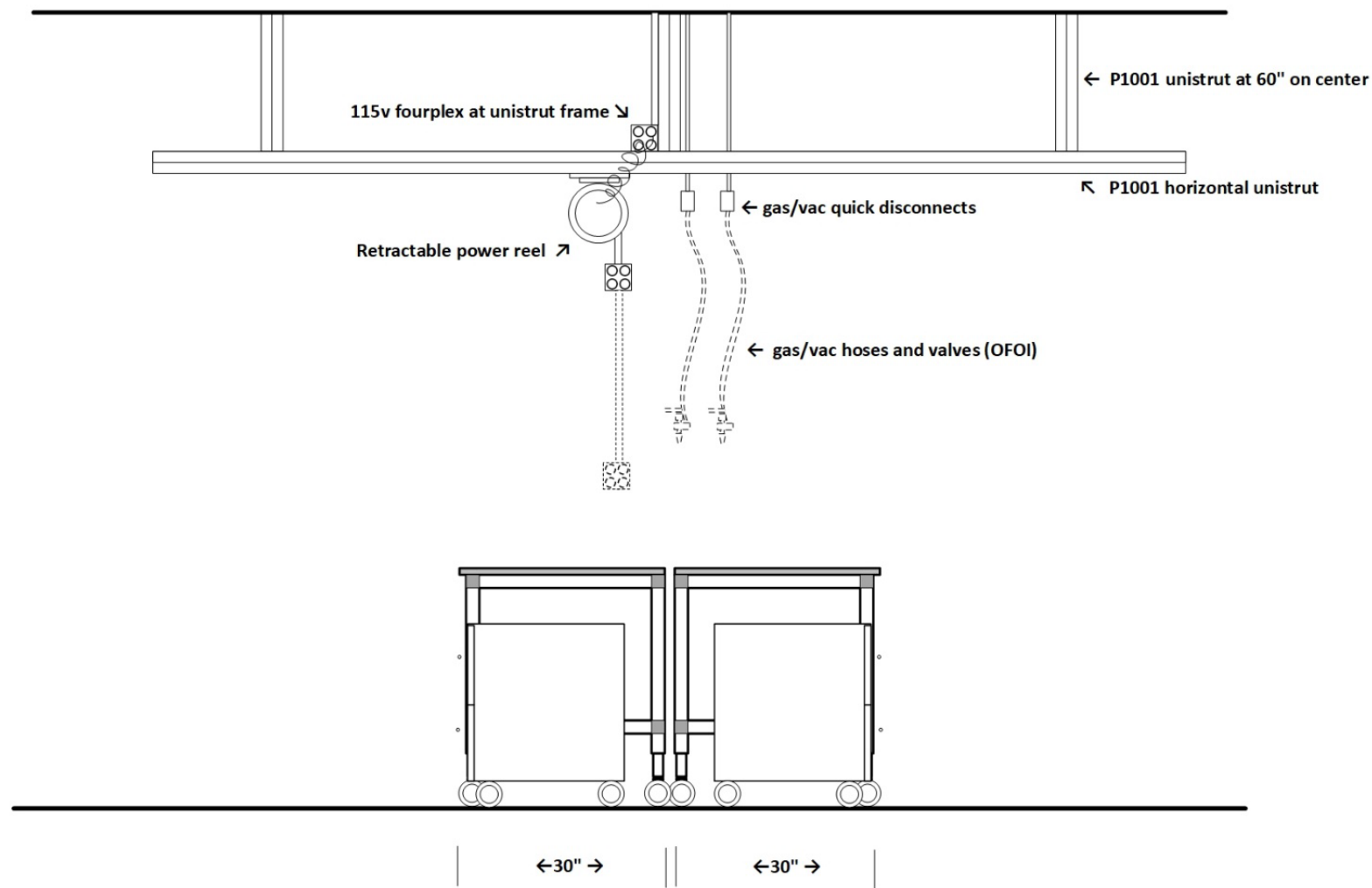
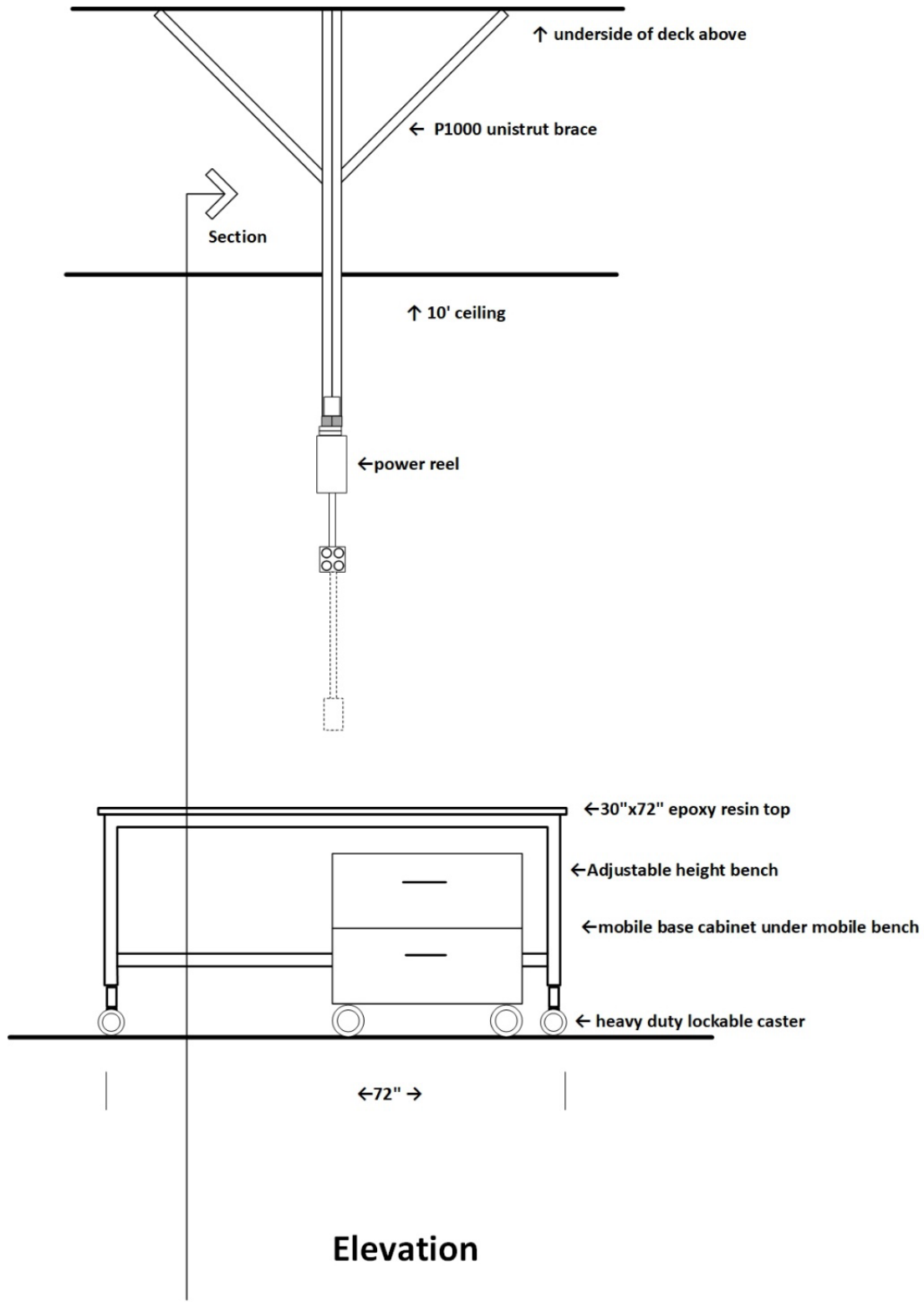
Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Epoxy resin tops and sinks; Faucets & fittings  
 Mobile lab benches; Chemical fume hoods  
 Unistrut frame at ceiling  
 Marker boards; monitors  
 Safety shower/eyewash; Fire Extinguisher  
 Undercounter washer

**OWNER FURNISHED EQUIPMENT**

Chairs; Charts; Carts  
 Benchtap analytical instruments  
 Scientific equipment  
 Biological Safety Cabinet- Class II Type A (no external exhaust)  
 Growth Chamber

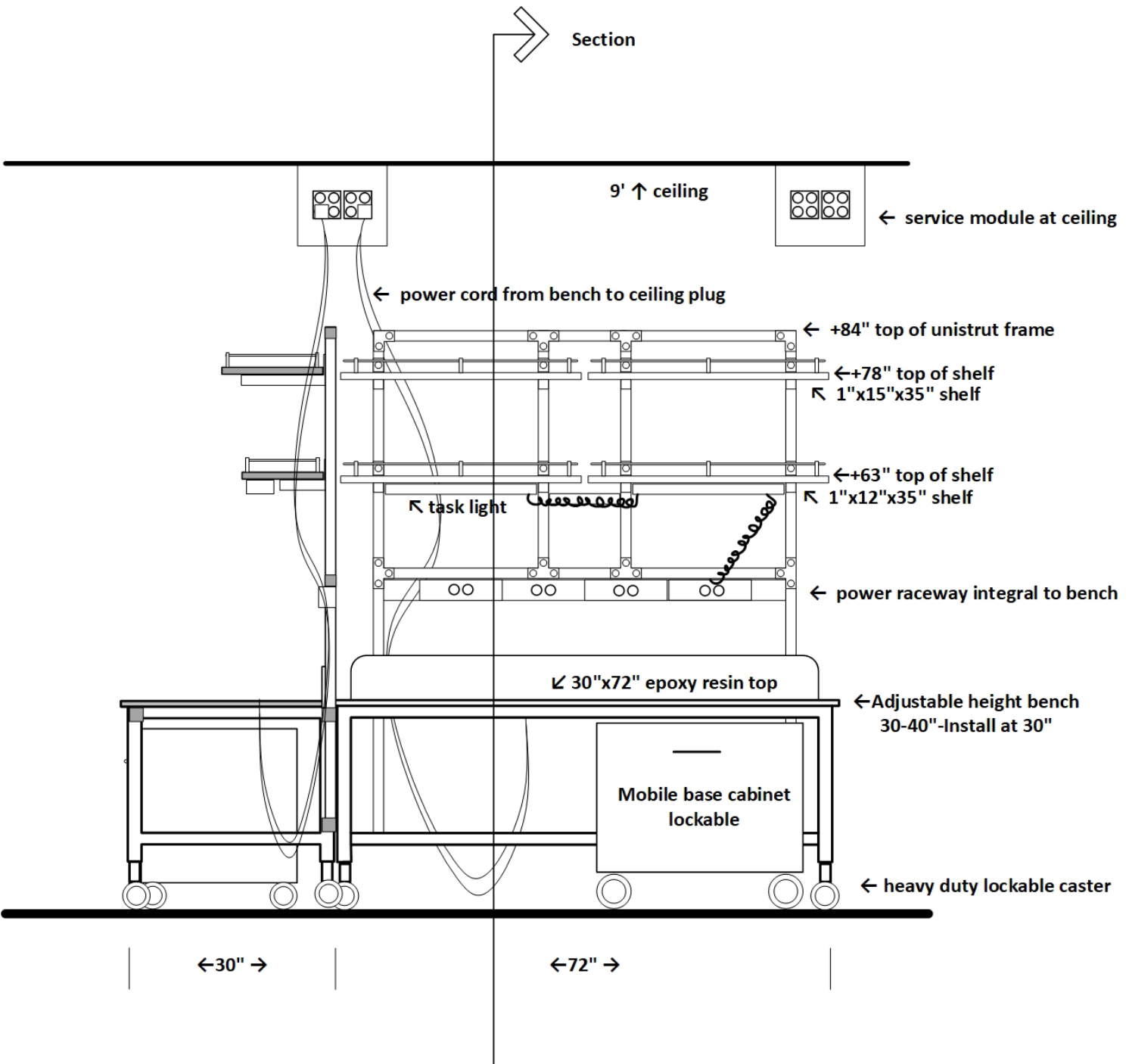
# INTRO BIOLOGY TEACHING LABORATORIES

## Student Island Elevation

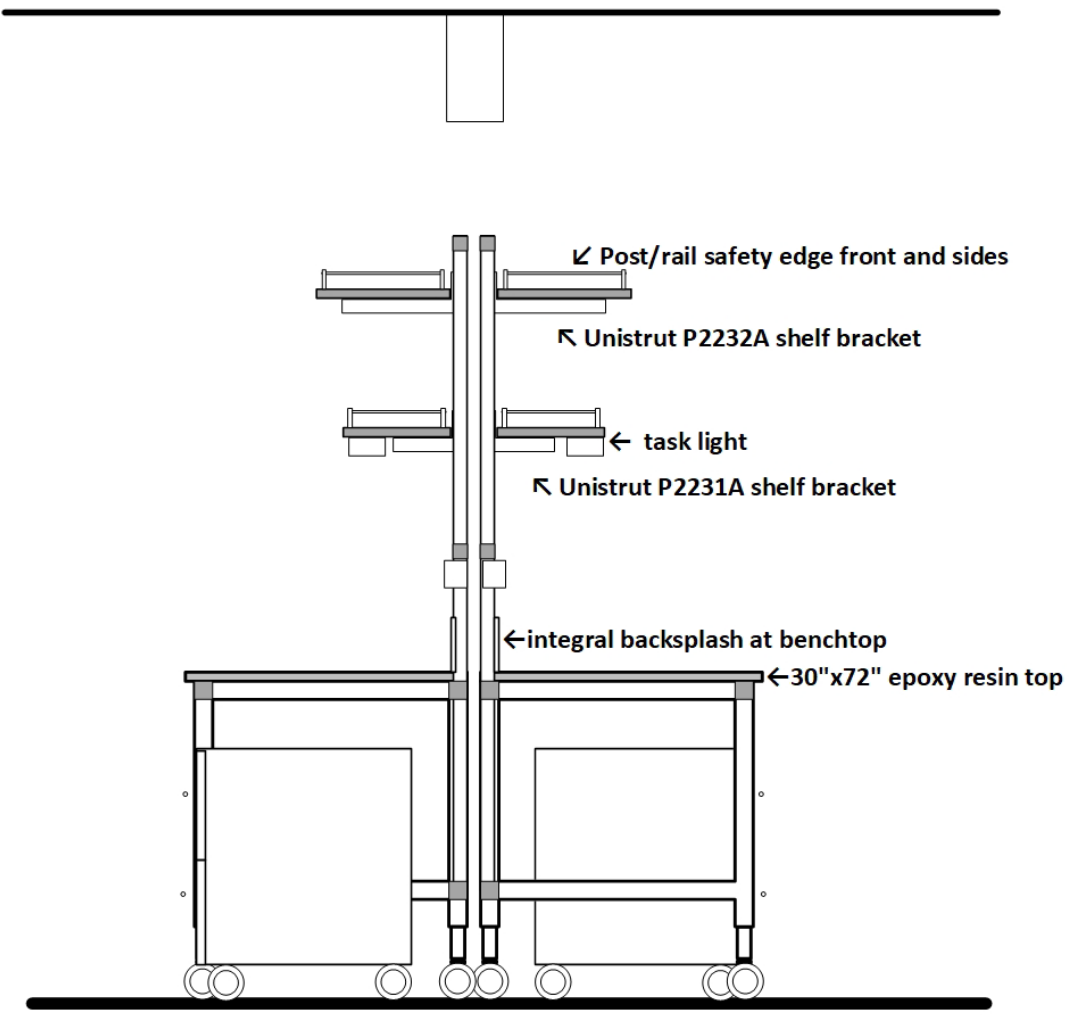
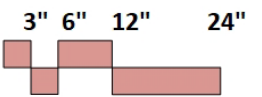


# INTRO BIOLOGY TEACHING LABORATORIES

## Prep Island Elevation



**Elevation**



**Section**



# UPPER BIOLOGY TEACHING LABORATORIES & PREP/STORE

## First Level- Northeast

**ARCHITECTURAL**

Occupancy: B  
 Number of Students: 20 (up to 24 if demo island is used for 4 students)  
 Floor: vinyl composition tile or sealed concrete  
 Walls: gypsum board and enamel paint  
 Ceiling: 10' acoustic tile  
 Doors: 3'x8' with window  
 Acoustic Attenuation: NC 45 or less  
 Security: digital access

**STRUCTURAL**

Vibration attenuation: 2,000 microinches per second or less  
 Consider 4,000 microinches or less as VE measure

**MECHANICAL**

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 12 air changes per hour occupied  
 (half at ceiling, half at low perimeter exhaust)  
 6 air changes per hour unoccupied  
 Exhaust at vented storage cabinets  
 Pressure: Negative; Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf

**ELECTRICAL**

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Dedicated circuits at equipment space  
 Data & Wireless data  
 Lighting: indirect LED @ 650 LUX; Provide light switches at doors

**PLUMBING**

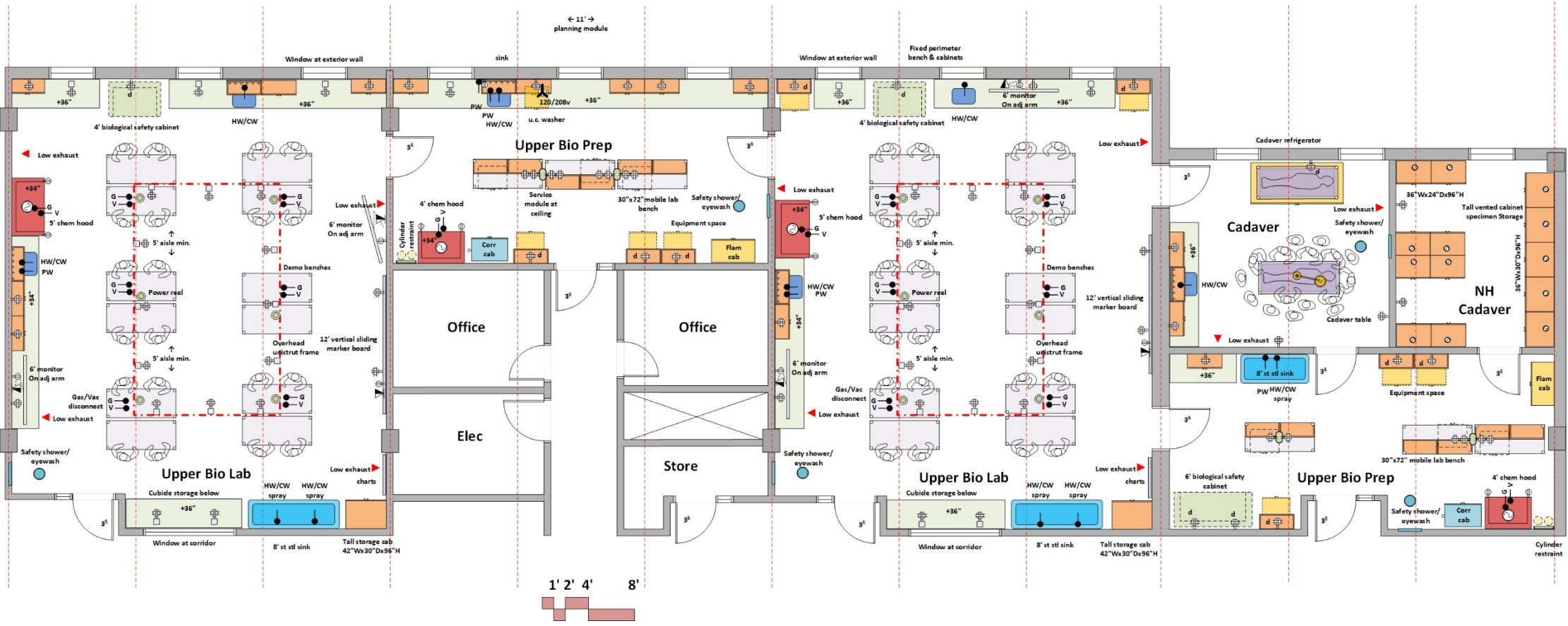
Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water at sinks via point-of-use water polishers  
 Gas, vacuum at fume hoods; Gas, vacuum disconnects at overhead Unistrut frame  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

**CONTRACTOR FURNISHED EQUIPMENT**

Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Epoxy resin tops and sinks; Faucets & fittings  
 Chemical fume hoods  
 Cadaver refrigerator  
 Marker boards; monitors  
 Safety shower/eyewash; Fire Extinguisher  
 Undercounter washer

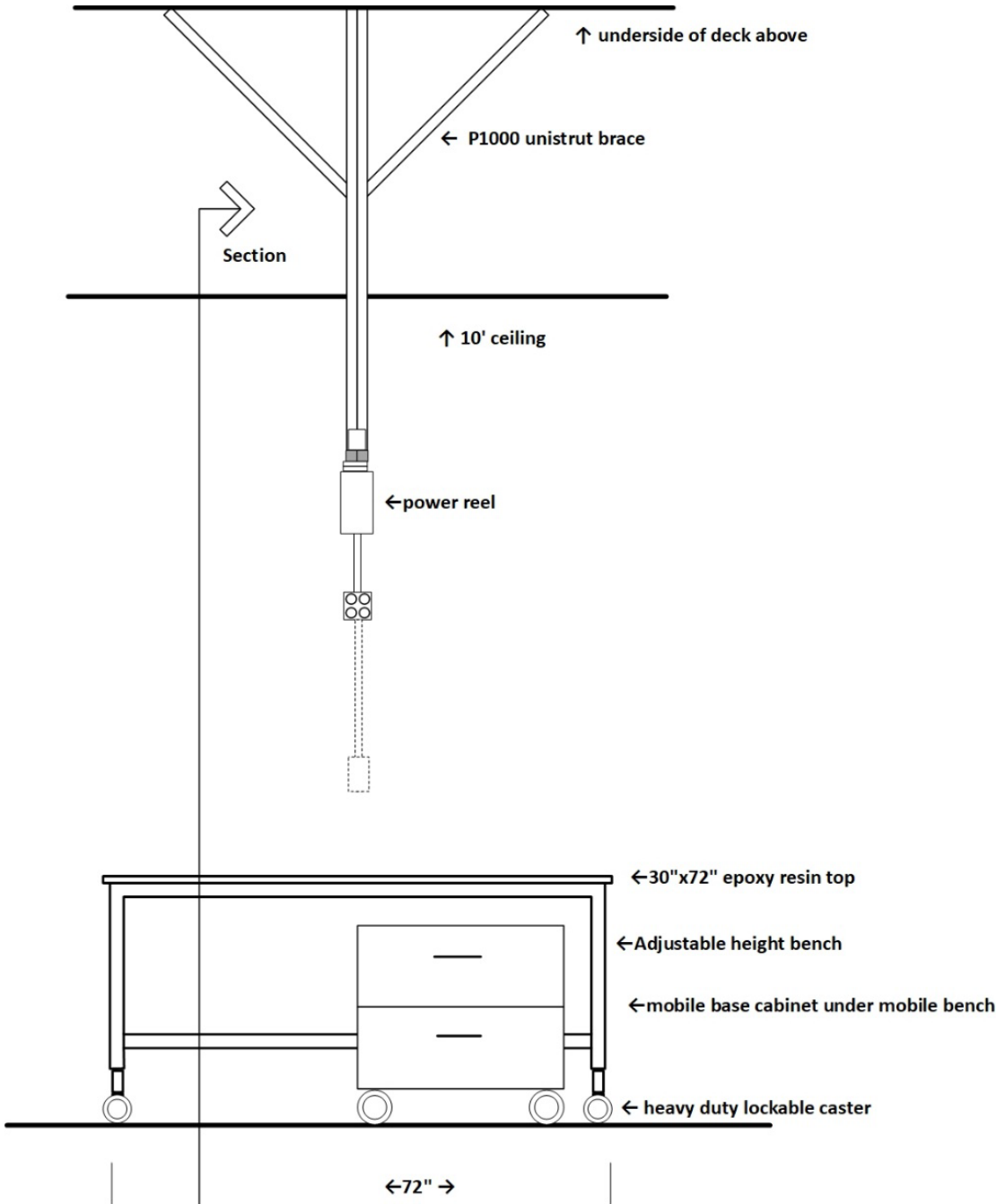
**OWNER FURNISHED EQUIPMENT**

Chairs; Charts  
 Benchttop analytical instruments; Scientific equipment  
 Cadaver tables, gurneys  
 Biological safety cabinets

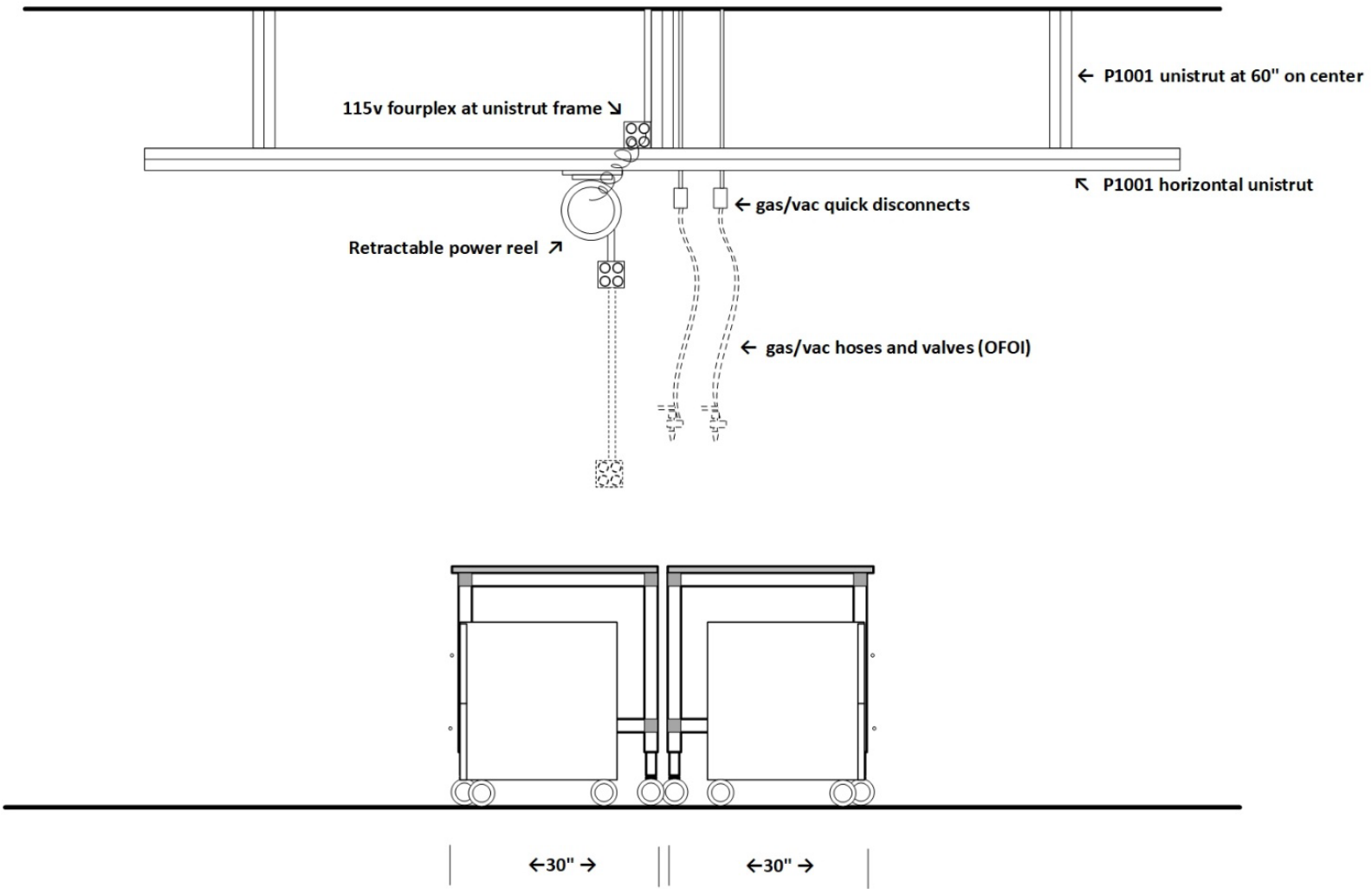


# UPPER BIOLOGY TEACHING LABORATORIES

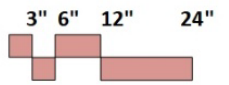
## Student Island Elevation



**Elevation**

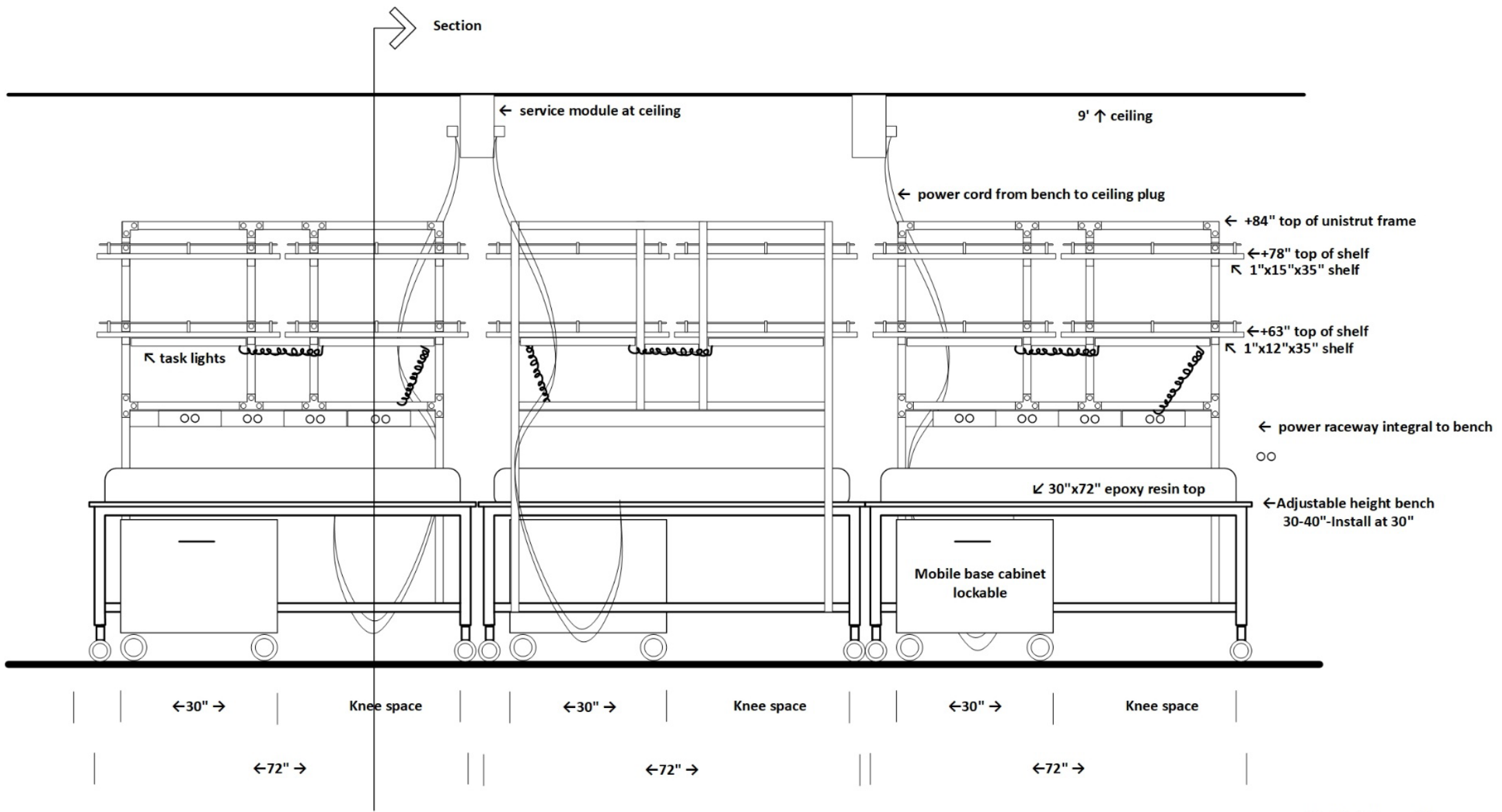


**Section**

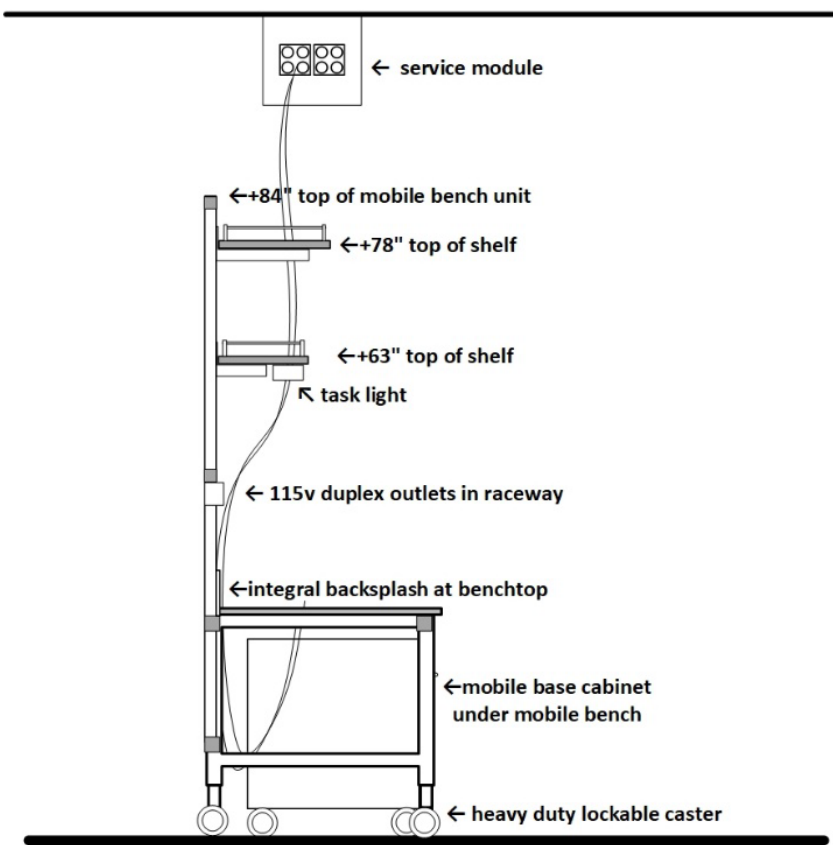


# UPPER BIOLOGY TEACHING LABORATORIES

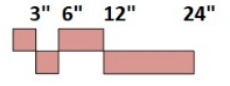
## Prep Island Elevation



Elevation



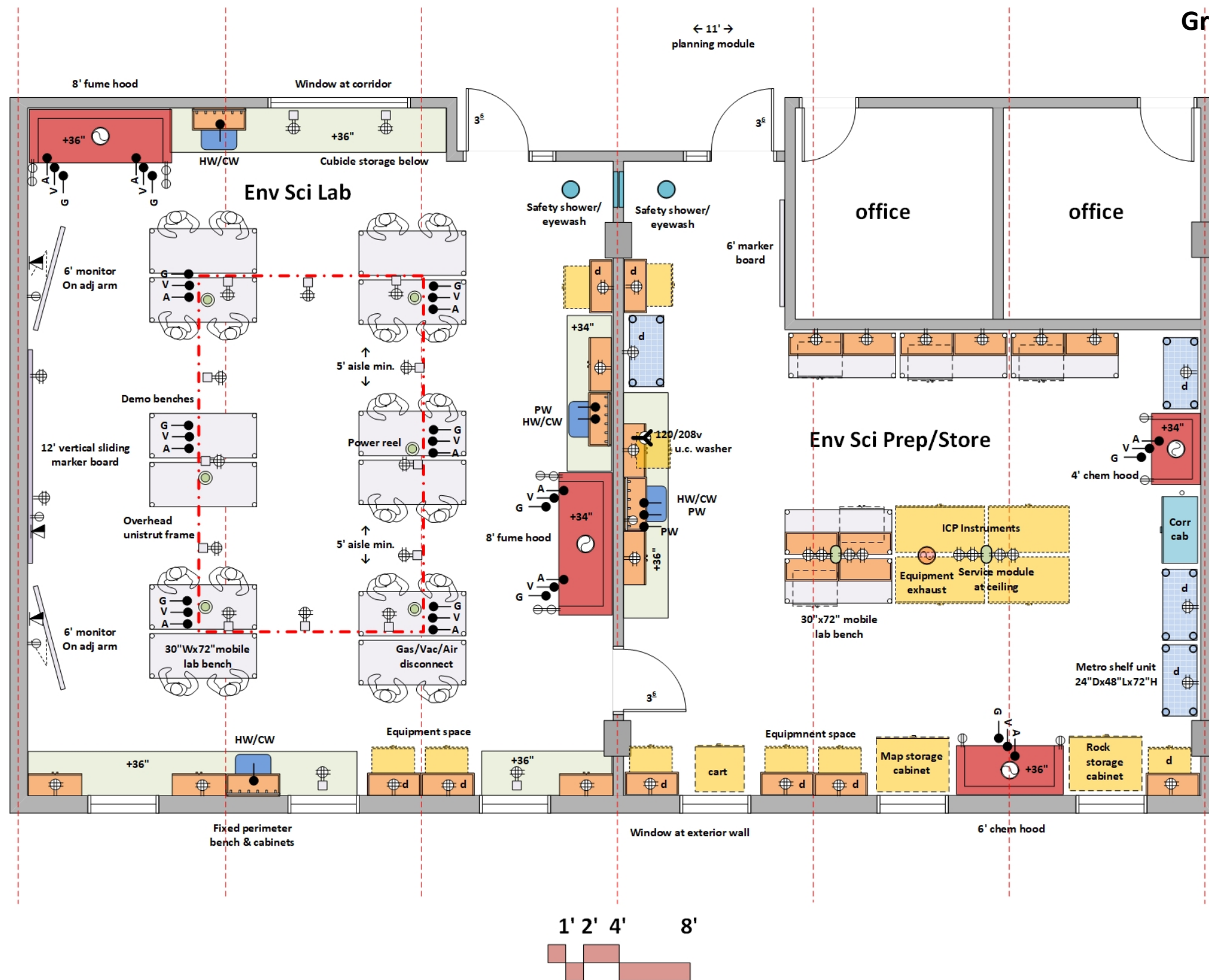
Section



# ENVIRONMENTAL SCIENCE

# ENV. SCI. TEACHING LABORATORY & PREP/STORE

## Ground Level- Southeast



### ARCHITECTURAL

Occupancy: B  
 Number of Students: 20 (up to 24 if demo island is used for 4 students)  
 Floor: vinyl composition tile or sealed concrete  
 Walls: gypsum board and enamel paint  
 Ceiling: 10' acoustic tile; Doors: 3'x8' with window  
 Acoustic Attenuation: NC 45 or less  
 Security: digital access

### STRUCTURAL

Vibration attenuation: 2,000 microinches per second or less  
 Consider reducing to 4,000 microinches per second or less

### MECHANICAL

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 6 air changes per hour occupied; 4 air changes per hour unoccupied  
 Pressure: Negative; Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf  
 Equipment exhaust at ICP

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Power reels at unistrut frame at ceiling  
 Dedicated circuits at equipment space  
 Data & Wireless data  
 Lighting: indirect LED @ 650 LUX; Provide light switches at doors

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water at sinks via point-of-use water polishers  
 Gas, vacuum, air at fume hood  
 Gas, vacuum, air disconnect at overhead unistrut frame  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

### CONTRACTOR FURNISHED EQUIPMENT

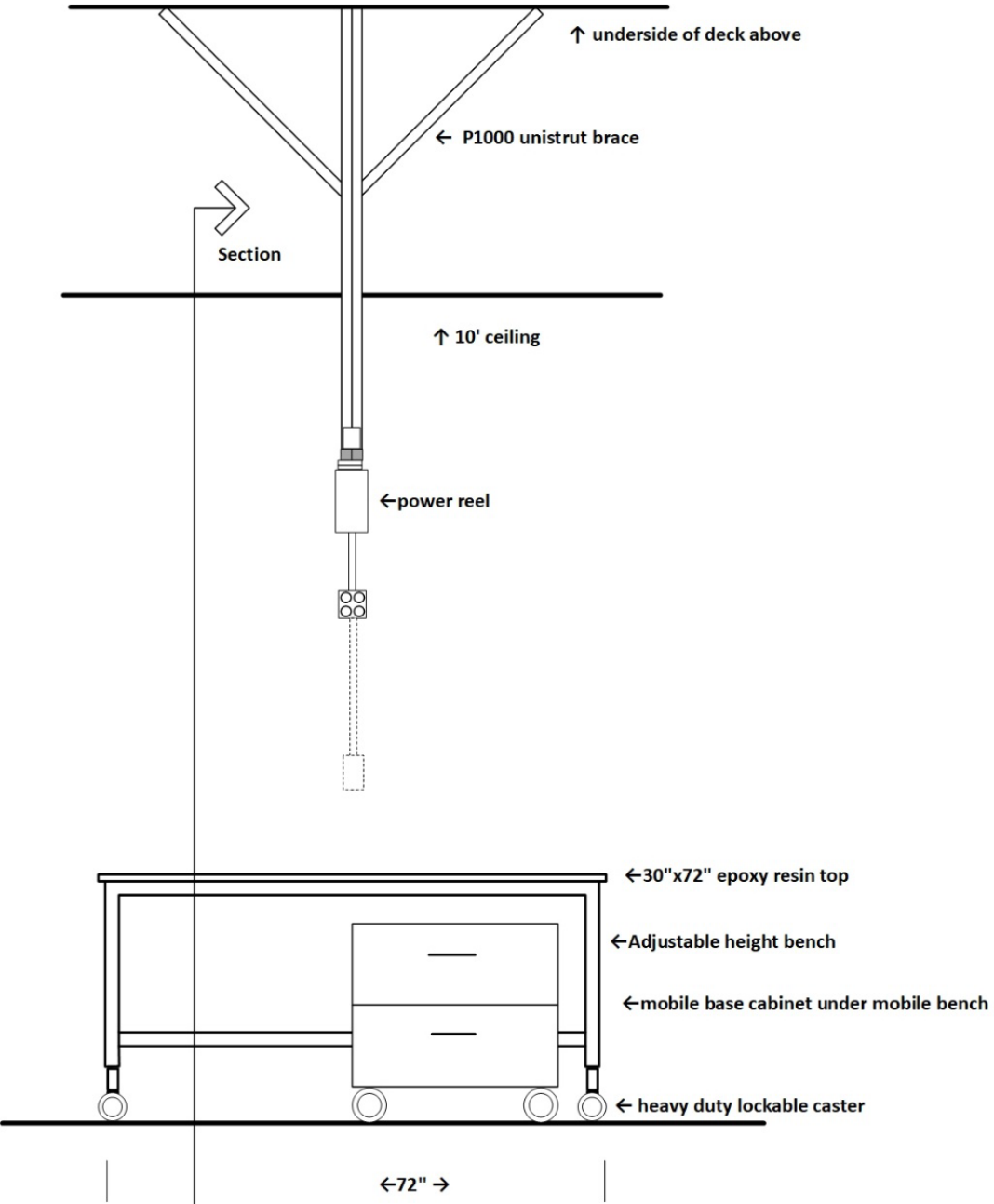
Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Epoxy resin tops and sinks; Faucets & fittings  
 Mobile lab benches  
 Chemical fume hoods  
 Unistrut frame at ceiling  
 Marker boards; monitors  
 Safety shower/eyewash; Fire Extinguisher

### OWNER FURNISHED EQUIPMENT

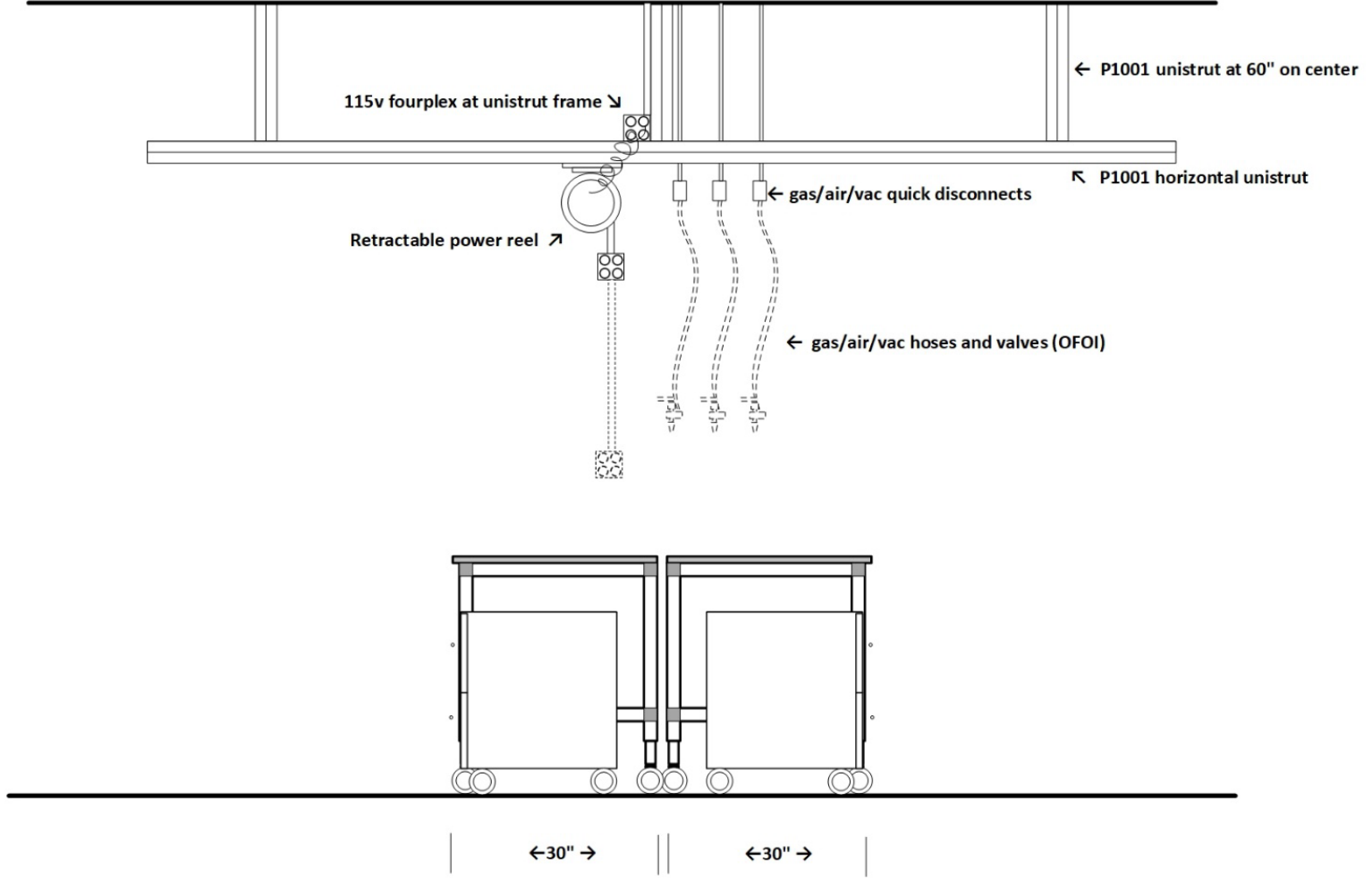
Chairs; Charts  
 Benchtop analytical instruments  
 Scientific equipment;  
 ICP instruments

# ENV. SCI. TEACHING LABORATORIES

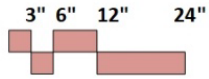
## Student Island Elevation



**Elevation**

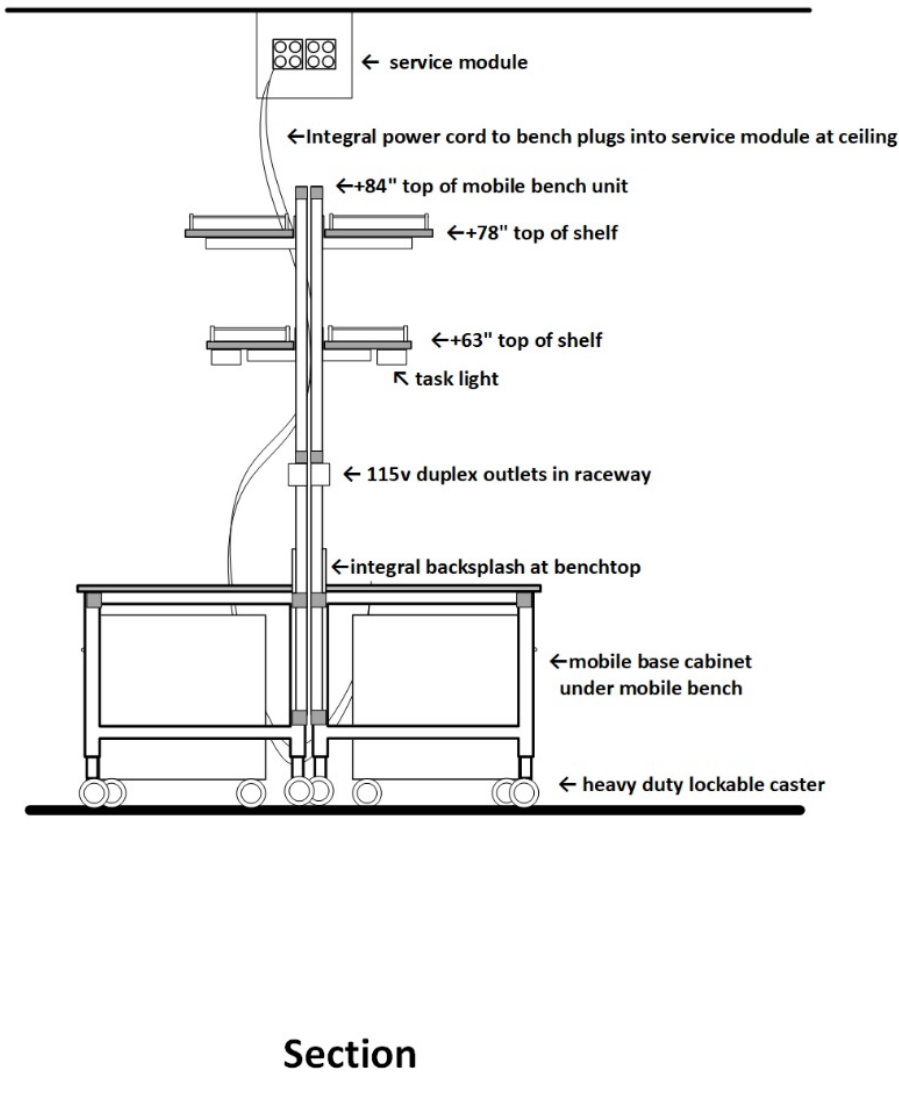
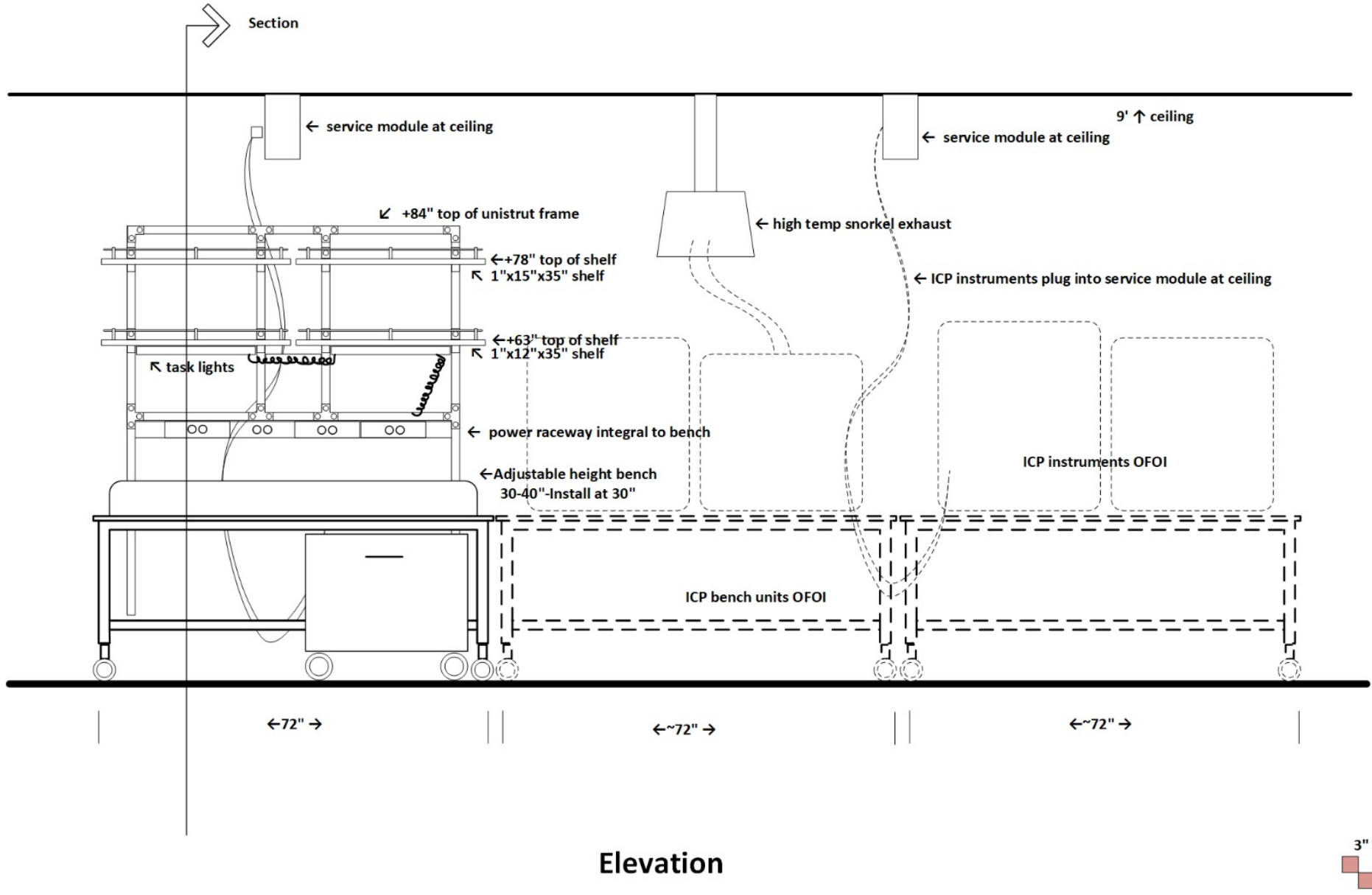


**Section**



# ENV. SCI. TEACHING LABORATORIES

## Prep Island Elevation



# PHYSICS



# PHYSICS TEACHING LABORATORIES & PREP/STORE

## Ground Level- Southwest

**ARCHITECTURAL**

Occupancy: B  
 Number of Students: 20 (up to 24 if demo island is used for 4 students)  
 Floor: vinyl composition tile or sealed concrete  
 Walls: gypsum board and enamel paint  
 Ceiling: 10' acoustic tile or open to structure  
 Black out curtains at windows  
 Doors: 3'x8'0" with window  
 Acoustic Attenuation: NC 45 or less  
 Security: digital access

**STRUCTURAL**

Vibration attenuation: 2,000 microinches per second or less  
 Consider reducing to 4,000 microinches per second

**MECHANICAL**

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 6 air changes per hour occupied; 4 air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf

**ELECTRICAL**

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Power reels at unistrut frame at ceiling  
 Dedicated circuits at equipment space  
 Data & Wireless data  
 Lighting: indirect LED @ 650 LUX; dimmable lighting for teaching labs  
 Provide light switches at doors

**PLUMBING**

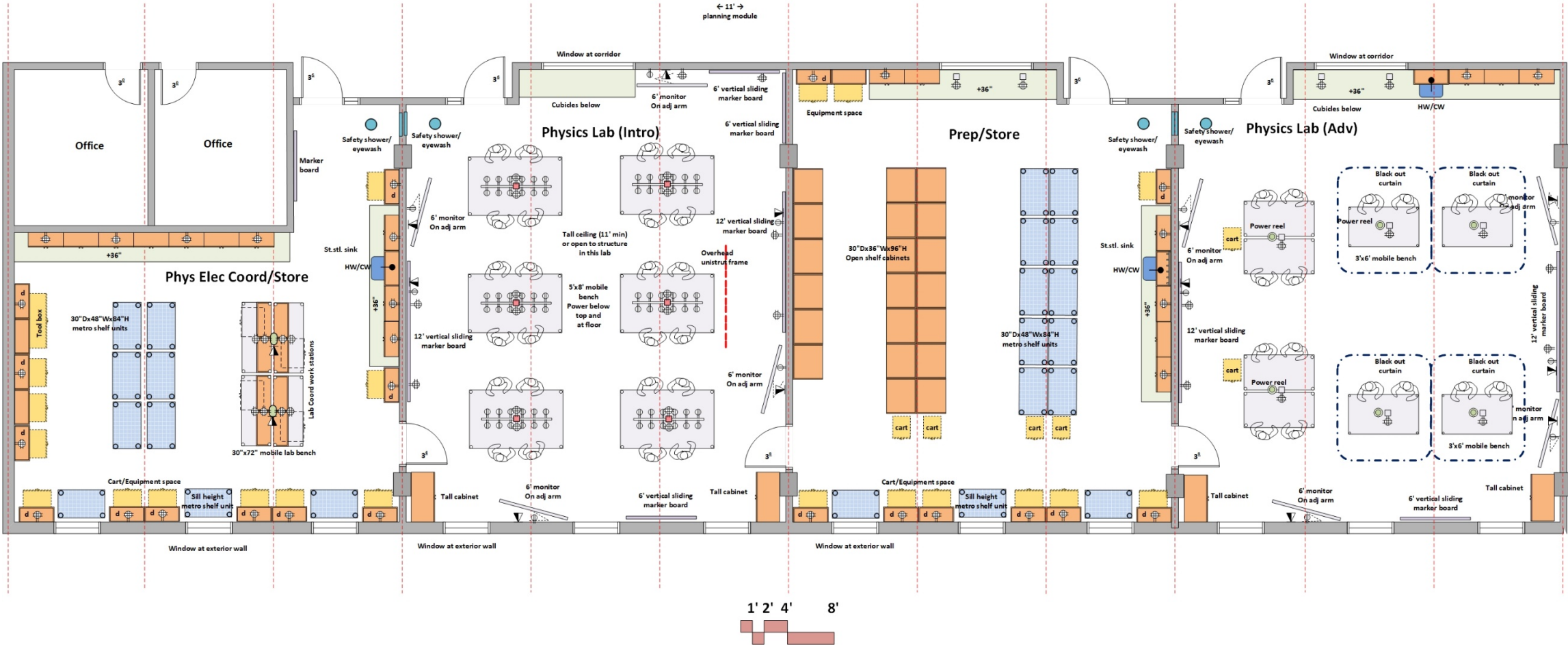
Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

**CONTRACTOR FURNISHED EQUIPMENT**

Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Epoxy resin tops and sinks; Faucets & fittings  
 Mobile lab benches  
 Unistrut frame at ceiling  
 Marker boards; screens; monitors  
 Safety shower/eyewash  
 Fire Extinguisher

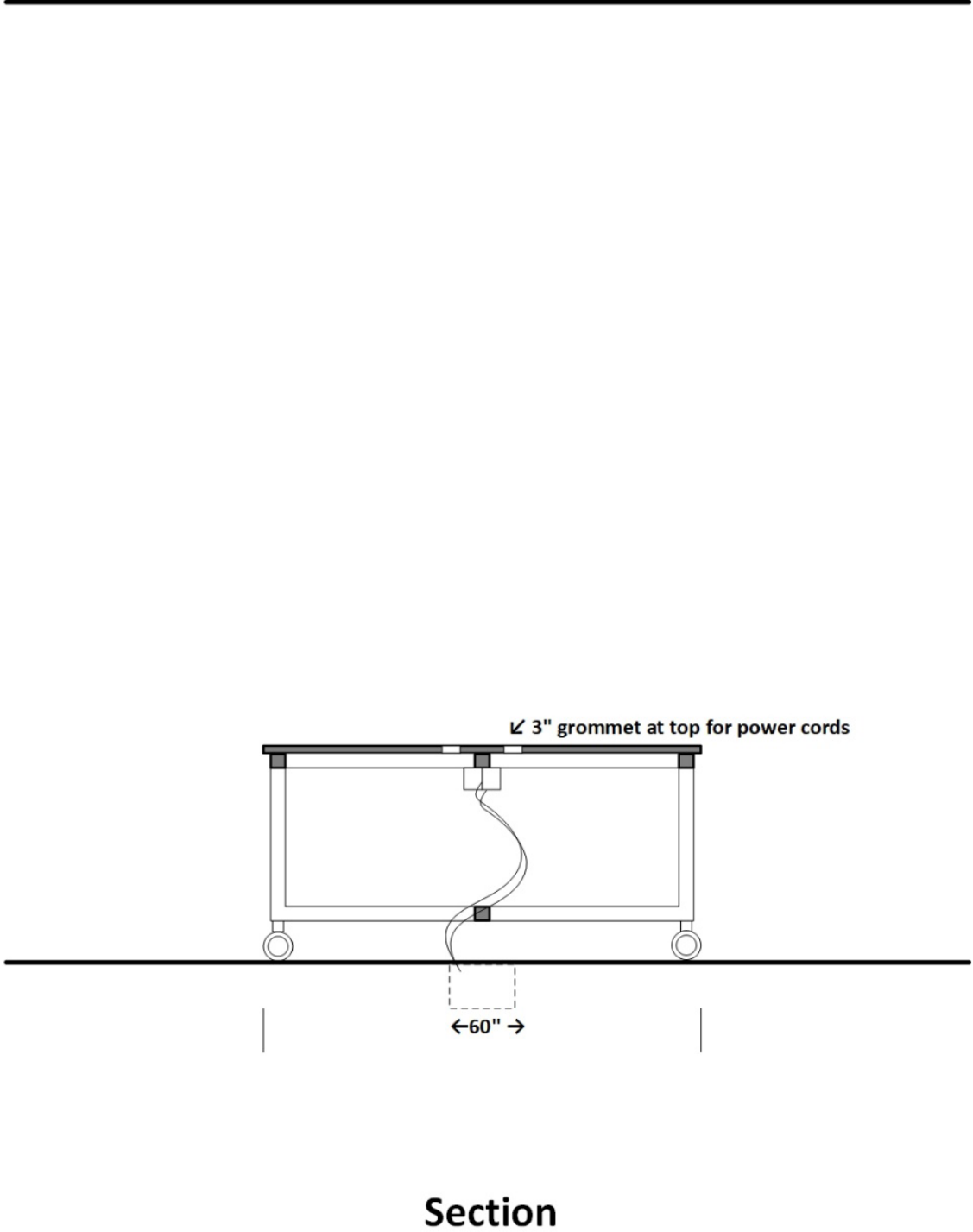
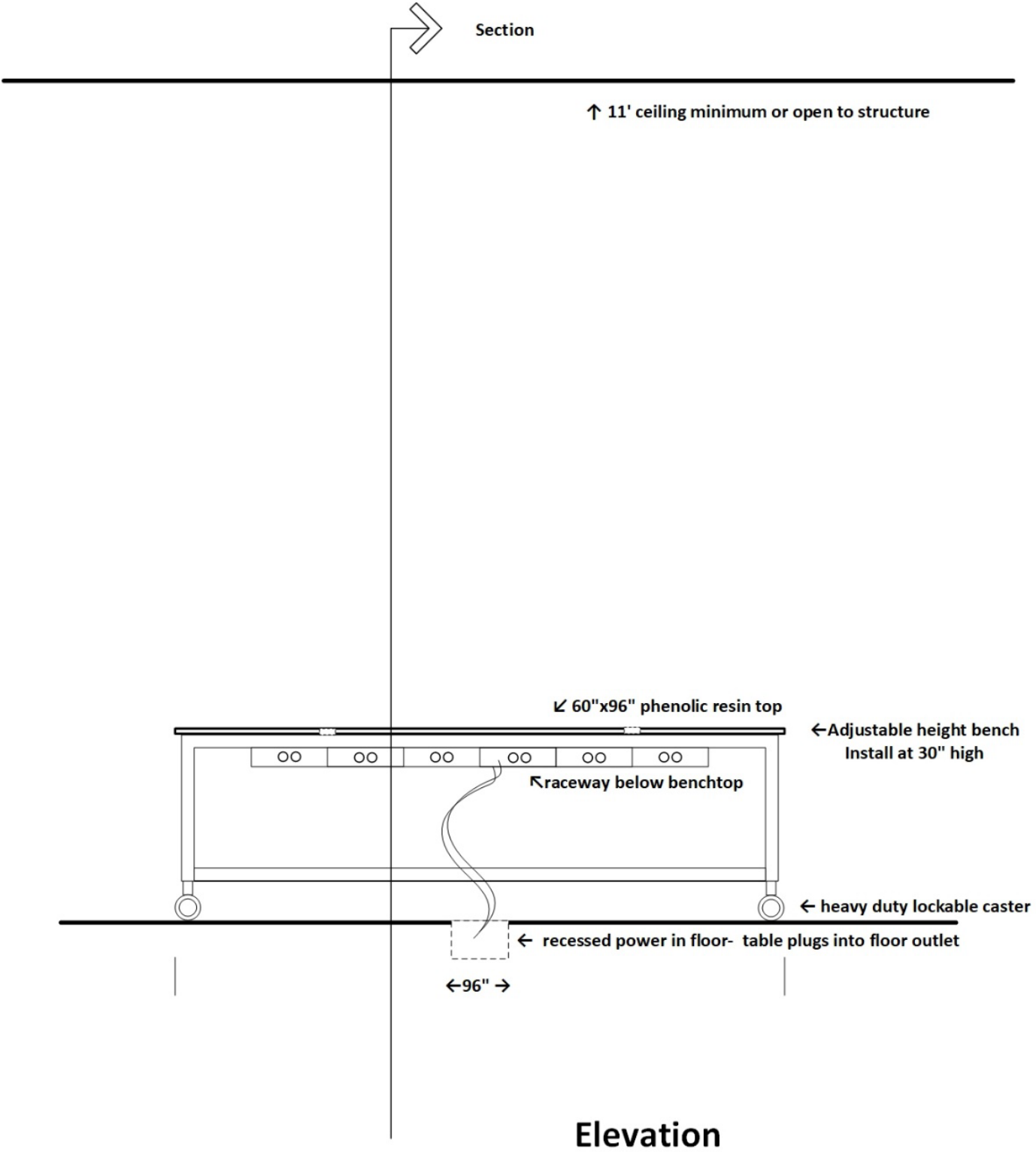
**OWNER FURNISHED EQUIPMENT**

Chairs; Charts  
 Benchtap analytical instruments  
 Scientific equipment  
 Laser tables

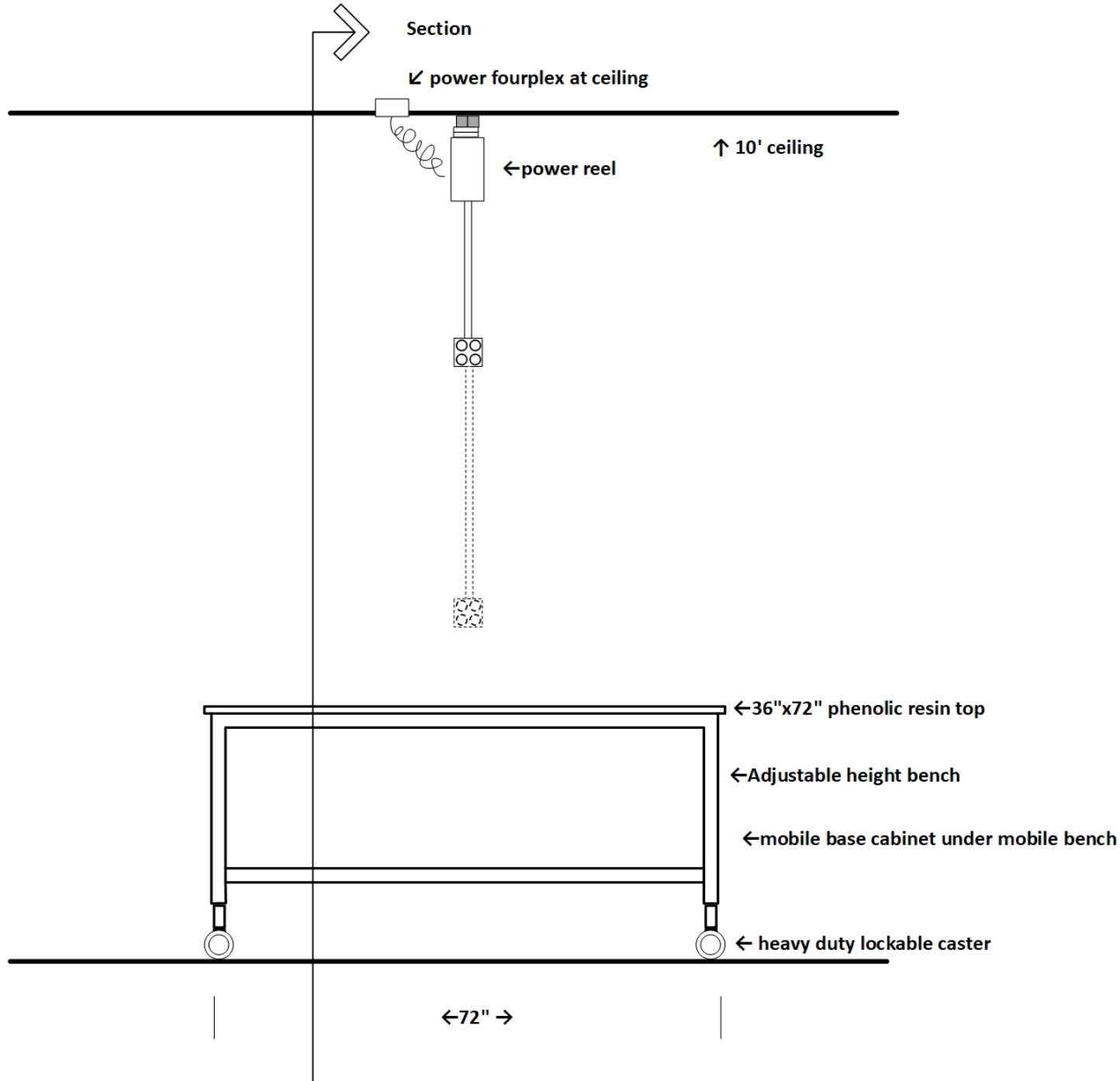


# PHYSICS TEACHING LABORATORIES

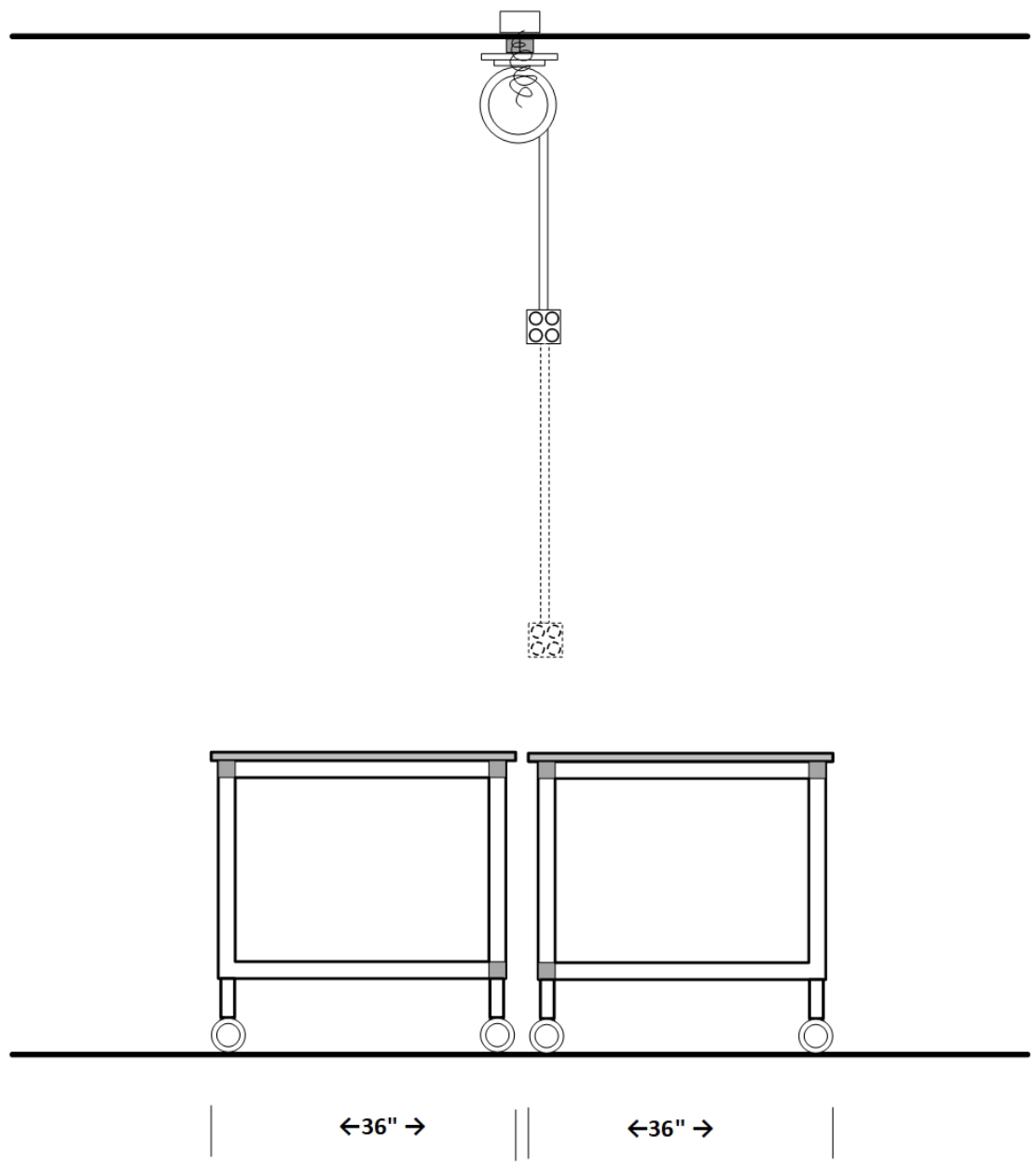
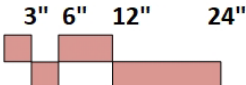
## Intro Lab Student Island



**PHYSICS TEACHING LABORATORIES**  
**Adv. Lab Student Island**



**Elevation**

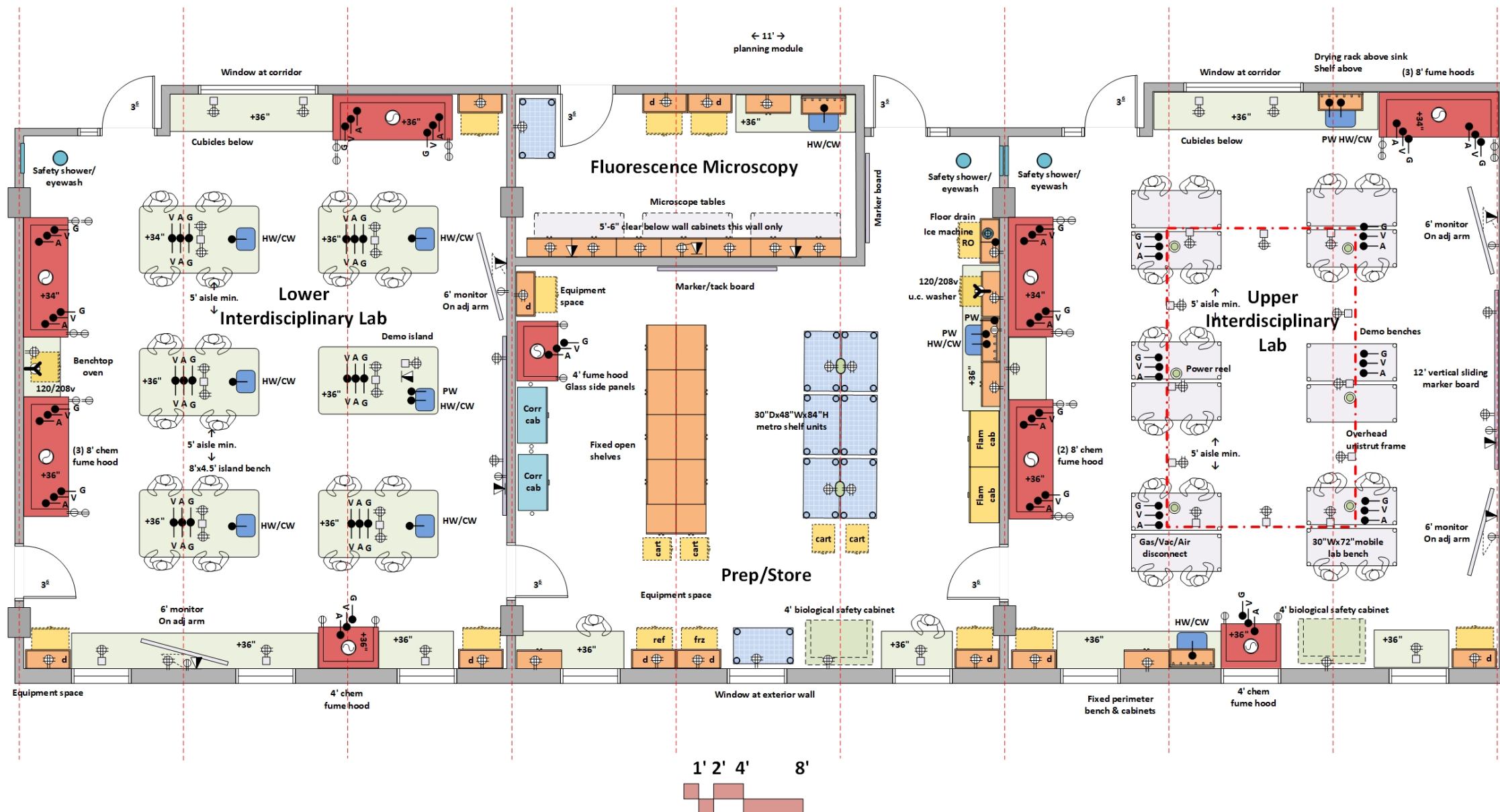


**Section**

# INTERDISCIPLINARY

# INTERDISCIPLINARY TEACHING LABORATORIES & PREP/STORE

## First Level- Southeast



### ARCHITECTURAL

Occupancy: B  
 Number of Students: 20 (up to 24 if demo island is used for 4 students)  
 Floor: vinyl composition tile or sealed concrete  
 Walls: gypsum board and enamel paint  
 Ceiling: 10' lab grade acoustic tile  
 Doors: 3<sup>6</sup>x8<sup>0</sup> with window  
 Acoustic Attenuation: NC 45 or less  
 Black-out light attenuation at Fluorescence Microscopy Room  
 Security: digital access

### STRUCTURAL

Vibration attenuation: 2,000 microinches per second or less

### MECHANICAL

Hours of operation: 6 am to 10 pm  
 Temperature: 72 deg. F, +/- 2 deg. F  
 100% exhaust- no recirculation of air  
 Minimum 6 air changes per hour occupied; 4 air changes per hour unoccupied  
 Pressure: Negative  
 Humidity: Ambient  
 Equipment Heat Gain: 25 btuh/sf

### ELECTRICAL

110v fourplex and duplex outlets (maximum of four duplex per circuit)  
 Dedicated circuits at equipment space  
 Data & Wireless data  
 Lighting: indirect LED @ 650 LUX  
 Provide light switches at doors

### PLUMBING

Hot/Cold water (HW/CW) at sinks with vacuum breakers  
 Pure water at one sink in each lab with local water polisher  
 Gas, vacuum, air at fume hood; Gas, vacuum, air at student islands  
 Gas, vacuum, air at overhead Unistrut frame  
 Domestic tepid water and drain at safety shower/eyewash  
 Floor drain at safety shower

### CONTRACTOR FURNISHED EQUIPMENT

Laboratory casework- wall cabinets, base cabinets, tall cabinets  
 Epoxy resin tops and sinks; Faucets & fittings  
 Mobile lab benches  
 Chemical fume hoods  
 Metro shelf units  
 Marker boards; monitors  
 Safety shower/eyewash; Fire Extinguisher

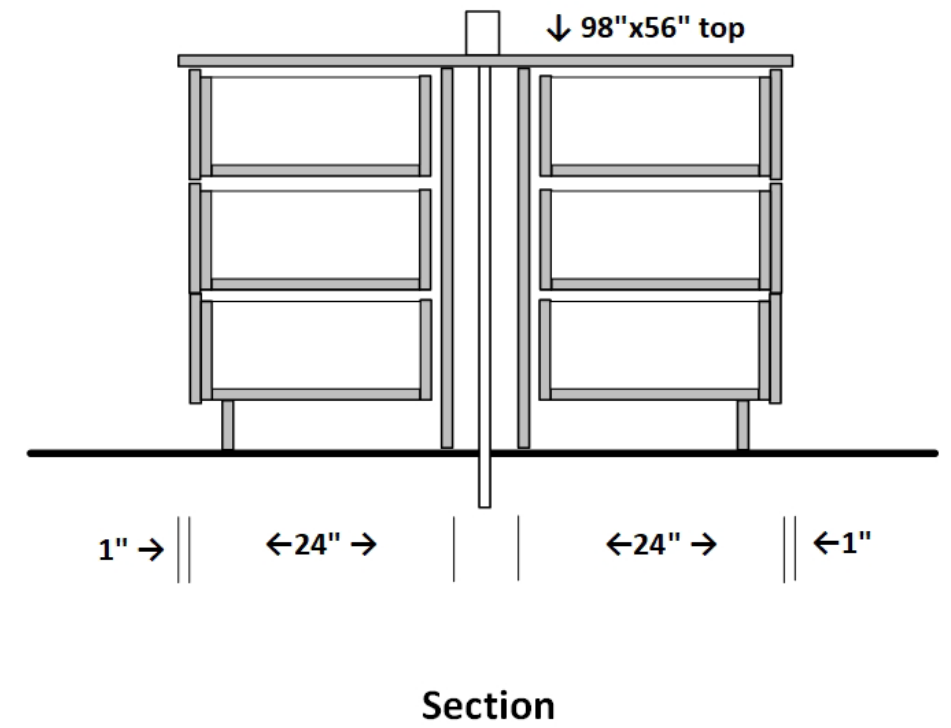
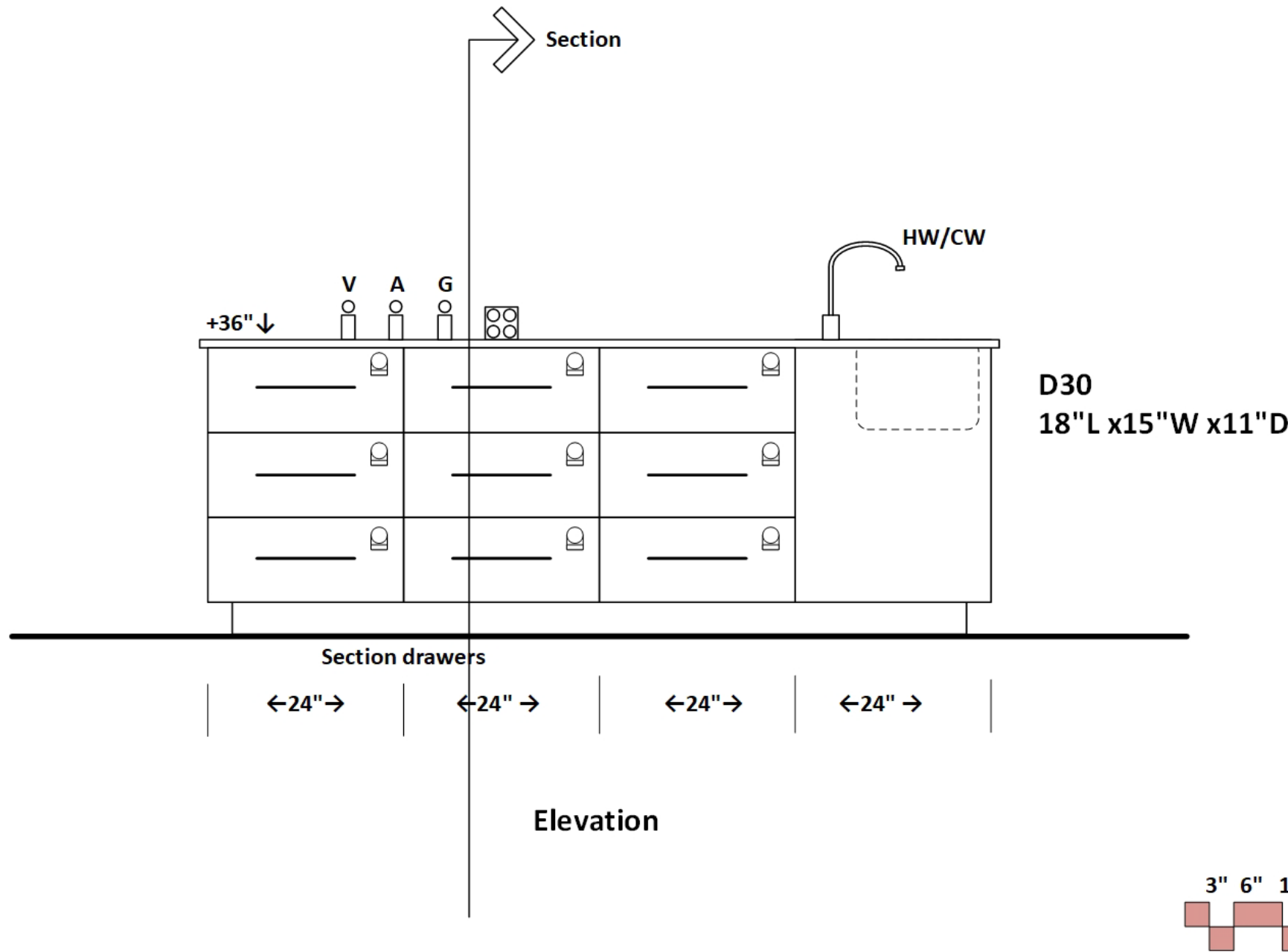
### OWNER FURNISHED EQUIPMENT

Chairs  
 Benchtop analytical instruments  
 Scientific equipment  
 Biological safety cabinets

# INTERDISCIPLINARY TEACHING LABORATORIES

## Lower Interdisciplinary Lab

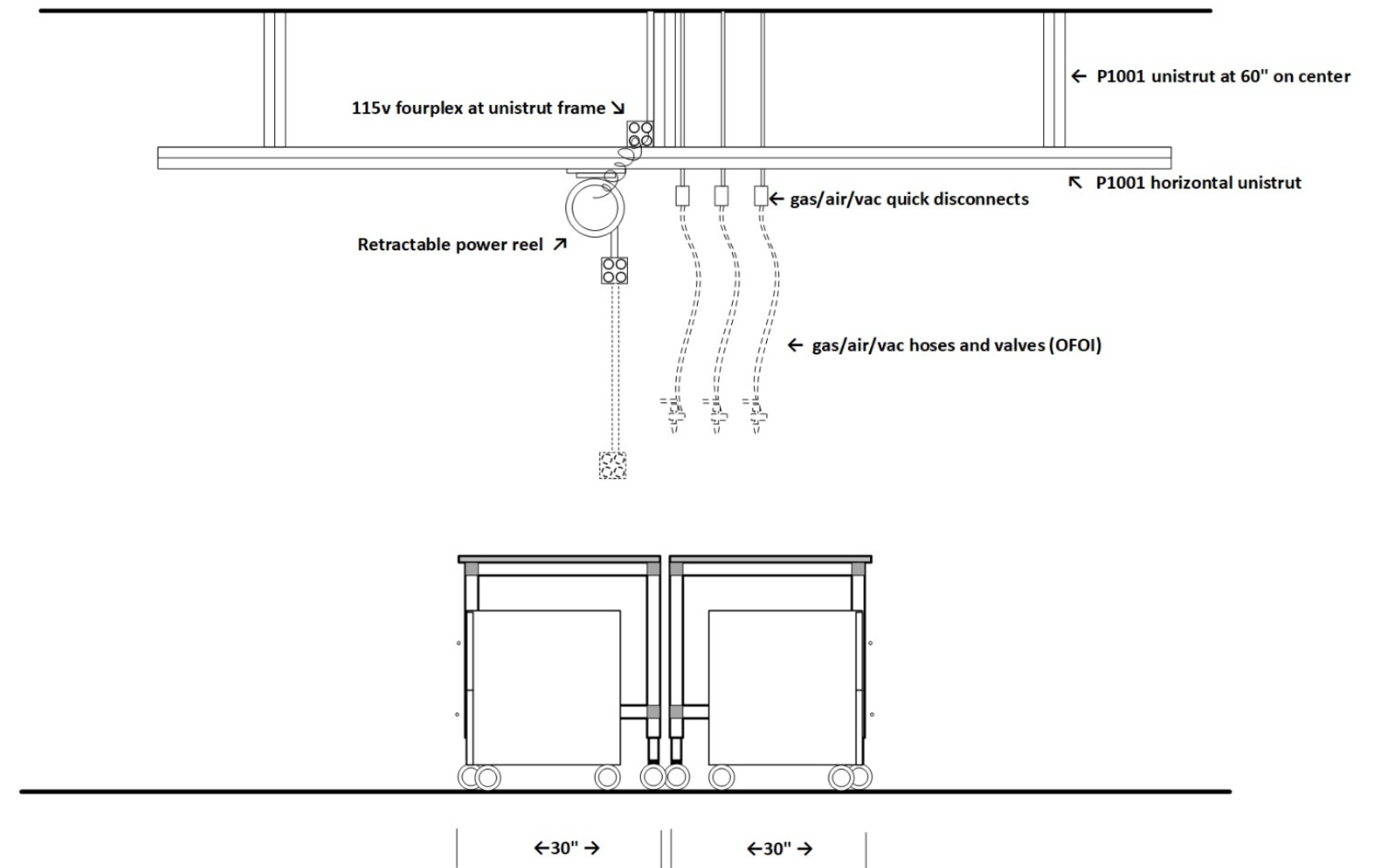
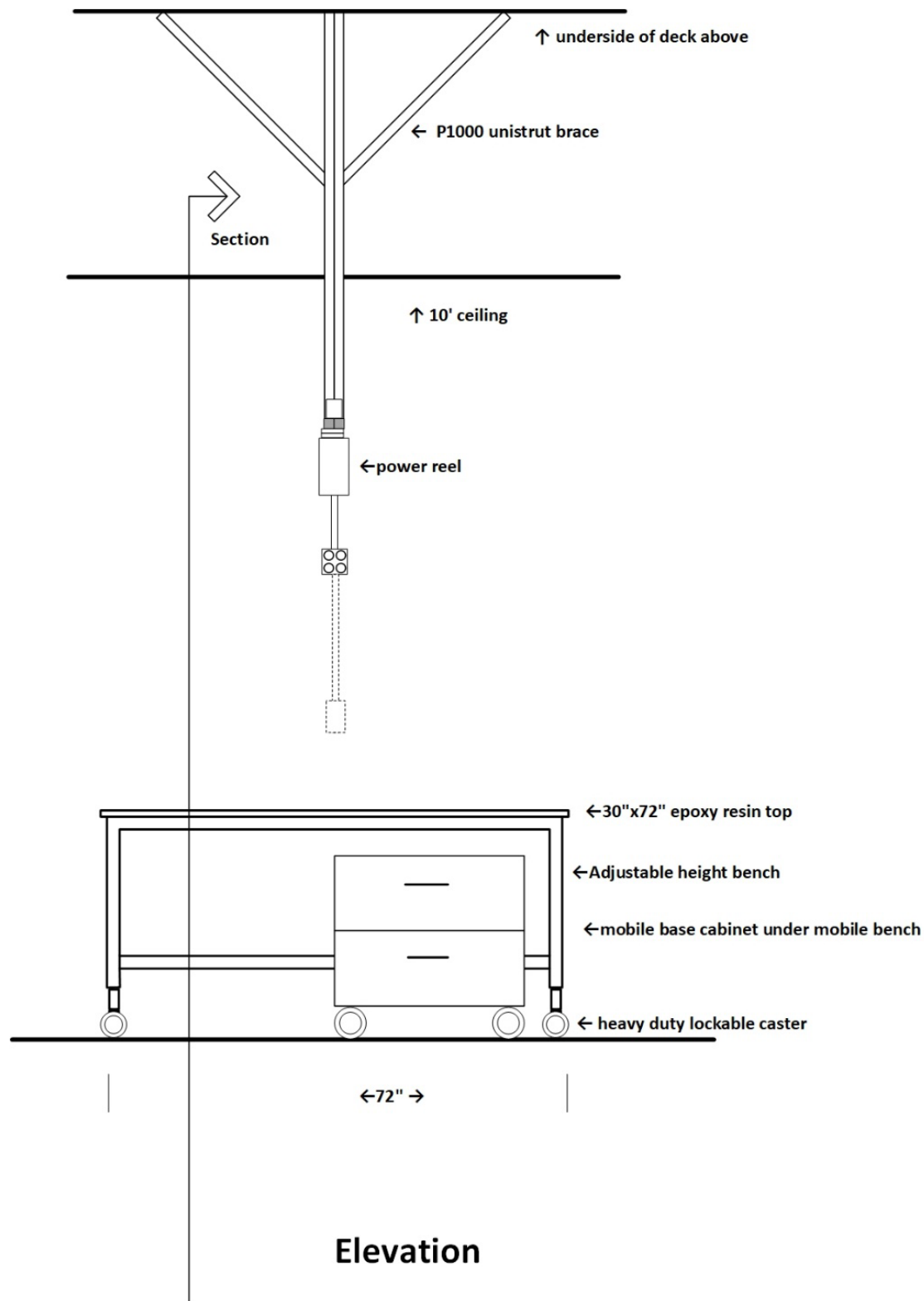
### Student Island Elevation- Fixed



# INTERDISCIPLINARY TEACHING LABORATORIES

## Upper Interdisciplinary Lab

### Student Island Elevation- Mobile

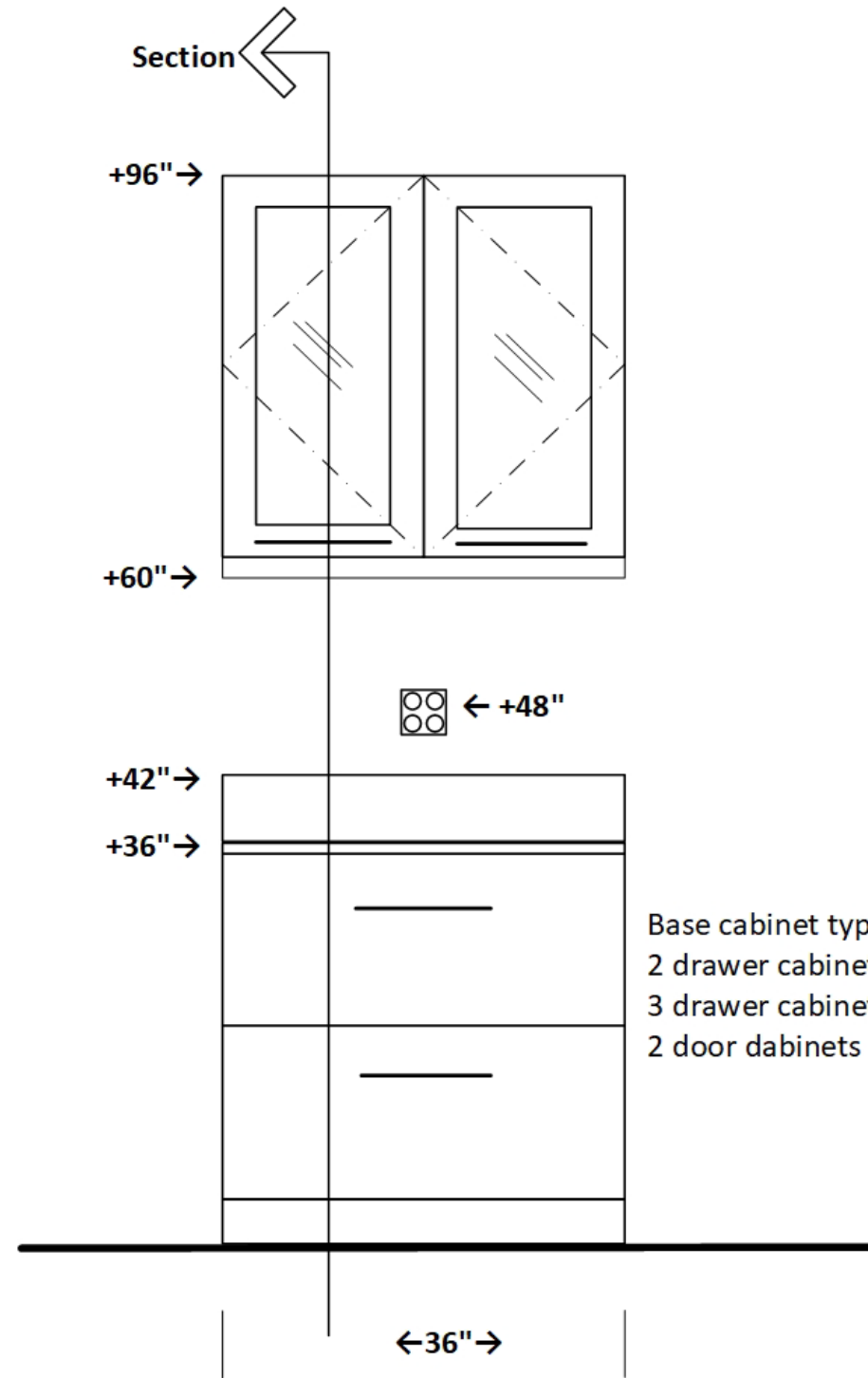


# SECTION DETAILS

Miscellaneous section details that occur in many or all labs and/or prep room.

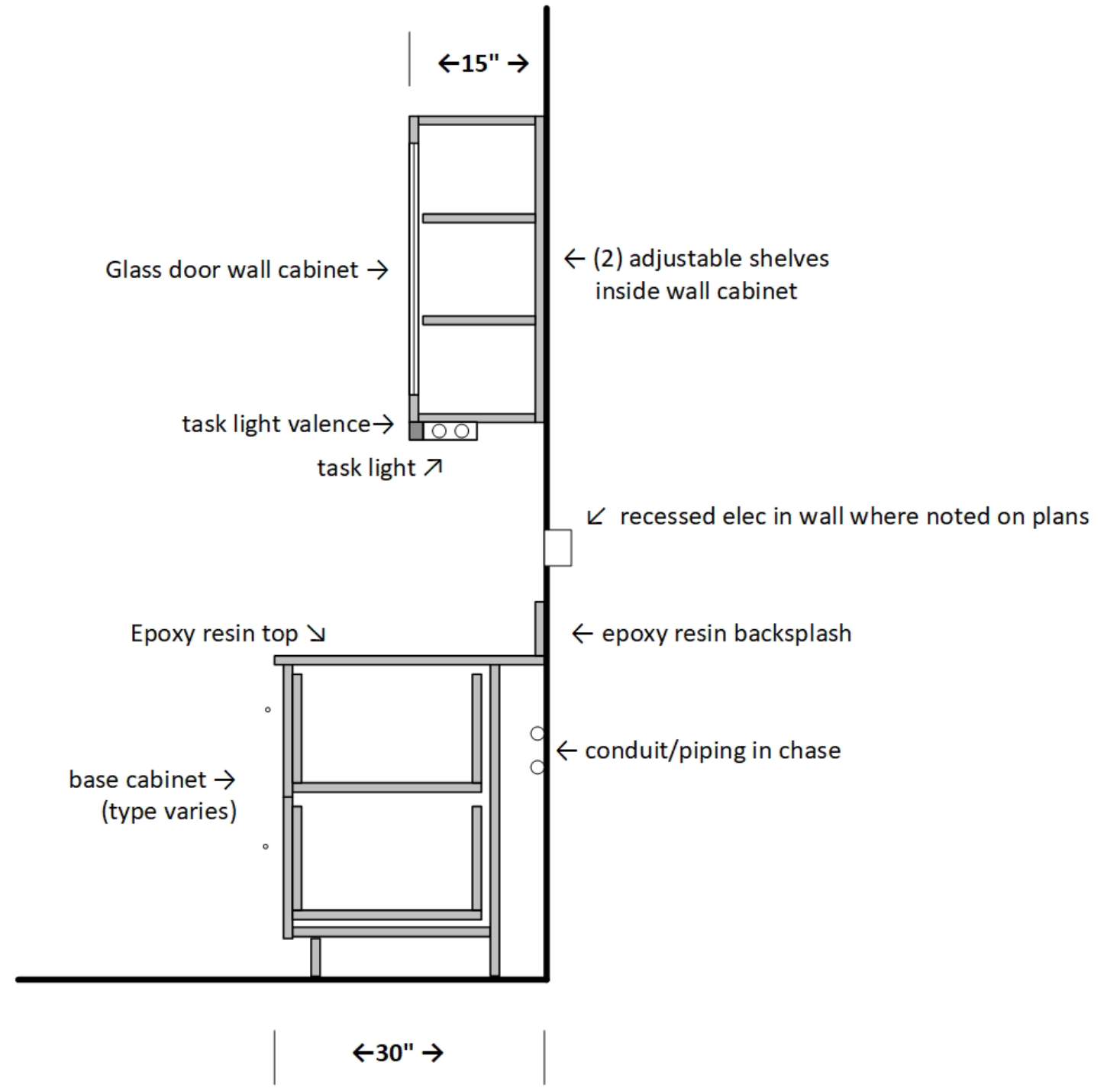


# SECTION DETAIL- WALL CABINET & BENCH

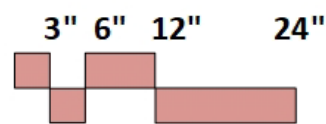


Base cabinet type varies-  
 2 drawer cabinets;  
 3 drawer cabinets;  
 2 door cabinets

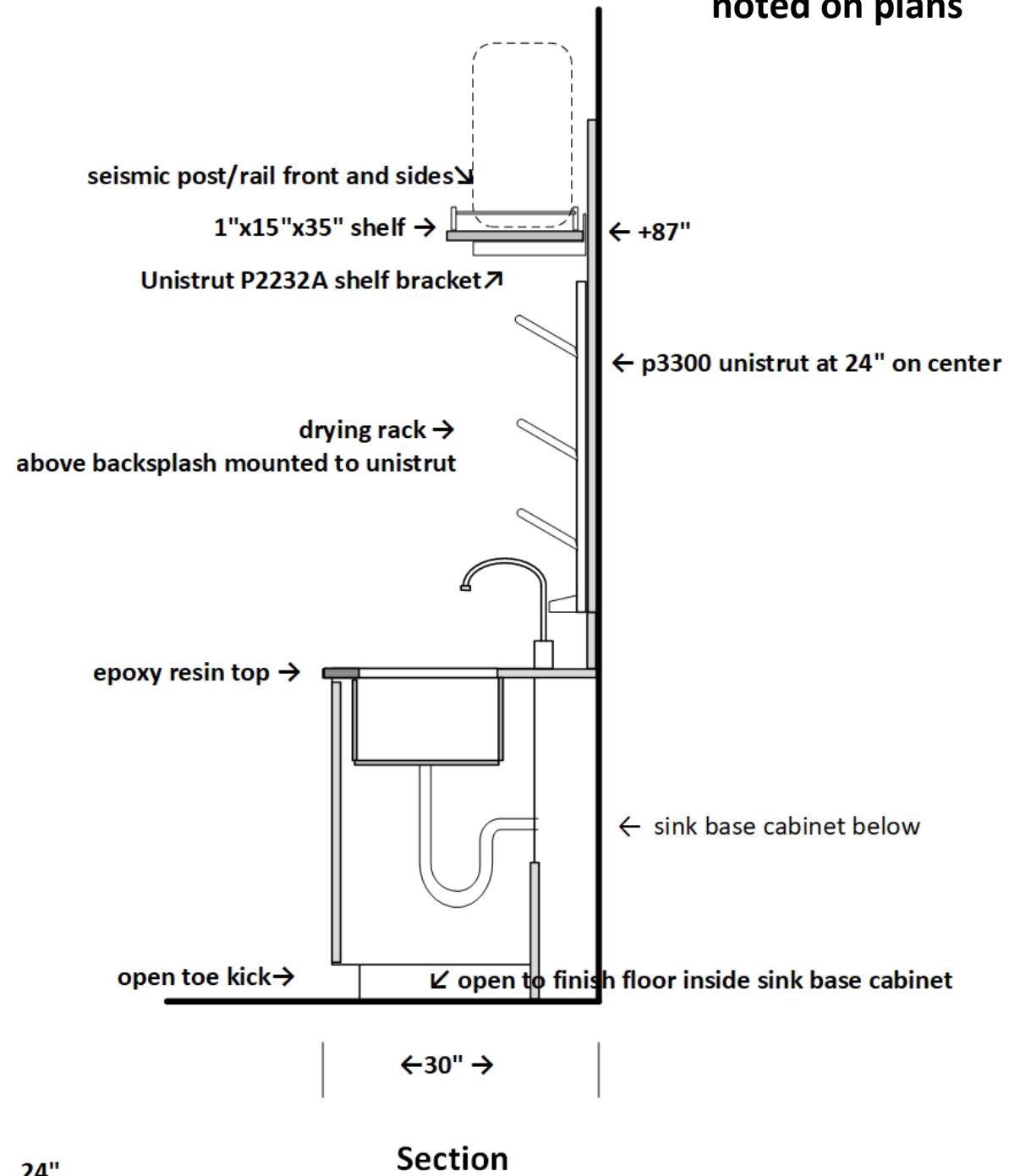
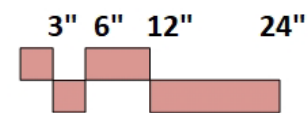
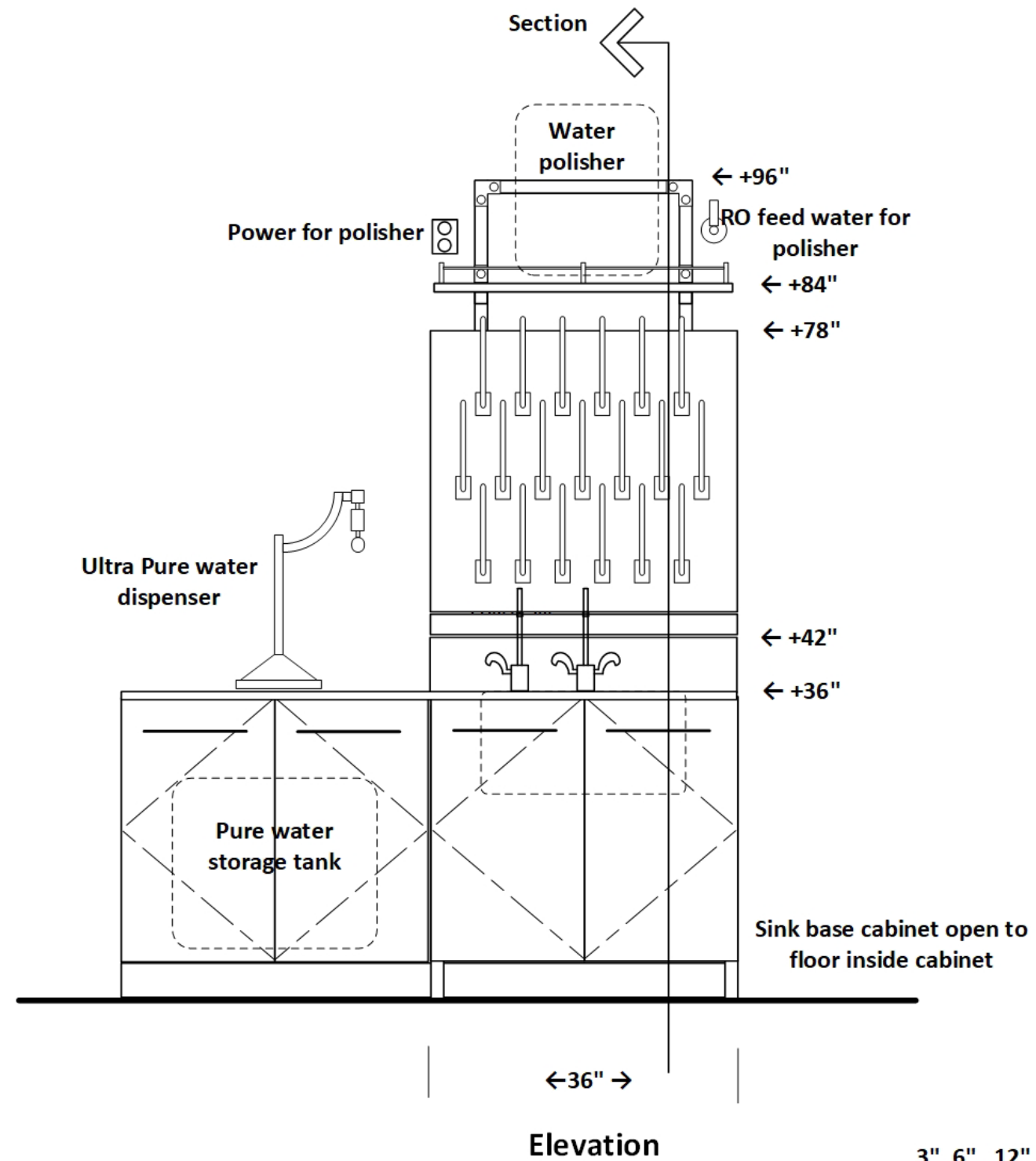
Elevation



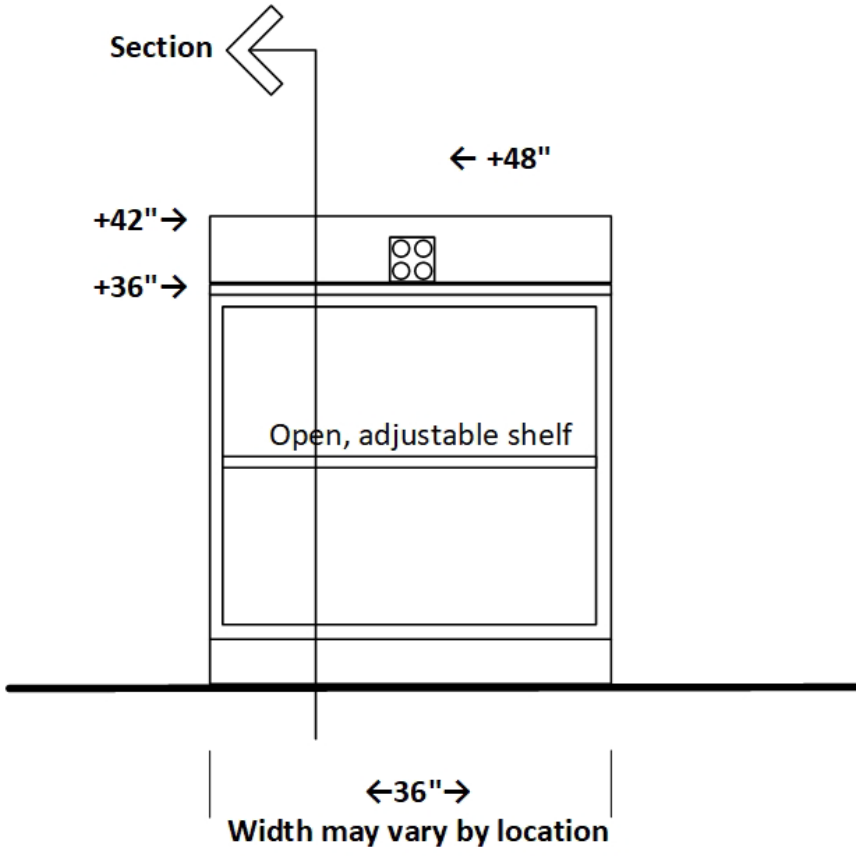
Section



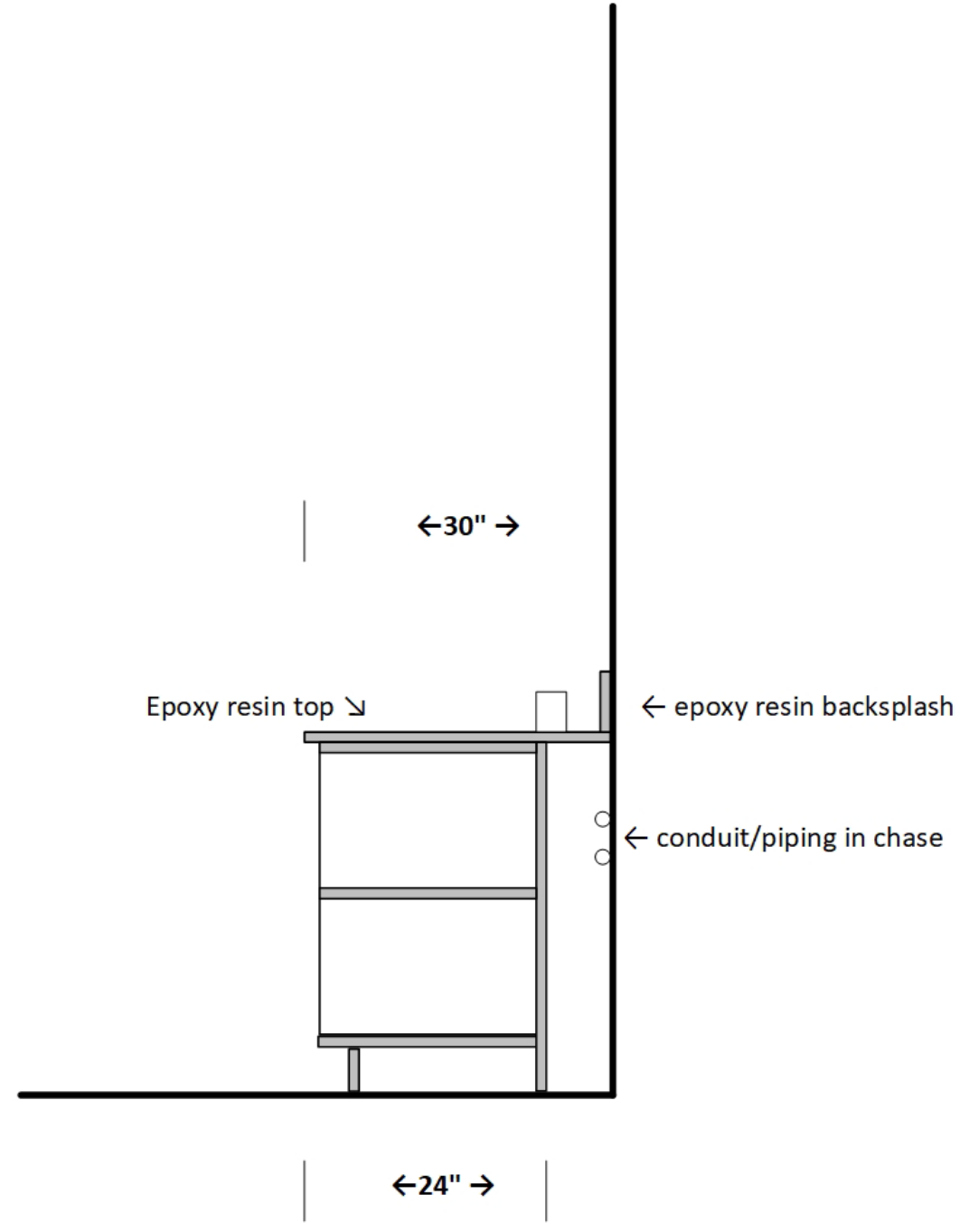
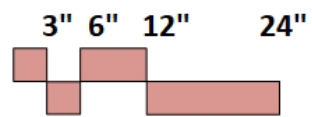
**SECTION DETAIL- SINK AT WALL**  
 Point-of-use polisher and related power, feed water, and equipment only occur in prep room sinks where noted on plans



**SECTION DETAIL- OPEN SHELF CUBICLE**  
 Located near teaching lab entry

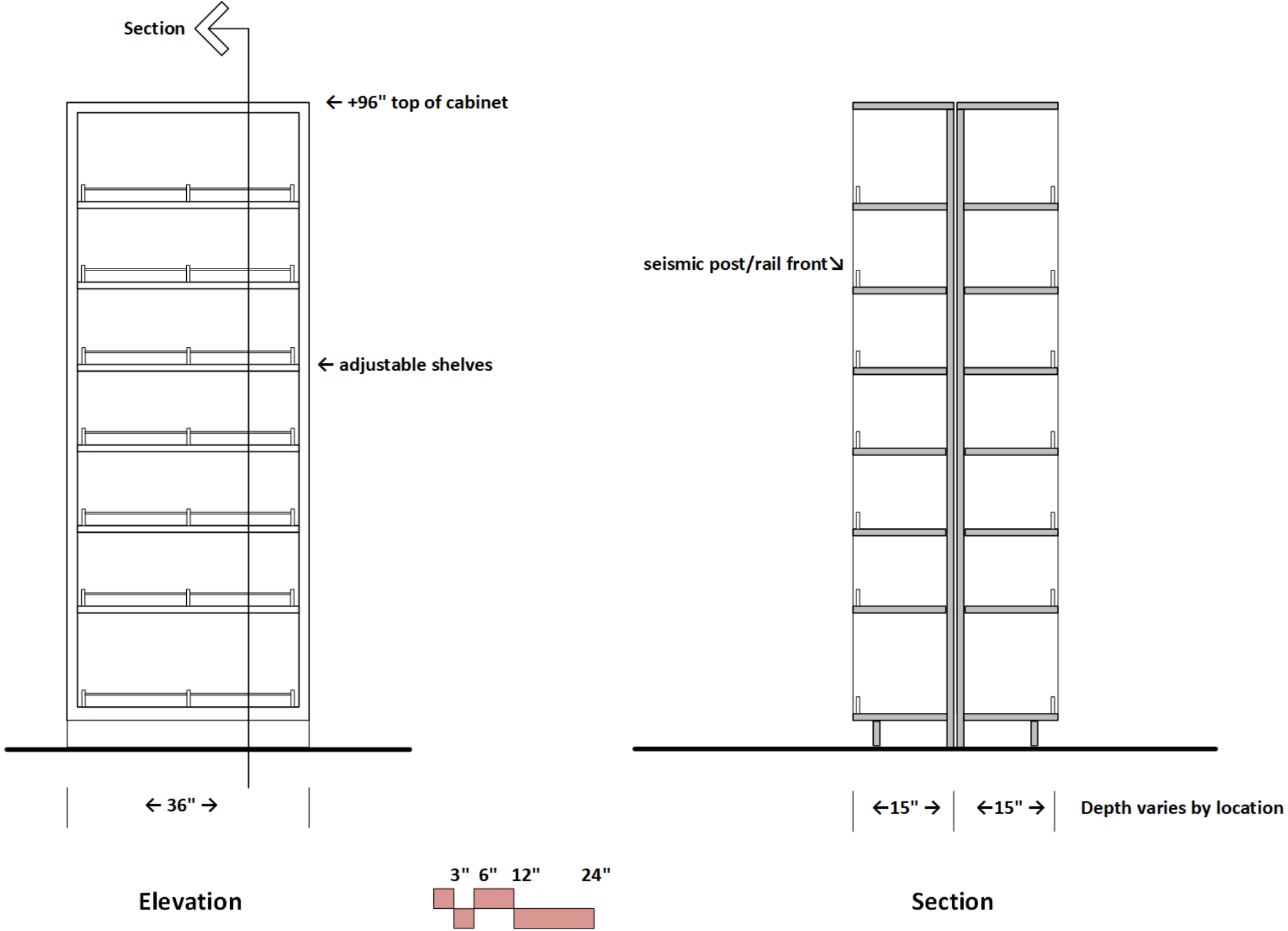


**Elevation**



**Section**

**SECTION DETAIL- OPEN SHELF CABINET**  
 Located in Intro Chem Prep; Org Chem Prep;  
 Intro Bio Prep; Interdisc Prep; Physics Prep



# EQUIPMENT CUT SHEETS

# CHEMICAL FUME HOOD CUT SHEET

8' fume hood- 1500 c.f.m. VAV

6' fume hood- 1200 c.f.m. VAV

5' fume hood- 900 c.f.m. VAV

4' fume hood- 700 c.f.m. VAV

## 4' Protector ClassMate Laboratory Hood



View online: <https://www.labconco.com/product/4-protector-classmate-laboratory-hood-10/6758>



### Overview

The patented Protector ClassMate Laboratory Hood is designed to meet the needs of instructional laboratories. Clear back and sides and taller front viewing window provide enhanced visibility for conducting chemistry demonstrations or observing students using the hood. The clear back also does not obstruct visibility when hoods are placed back-to-back in an island configuration.

Fully-featured with baffle and air foil, this high-performance by-pass hood maintains safe airflow while conserving energy. The Protector ClassMate Hood is benchtop design and offered in 4', 5', and 6' widths. Models with combination style sashes are also available.

Catalog Number: 160405102

### Specifications

- **Weight:** 435.0 lbs
- **Weight metric:** 197.3 kg
- **Dimensions:** 48.0" w x 32.7" d x 59.0" h
- **Dimensions metric:** 121.9 x 81.9 x 149.9 cm
- **Electrical:** 100-115V, 50/60 Hz, 10A
- **Product Subcategory:** Educational
- **Nominal Width:** 4'
- **Sash Movement Direction:** Combination (Vertical & Horizontal)
- **Region:** International, U.S. and Canada
- **Blower Requirements:** Remote blower required
- **Conformance:** ANSI Z9.5, ASHRAE 110, ASTM E84, CAN/CSA C22.2, CFR 29, NFPA 45, SEFA 1, SEFA 8 (Cabinet Surface Finish), UL 1805, UL 61010
- **Electrical Duplexes:** 1
- **Lighting:** LED
- **Service Fixtures:** 2
- **Style:** Benchtop

### Description

#### Features (All Models)

- SEFA 1 High Performance Hood.
- Patented design.
- By-pass airflow design.
- Glacier white powder-coated steel frame.
- Ergonomic air foil with aerodynamic Clean-Sweep airflow openings.
- Low-profile, ADA-compliant spill trough.
- Clear, 1/4" thick, tempered safety glass sides, back and removable baffle.
- 5° angled, 1/4" thick tempered safety glass stationary viewing panel and 3/16" thick chain-driven sash with anti-racking shaft and powder-coated steel frame that provides 37.5" high visibility.
- Powder-coated sash handle with aerodynamic Clean-Sweep airflow openings.
- High-performance, 3-piece glass baffle that pivots for cleaning.
- Cord-Keeper slots on left and right side of air foil.
- Pre-wired LED lighting, light switch and blower switch.
- Powder-coated stainless steel tissue screen located directly below exhaust outlet.
- Removable front panel, side panels and interior cover plates for access to plumbing and electrical wiring.
- Powder-coated stainless steel 12.81" ID exhaust connection.

#### Vertical-Rising Sash Models Feature

- Sash stop at 18" height from work surface (60% open). Can be field modified to 14" from work surface. Fully open sash is 28" from work surface.

#### Combination Sash Models Feature

- Combination horizontal-sliding/vertical-rising sashes that allow the operator to use the hood with the sashes half open either horizontally or vertically.
- Sash stop at 14" height from work surface (50% vertical opening). Can be field modified to 18" from work surface. Fully open sash is 28" from work surface.

#### Fixture Models May 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 GFCI electrical duplex receptacle on lower right side.



## Recessed Laboratory Units

**Application:** ColorTech recessed laboratory units are recess mounted into a finished wall. They conserve valuable floor space, while eliminating the clutter and obstruction created by conventional eye wash and shower equipment. Units can be installed in either a corridor or a lab room, close to where accidents might occur. In an emergency, units are easily located and activated.

**ADA Compliance:** When installed at recommended mounting heights, units comply with ADA requirements for accessibility

**Shower Head:** 8" diameter cast brass. Furnished with vertical supply pipe and ceiling escutcheon for mounting shower head at desired height below finished ceiling.

**Shower Valve:** 1" IPS brass stay-open ball valve with stainless steel "panic bar". Pulling bar down activates shower; shower remains in operation until bar is returned to original closed position. Furnished with stainless steel access panel and 1" IPS unions for valve.

**Cover/Drain Pan:** Eye/face wash section of unit has stainless steel cover. Opening cover pulls outlet head assembly down from vertical to horizontal position and activates water flow. Horizontal grab bar is easily grasped and pulled in an emergency. While unit is in operation, waste water is collected by drain pan and returned into unit for drainage. Unit remains in operation until cover is returned to closed position.

**Outlet Head Assembly:** Two FS-Plus spray heads mounted on supply arms. Each spray head has internal flow control and filter to remove impurities from water.

**Eye/Face Wash Valve:** 1/2" IPS brass stay-open ball valve.

**Mounting:** Entire unit is contained in an 18 gauge stainless steel cabinet with flanged rim for recessed mounting in wall. Combination cover and drain pan is 18 gauge stainless steel. Unit fits in standard 3-1/2" deep wall.

**Pipe and Fittings:** All pipe and fittings are brass.

**Supply:** 1" IPS female inlet.

**Waste:** 1-1/2" OD chrome plated brass tube.

**Sign:** Furnished with ANSI-compliant identification sign.

**Quality Assurance:** Unit is completely assembled and water tested prior to shipment

**U.S. Patent:** 5,768,721

### Available Options:

**AP280-220 Electric Light and Alarm Horn.** Flashing light is mounted on wall above unit. Alarm horn is recess mounted in wall next to light. Light is illuminated and horn sounds when either eye/face wash or shower is activated. See page 87 for complete information.

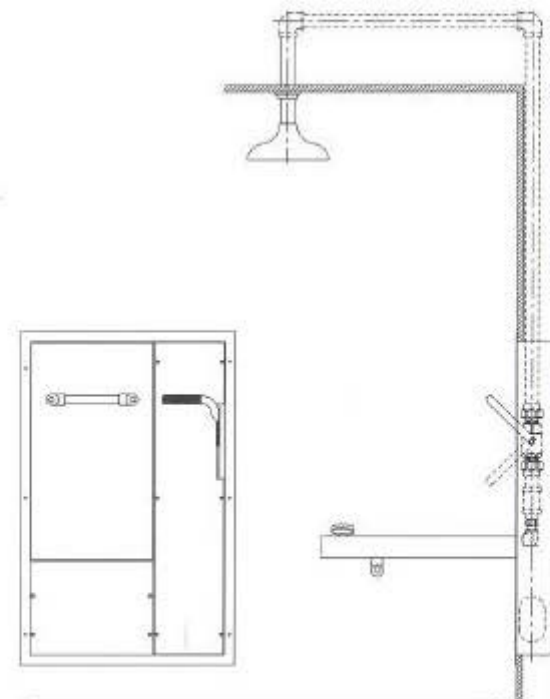
**AP3800 Thermostatic Mixing Valve.** Mixing valve precisely blends hot and cold water to deliver warm (tepid) water to eye/face wash and shower station as required by ANSI Z358.1 - 1998. Warm water prevents possibility of thermal shock. See page 86 for complete information.

by handicapped persons (maximum height and reach, minimum knee clearance and distance from obstructions).

**Certification:** All ColorTech safety equipment is third-party certified to meet the requirements of ANSI Z358.1 - 1998 ("Emergency Eye Wash and Shower Equipment").

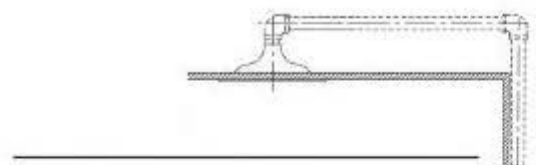
**Finish:** Units are supplied with a powder coated finish on all exposed brass components. Specify finish when ordering: white, gray, tan, polished chrome with clear epoxy or satin chrome with clear epoxy.

### CTSSBF2150 Recessed Safety Station with Drain Pan



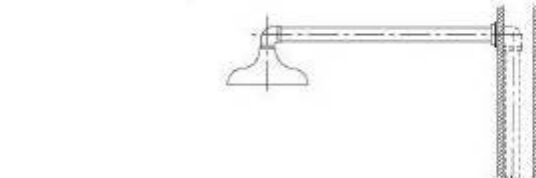
### CTSSBF2160

Same as above except with recess mounted shower head.



### CTSSBF2170

Same as above except with wall mounted shower head.



73

# SAFETY SHOWER CUT SHEET

**Model 2150 to be specified.  
Requires tempered water per Div. 22.  
Provide 8" diam floor drain below per Div. 22.  
Provide in each lab and Prep/Store room.**

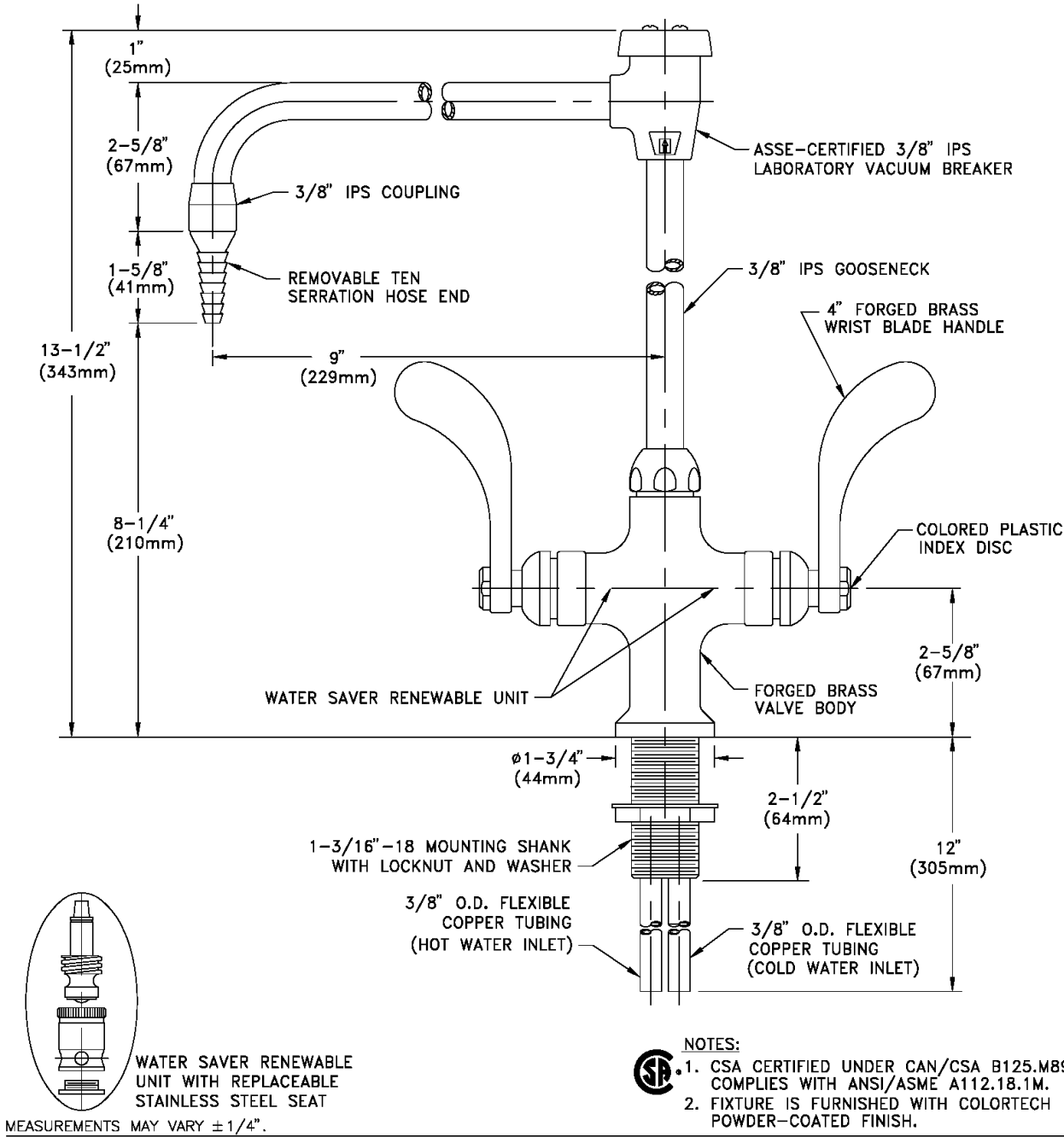
# HOT/COLD WATER FAUCET CUT SHEET

## COLORTECH

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

Laboratory Service Fixtures by  
Watersaver Faucet Co.

CT414-9VB-BH  
LABORATORY MIXING FAUCET, DECK MOUNTED, 9" RIGID/SWING VACUUM BREAKER GOOSENECK, WRIST  
BLADE HANDLES



All faucets and fittings to be satin chrome finish with clear epoxy coat.  
Provide vacuum breaker if central backflow in not provided.

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

Revision Number: 031803-KJS





# PRODUCT DIMENSIONS

DOMESTIC SIZES

# SINK CUT SHEET

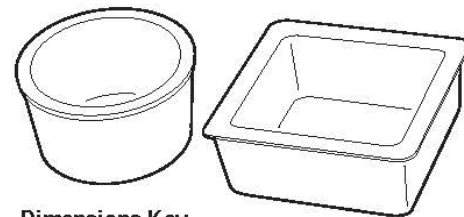
## Standard Dropln® Sinks

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
D24C	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	Center

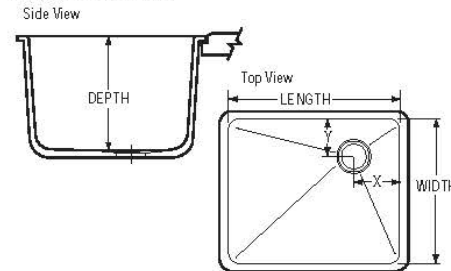
ADA compliant sinks are designated by this symbol.

All Dimensions are nominal and may vary by manufacturing location. Cutsheets available upon request.

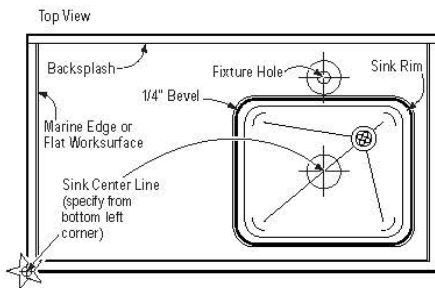
### Dropln® Sink Styles



### Dimensions Key



### Installation Detail

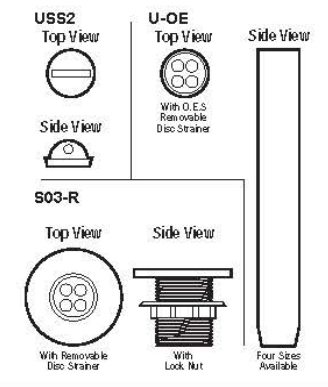


## Sink Outlets & Accessories

Part No.	Description	Color Availability							Dimensions (in)		
		Black Onyx	Gray	Graphite	Forest Green	Steel Blue	Tan	Alpine White	Inside Pipe/Outlet Diameter	Outside Rim Diameter	Length
Polypropylene											
SO3-R	Sink Outlet*	✓	✓	—	—	—	—	—	1.4	3.3	3.0
USS2	Sink Stopper	✓	—	—	—	—	—	—	—	1.4	—
U-OE	Open End Overflow	✓	—	—	—	—	—	—	—	1.4	4, 6, 8, 10
O.E.S.	U-OE Strainer Cap	✓	—	—	—	—	—	—	—	1.4	—
Epoxy Resin											
SO3	Sink Outlet*	—	—	✓	✓	✓	—	—	1.4	3.3	3.0

\*A plastic disc strainer is included with each sink outlet.

### Outlets & Accessories

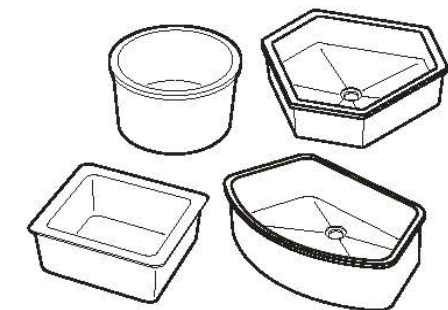


## Special Order Dropln Sinks

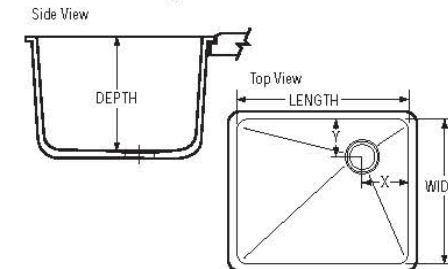
Sink No.	Outlet	Wgt (lb)	Dimensions (in)				
			Inside Bowl			Outlet Location	
			Length	Width	Depth	X	Y
D06*	Center	34	12.0	12.0	12.0	6.0	6.0
A07*	Corner	24	14.0	14.0	5.0	3.5	3.5
D08*	Corner	25	15.0	8.0	6.0	3.5	3.5
D09*	Corner	25	15.0	8.0	10.8	3.5	3.5
D21*	Corner	58	16.0	16.0	15.0	3.5	3.5
A26*	Corner	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	8.0	4.75
D70C*	Center	95	24.0	16.0	15.5	8.0	12.0
D100**	Center	29	22.5	Hexagon	5.0	Center	Center
D200**	End	64	30.9	Hexagon	7.0	15.5	8.0
DRS10*	Center	14	10.0	Round	7.8	Center	Center
DHC20*	Center	82	30.0	Hexagon	7.0	Center	Center
D99*	End	56	32.0	Semi-Circle	10.0	11.5	4.5

All sinks are available at both plants unless otherwise 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 manufacturing location. Cutsheets available upon request.

### Dropln® Sink Styles



### Dimensions Key



# 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.

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

**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.

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

**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



**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.

# WASHER CUT SHEET

## 208v20A1ph; RO Rinse Cycle

# 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.



- 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

### 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)

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

# METRO SHELVING CUT SHEET



Item # \_\_\_\_\_

Job \_\_\_\_\_

## SUPER ADJUSTABLE 2" SUPER ERECTA SHELF® WIRE SHELVING

Super Adjustable 2" Super Erecta Wire Shelving is the most advanced and innovative wire storage system available. The unique Corner Release System, which allows shelves to be adjusted quickly and easily without tools, has been re-engineered to provide increased rigidity. And Super Adjustable 2" Shelving works in conjunction with the entire Super Erecta System of shelves and accessories.

- **Maximum Space Utilization:** The Corner Release System encourages repositioning of shelves during initial assembly to reclaim wasted vertical space. In some cases, reclaimed vertical space will allow an extra shelving tier to be added to the storage unit resulting in a 25% increase in storage capacity!
- **Easily Assembled:** The unique Corner Release System enables quick and easy repositioning of shelves during the initial set up to accommodate different package or container sizes. "Total Assembly" is complete only after the shelves are properly spaced to maximize storage. SiteSelect™ Posts, with the double-groove visual guide feature, have circular grooves at 1" (25mm) increments and are numbered at 2" (51mm) intervals to easily identify proper shelf locations.
- **Easily Adjustable:** The unique shelf design and SiteSelect™ Posts enable "tool-free", quick adjustment at 1" (25mm) increments along the entire height of the post.
- **Improved Rigidity:** An enhanced Corner Release System has made Super Adjustable 2" the most rigid, easily adjustable shelving system ever.
- **Strong:** Super Adjustable 2" shelves hold as much weight as traditional Super Erecta wire shelving. Stationary units hold a maximum of 2,000 lb. (910kg). Maximum weight capacity per shelf (48" [1219mm] or shorter = 800 lb. [364kg]; longer than 48" [1219mm] = 600 lb. [273kg])
- **Choice of Finishes:** Super Adjustable 2" Super Erecta shelving is available in a variety of finishes: Super Erecta Brite and chrome-plated for dry storage; Metroseal 3" with antimicrobial product protection and stainless steel for corrosive environments; and attractive black epoxy for merchandising applications.

### Super Adjustable 2" Advantage . . .

Easily reposition Super Adjustable 2" shelves during initial assembly to increase storage capacity by as much as 25%.



Dry Storage — Chrome or Super Erecta Brite™



All Environments — Metroseal 3" with Microban® Antimicrobial Product Protection



Mobile Stem Caster Cart



Mobile Dolly Truck



Corner Release System

\*MICROBAN® and the MICROBAN® symbol are registered trademarks of the Microban Products Company, Huntersville, NC.



InterMetro Industries Corporation  
North Washington Street  
Wilkes-Barre, PA 18705  
www.metro.com



**METRO**  
 SUPER ADJUSTABLE 2" SUPER ERECTA SHELF®  
**Adjustable Wire Shelving**

**10.01A**

Metro shelf units to be specified with heavy duty, locking casters, Super Adjustable shelf clips.

Specify sill height metro shelf units in Physics Prep Rooms adjacent to exterior windows.

# WATER POLISHER CUT SHEET

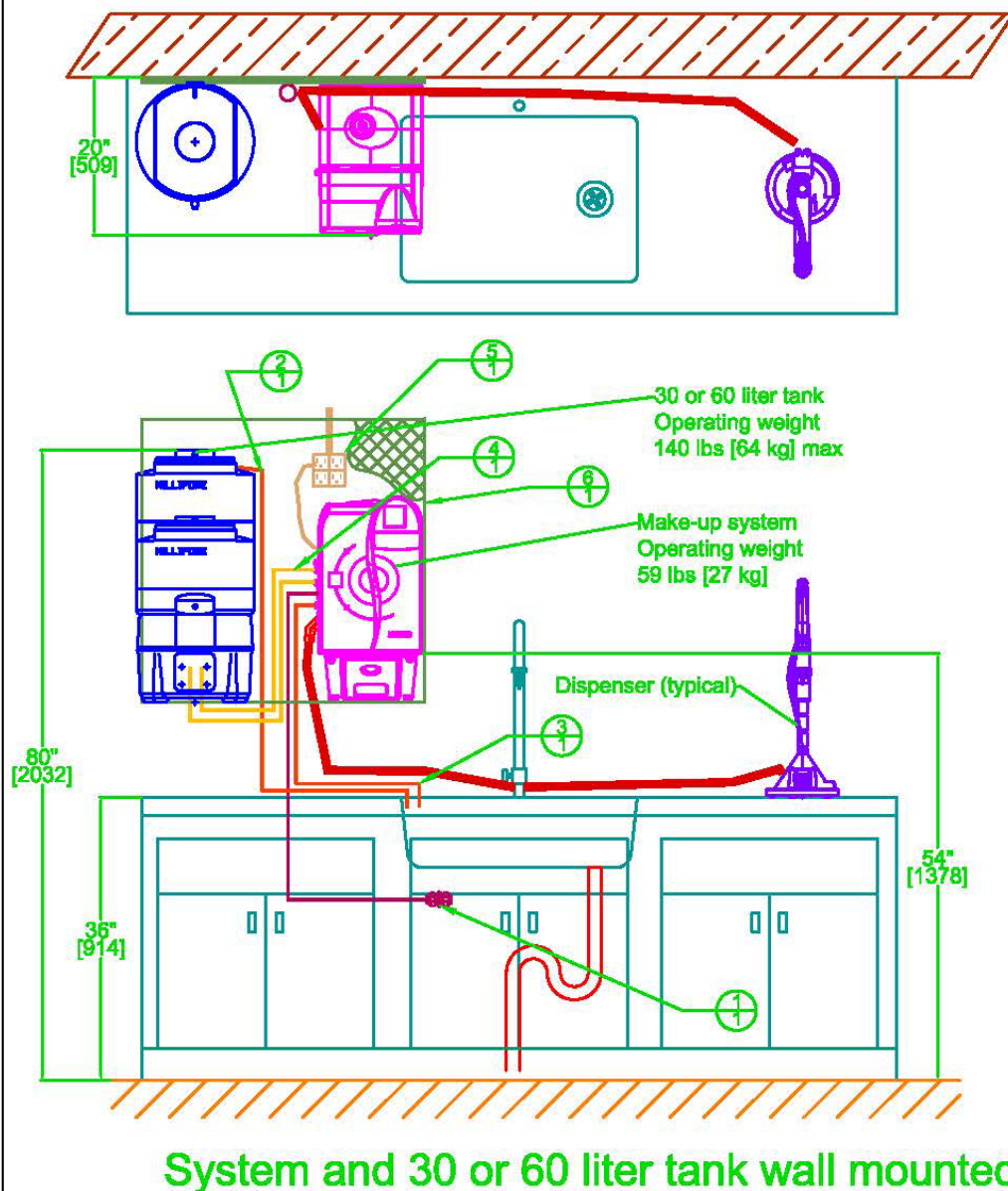
REV	BY	DESCRIPTION	DATE	APPD
-	-	INITIAL RELEASE	2/20/08	

## For both Milli-Q Integral and Elix Advantage Systems

INTERFACE CALL-OUT TABLE		
TAG	DESCRIPTION	LOCATION
1-1	Feed water source - provide 1/2" npt connection for Millipore interface. Pressure 30-80 psi, Temp 41-95°F	Either under the sink or on wall, within 5 feet of system. If under sink, provide 2" Ø hole in counter or casework for tubing for connection to system by Millipore
2-1	Overflow from storage tank	Gravity drain connection is on back of tank, Millipore will run 3/4" hose from tank to sink or standpipe provided by customer
3-1	Reject from make-up system	Millipore will run tubing from system to sink or standpipe provided by customer
4-1	Supply and return from storage tank	Millipore will run tubing from system to the storage tank
5-1	120VAC for water system, provide 5-15R receptacle. System power 160VA, fused internally at 2.5 A	Locate within 48" of the Millipore system
6-1	Provide mounting panel to cover wall behind and provide mounting for Millipore equipment	Locate as needed, dimensions as needed, material typically 3/4" plywood or similar, to support tank and make-up system
7-1	Supply and return to/from the dispenser(s)	Millipore will run tubing from system to the dispenser(s)

### INSTALLATION NOTES

- (1) TANK LOCATION: Typical shown. Tank must be located within 6 ft (2 m) above or below, and within 9 ft (3m) left or right of the system.
- (2) DISPENSER: Typical shown. Provided with communications/tubing assembly that allows location up to 9 ft (3 m) away from system (see "Pod combinations" drawing).
- (3) CASEWORK: Owner to provide Holes in counters and casework as needed to provide path for all tubing and cables.



- Locate at one sink per prep/store room. Requires RO water supply and duplex power outlet.
- Includes 30 litre storage tank, wall mounted on shelf.
- Contractor Furnished/Contractor Installed.

<p>This drawing and the data contained therein are confidential and the property of Millipore Corp. Any other use or reproduction of this drawing is expressly prohibited without Millipore's consent.</p> <p>DO NOT SCALE PRINT</p>		NA CUSTOM WATER SYSTEMS - BIOSCIENCE DIVISION MILLIPORE LABORATORIES CORP.	
		CLIENT: Millipore Installation Details	TITLE: Typical Milli-Q/ Elix Advantage installation dimensions
DESIGNED BY: TJC DATE: 11-04-08	DRAWN BY: JJC DATE: 02/20/08	CHECKED BY: JJC DATE: 02/20/08	APPROVED BY: JJC DATE: 02/20/08
PART NUMBER: SMUB-CS-111008E		SHEET: 1 OF 1	