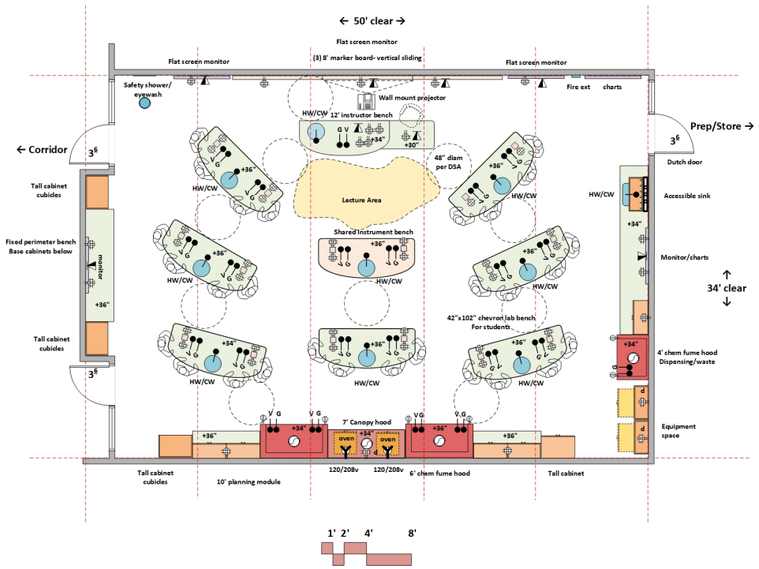
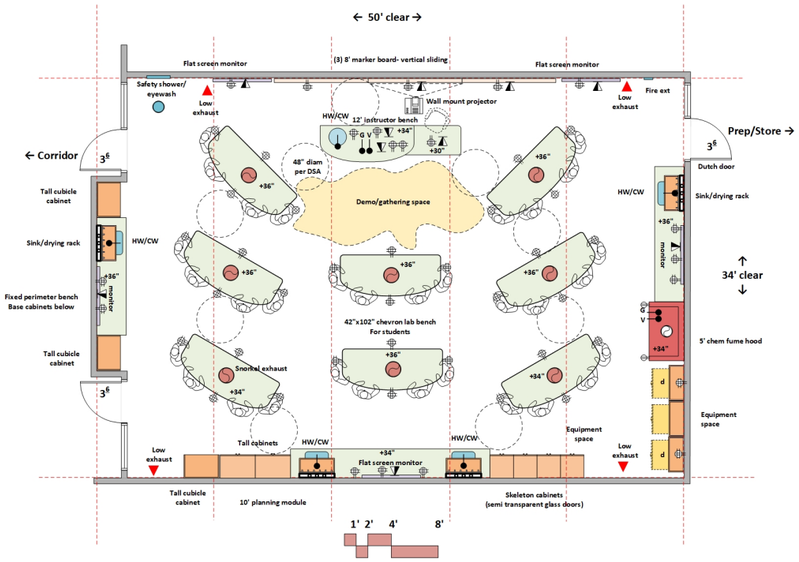
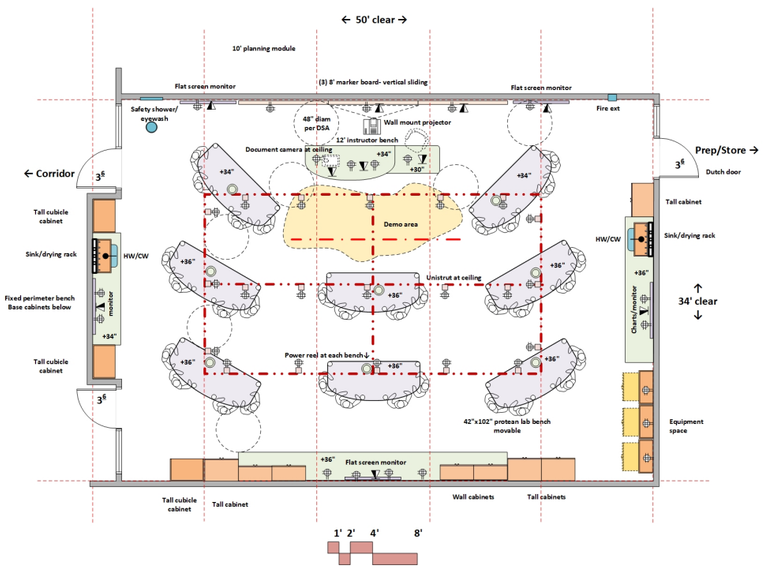
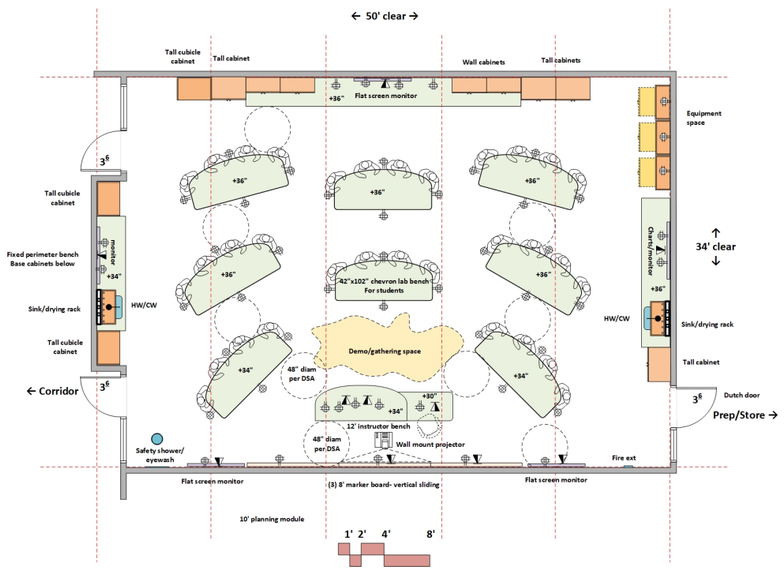






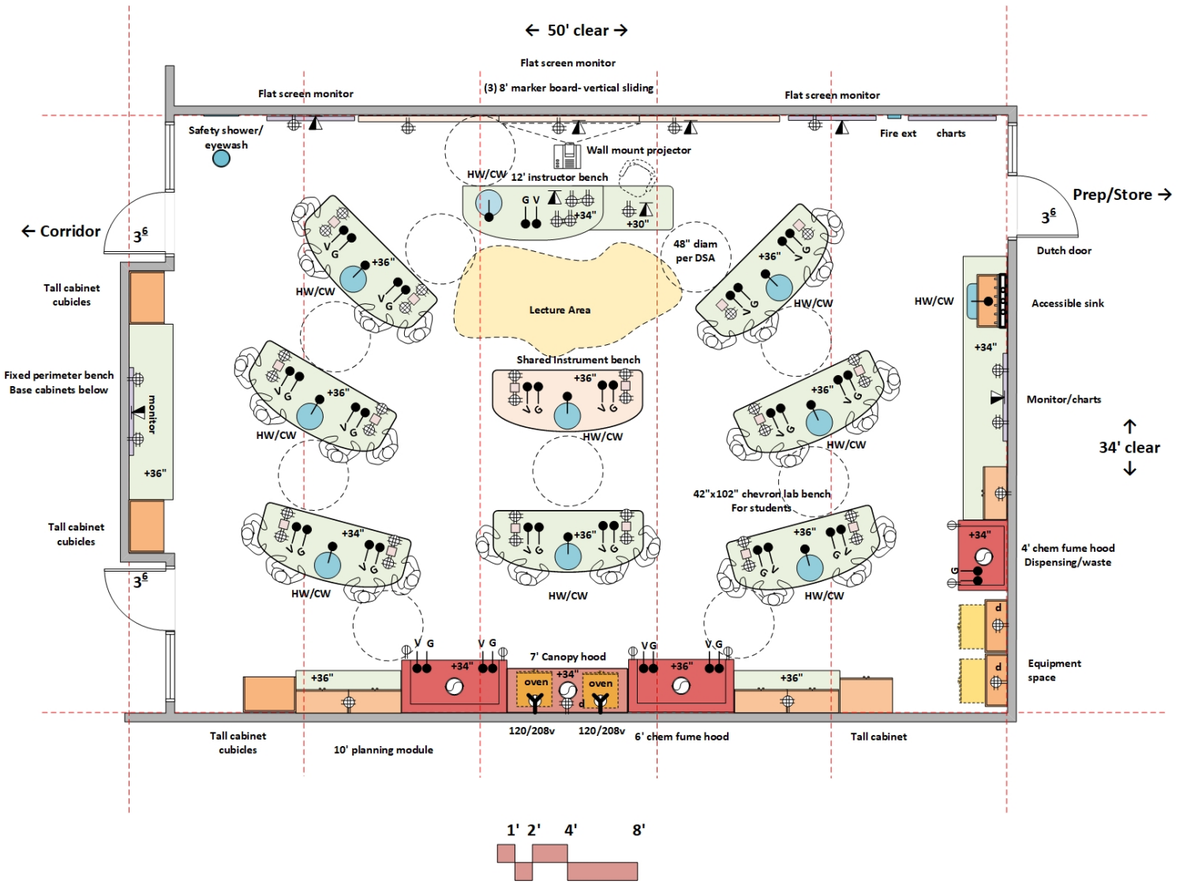


LAB DESIGN SKETCHBOOK

Natomas Center

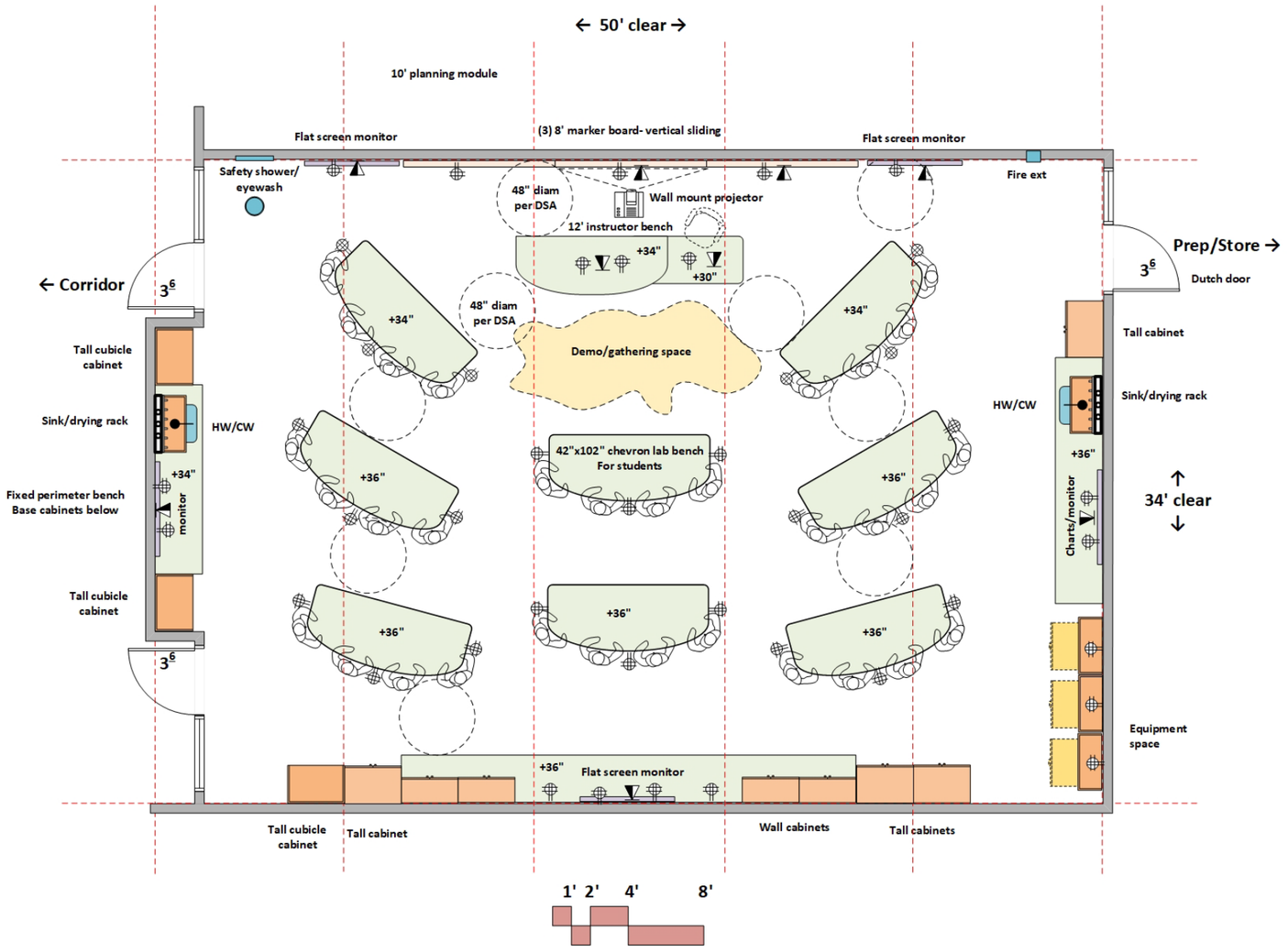
2020 May 03

HERA laboratory planners



CONTENTS

SUMMARY



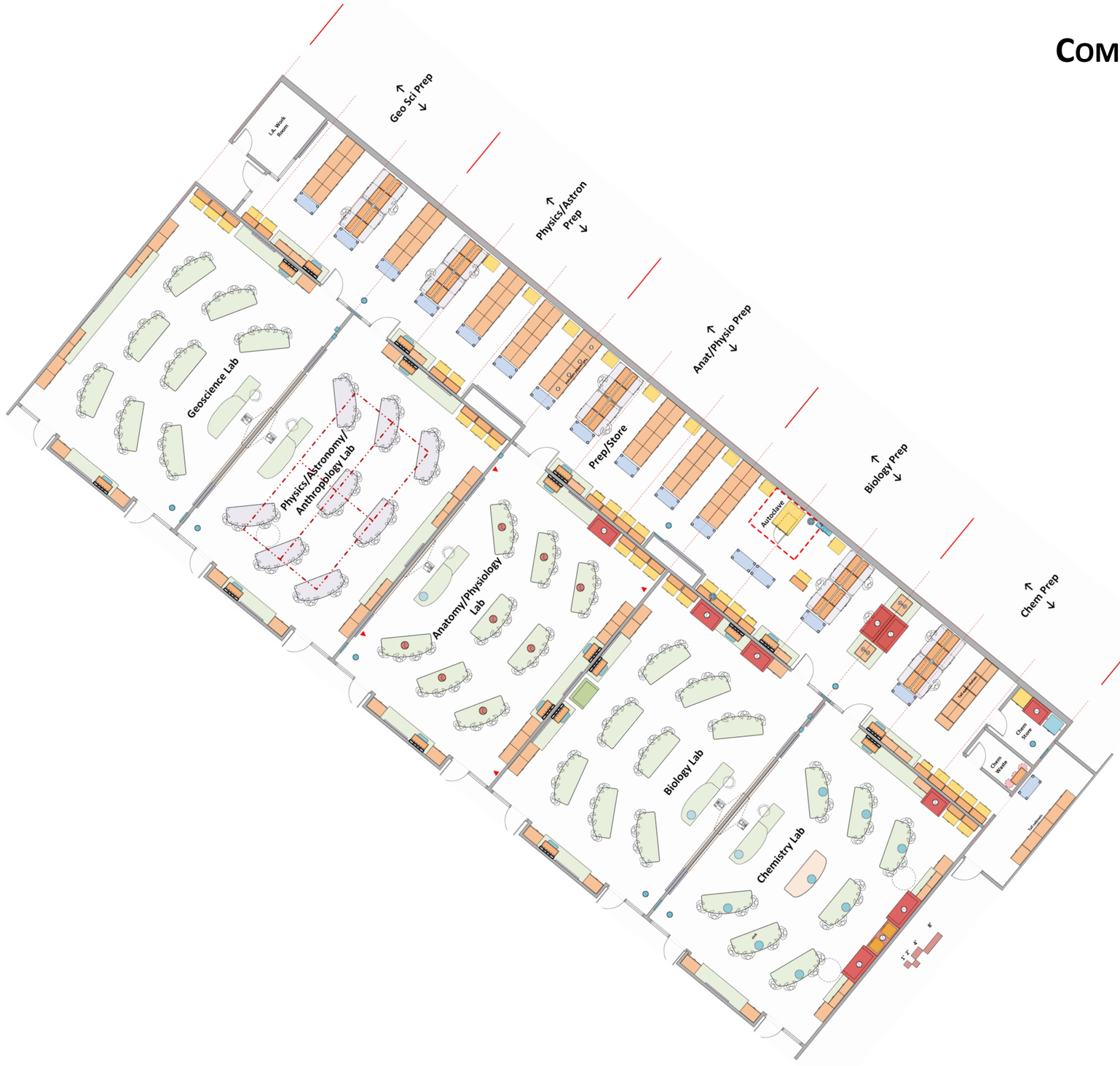
This document is the third draft of the laboratory design for the new science building Natomas Center at American River College. This document includes comments received from ARC Natomas science faculty in conference call on 2020 April 03.

The lab program information defines the Basis of Design for the science labs, and will be used to prepare lab Revit drawings to be included in the Construction Documents.

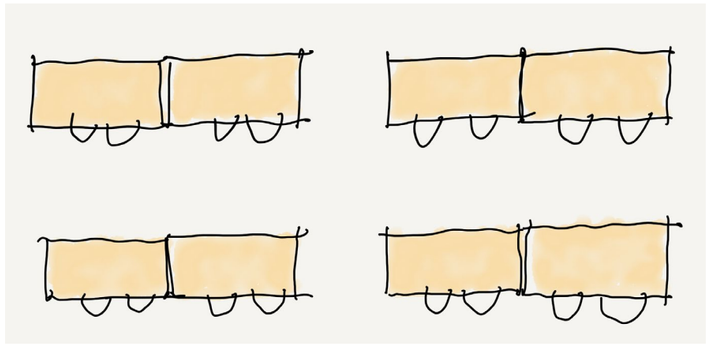
Glen Berry, AIA-NCARB
Laboratory Planning Consultant to LPA, Inc.
glenb@herainc.com

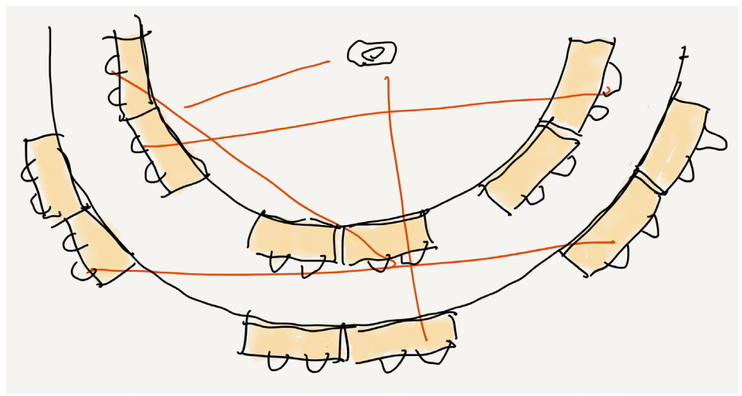
HERA laboratory planners

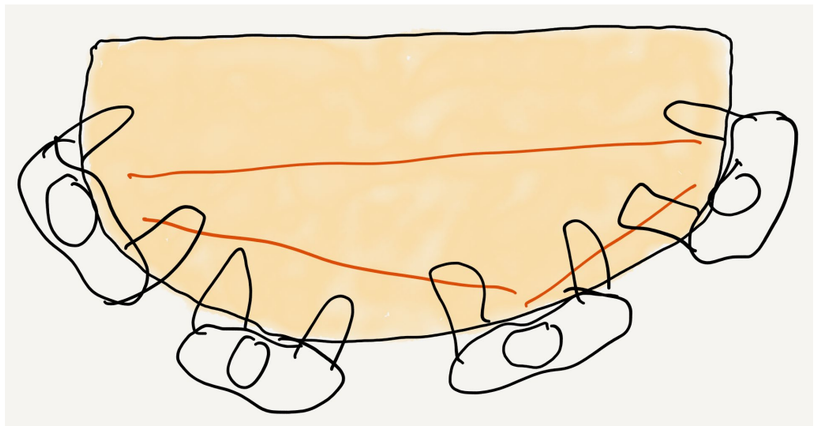
COMPOSITE LAB PLAN



LAB CONCEPT







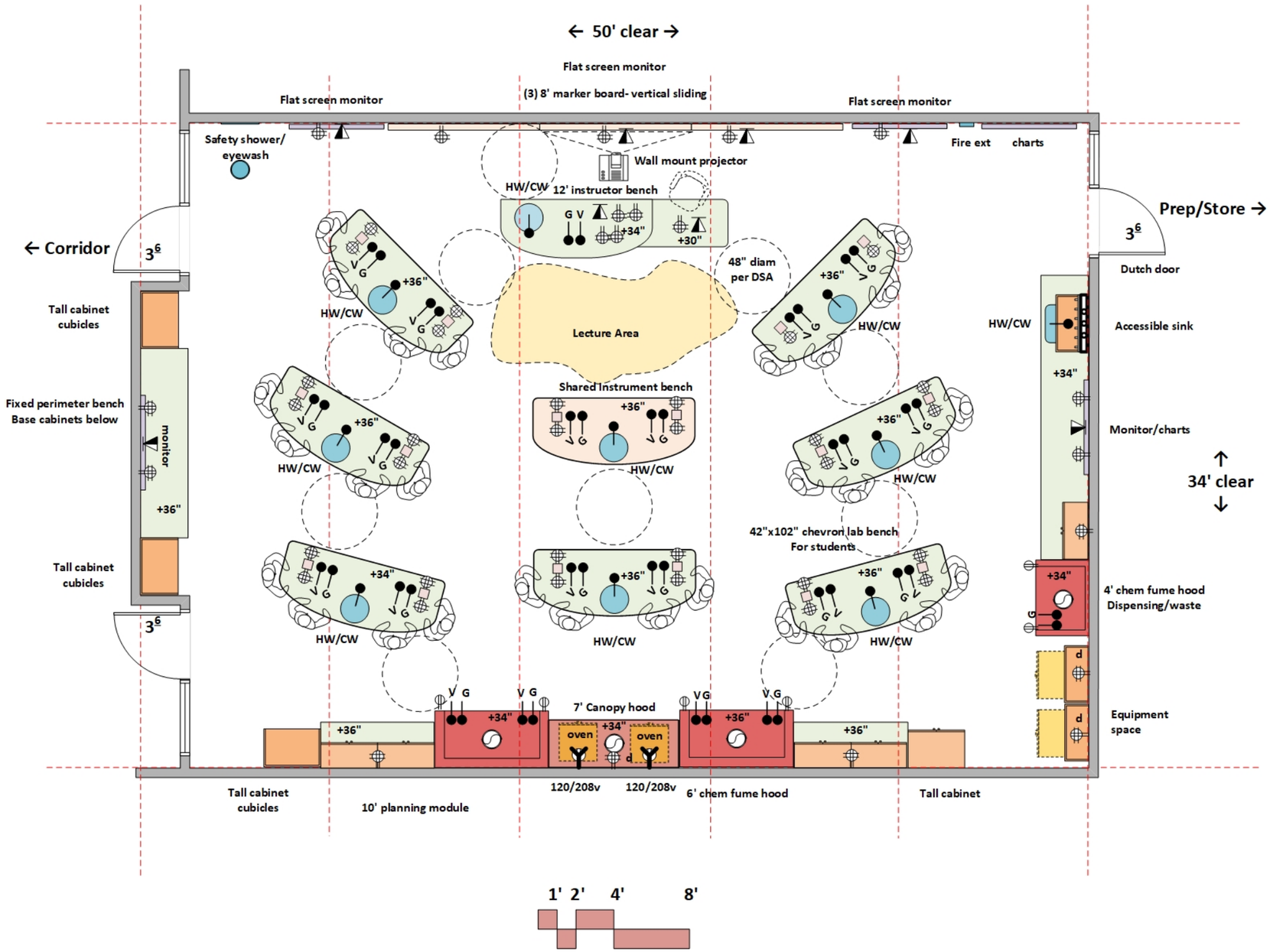
The design for the science labs originates with concepts developed at the Harvard Business School for their Case Study labs. Traditional orthogonal (top illustration at left) classroom desks were curved to allow students greater interaction with each other as case studies were discussed (middle illustration at left).

This curvature of case study desks has also been applied in science lab design to traditional orthogonal layout of lab benches, such that students can interact better in a group discussion, and smaller groups can interact at a curved lab bench. This lab design concept is called the "protean" lab design. In Greek mythology, Proteus, a god of the sea, changes his form constantly, similar to water constantly changing its form in the ocean and rivers. The adjective, Protean, connotes adaptability, flexibility, and versatility.

The lab bench has also been curved (bottom illustration at left) so that students working in groups of 2 and 4 can better interact with each other.

Variations of the Protean Lab Design have been applied herein to all science disciplines in life science (biology and anatomy), physical science (chemistry and physics/astronomy) and geoscience. The different labs vary based on fume hood density and sink density.

GENERAL CHEMISTRY LABORATORY



ARCHITECTURAL
Occupancy: B
Number of students: 24-28
Assignable Area: 1,650 asf
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: lab grade acoustic tile at 10'
Doors: 3^{6}x8^{0} with window
Acoustic Attenuation: NC 40 or less
Light Attenuation: at exterior windows, if any
Accessibility: student island, sink, fume hood, and instructor bench
Security: card key access

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

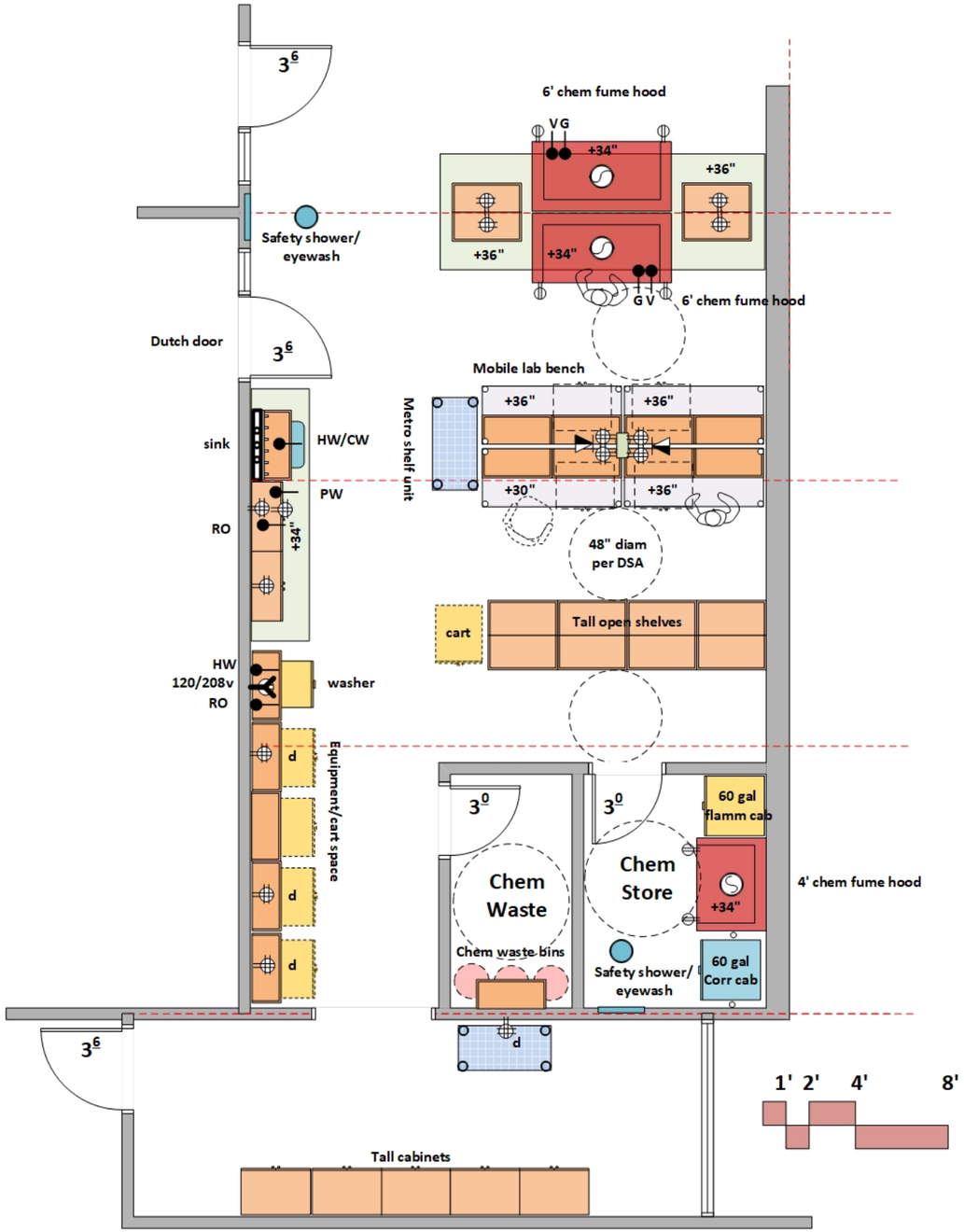
MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
-(8) air changes per hour occupied; -(4) air changes per hour unoccupied
Provide night set back to (4) air changes per hour from 11 pm to 6 am
Pressure: Negative
Humidity: Ambient
Equipment heat gain: 25 btuh/sf

ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
-(1) duplex per student at islands
208v power at ovens
Data junction boxes islands, perimeter and instructor bench
Wireless data
Lighting: indirect LED @ 500 LUX with dimmer
Locate lighting controls at lab entry doors and at instructor bench

PLUMBING
Hot/Cold water at sinks with vacuum breakers
Sink at perimeter bench
Gas and vacuum at fume hood
Gas and vacuum at student island benches
Domestic water at safety shower/eyewash
Emer. gas shutoff

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
150 lockable section drawers- 18" width per cabinet
Resin tops and sinks; Faucets & fittings
Chemical fume hoods; Canopy hood
Marker board; Monitors; Projector
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Ovens



CHEMISTRY PREP/STORE

ARCHITECTURAL
Occupancy: B
Assignable Area: 750 sf
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: 10' acoustic tile
Doors: 3^{6}x8^{0} with window
Dutch door to lab
Acoustic Attenuation: NC 40 or less
Light Attenuation: at exterior windows, if any
Accessibility: sink, fume hood
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
-(8) 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
Equipment heat gain: 50 btuh/sf

ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
208v power at washer
Data junction boxes
Lighting: indirect LED @ 500 LUX with dimmer

PLUMBING
Hot/Cold (HW/CW) water at sink with vacuum breakers
RO feed at washer and point-of-use water polisher
Pure water (PW) via point-of-use water polisher
Sinks at perimeter bench
Gas and vacuum at 6' fume hood
Domestic water at safety shower/eyewash
Emer. gas shutoff

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Resin tops and sinks; Faucets & fittings
Mobile lab benches
Metro shelf units
RO unit at wall above washer
Chemical fume hoods
Chemical storage cabinets- corrosive cabinet vented;
flammable cabinet not vented
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Scientific equipment

BIOLOGY LABORATORY

ARCHITECTURAL
Occupancy: B; Number of students: 28-32
Assignable Area: 1,650 asf per lab
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: lab grade acoustic tile at 10'
Doors: 3^{6}x8^{0} with window
Dutch door at prep/store room
Acoustic Attenuation: NC 40 or less
Light Attenuation: at exterior windows, if any
Accessibility: student island, sink, fume hood, and instructor bench
Security: card key access

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

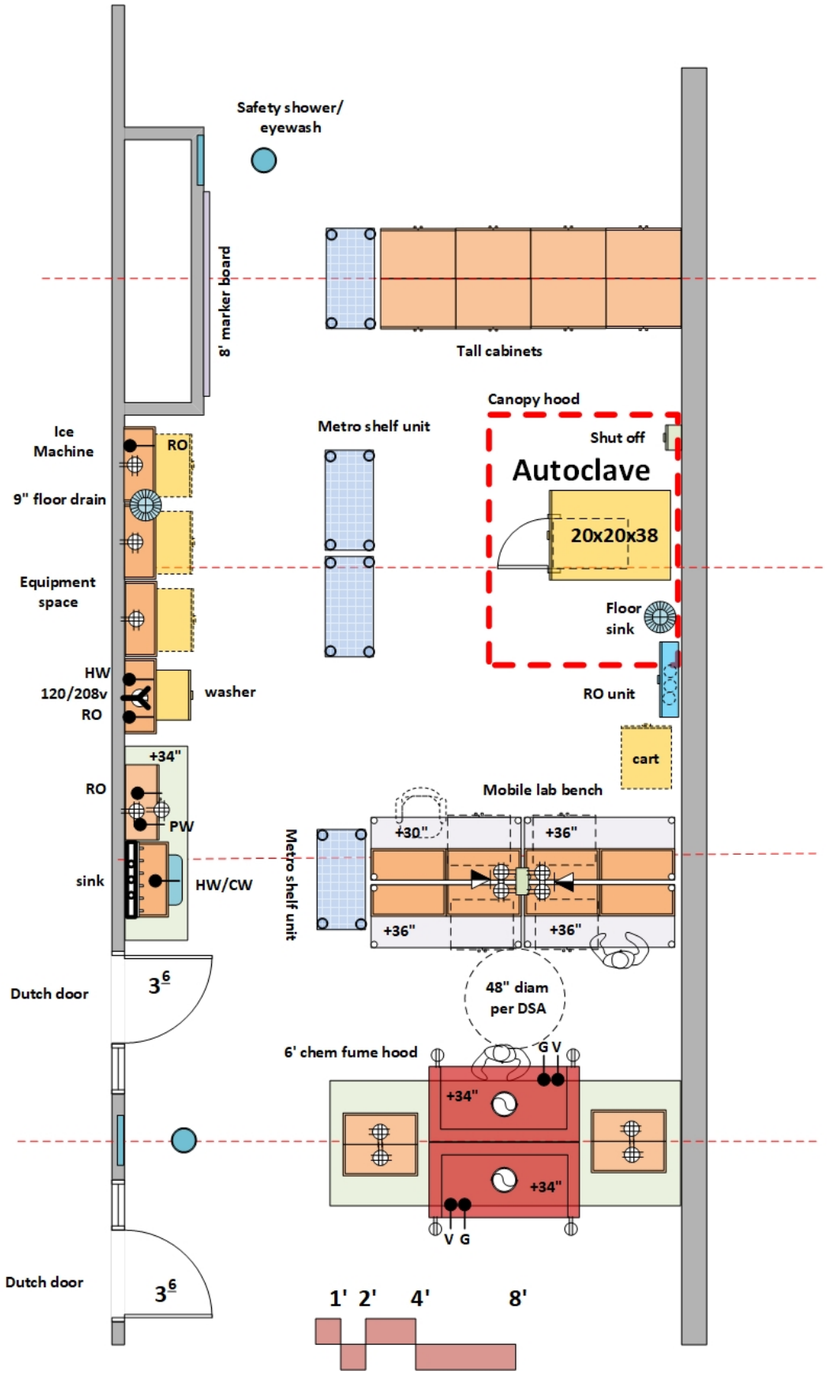
MECHANICAL
Hours of operation: 6 am to 11 pm;
Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
-(8) air changes per hour occupied; -(4) air changes per hour unoccupied
Provide night set back to (4) air changes per hour from 11 pm to 6 am
Pressure: Negative; Humidity: Ambient
Equipment heat gain: 25 btuh/sf

ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
-(1) duplex per student at islands
Data junction boxes islands, perimeter and instructor bench
Wireless data
Lighting: indirect LED @ 500 LUX with dimmer
Locate lighting controls at lab entry doors and at instructor bench

PLUMBING
Hot/Cold water at sinks with vacuum breakers
Sinks at perimeter bench
Gas and vacuum at fume hoods; Vacuum at biological safety cabinet
Gas and vacuum at island benches
Domestic water at safety shower/eyewash
Emer. gas shutoff

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Microscope cabinets at each island- (4) microscopes/island
Resin tops and sinks; Faucets & fittings
(2) 5' Chemical fume hoods
4' biological safety cabinet
Marker board; Monitors; Projector
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Microscopes



BIOLOGY PREP/STORE

ARCHITECTURAL
Occupancy: B
Assignable Area: 750 asf
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: 10' acoustic tile
Doors: 3^{6}x8^{0} with window (dutch door)
Acoustic Attenuation: NC 40 or less
Light Attenuation: at exterior windows, if any
Accessibility: sink, fume hood
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
-(8) 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
Equipment heat gain: 50 btuh/sf

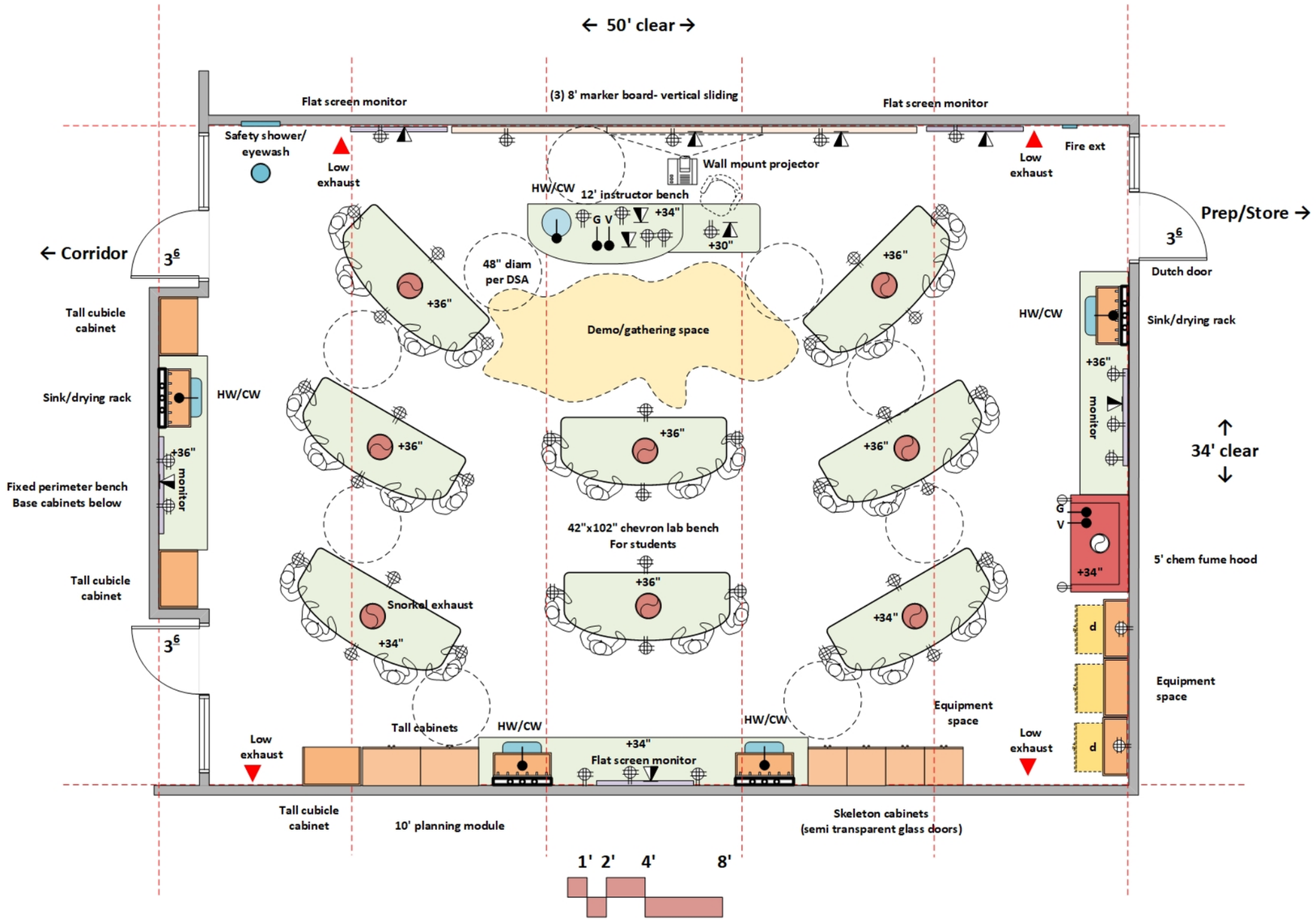
ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
208v power at washer; 480v power at autoclave
Data junction boxes
Lighting: indirect LED @ 500 LUX with dimmer

PLUMBING
Hot/Cold water at sinks with vacuum breakers
RO feed at washer and point-of-use water polisher
RO unit at autoclave
Pure water at 1 sink via point-of-use water polisher
Sinks at perimeter bench
Gas and vacuum at fume hood
Domestic water at safety shower/eyewash
Emer. gas shutoff

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Resin tops and sinks; Faucets & fittings
Mobile lab benches
Metro shelf units
RO unit at wall near autoclave
Chemical fume hood
Autoclave
Marker board
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Scientific equipment

ANATOMY/PHYSIOLOGY LABORATORY



ARCHITECTURAL
Occupancy: B; Number of students: 28-32
Assignable Area: 1,650 asf per lab
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: lab grade acoustic tile at 10'
Doors: 3^{6}x8^{0} with window
Dutch door at prep/store room
Acoustic Attenuation: NC 40 or less
Light Attenuation: blinds at exterior windows, if any
Accessibility: student island, sink, fume hood, and instructor bench
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm;
Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
(15) air changes per hour occupied; 4 air changes per hour unoccupied
Variable Air Volume
75% of exhaust at low perimeter; 25% exhaust at ceiling
Provide night set back to (4) air changes per hour from 11 pm to 6 am
Pressure: Negative; Humidity: Ambient
Equipment heat gain: 25 btuh/sf

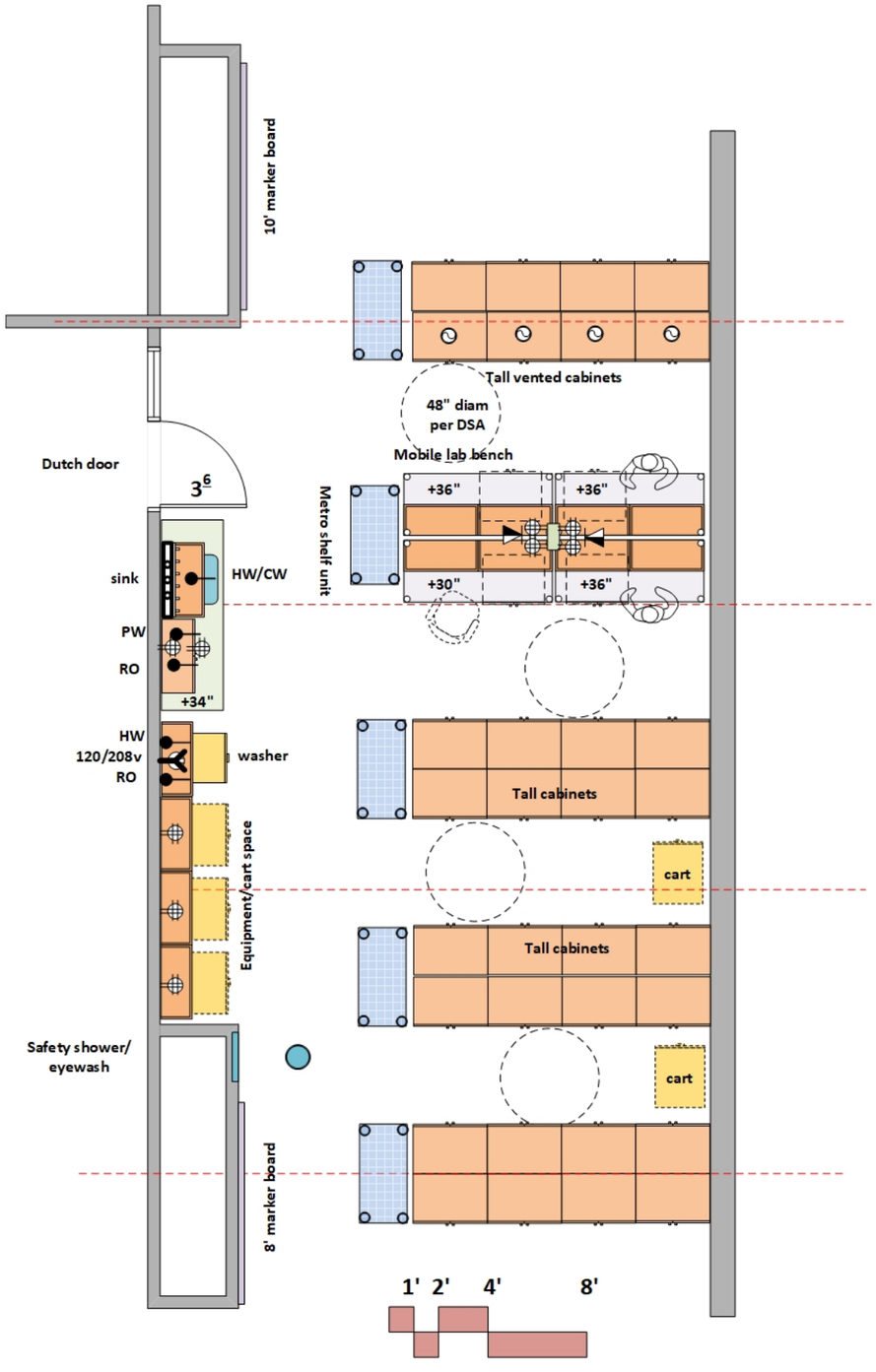
ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
-(1) duplex per student at islands
Data junction boxes islands, perimeter and instructor bench
Wireless data
Lighting: indirect LED @ 500 LUX with dimmer
Locate lighting controls at lab entry doors and at instructor bench

PLUMBING
Hot/Cold water at sinks with vacuum breakers
Sinks at perimeter bench with disposal unit at each sink
Gas and vacuum at fume hood and instructor island
Domestic water at safety shower/eyewash
Emer. gas shutoff

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Microscope cabinets at each island- (4) microscopes/island
Resin tops and sinks; Faucets & fittings
5' Chemical fume hood
Marker board; Monitors; Projector
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Microscopes
Anatomy models

ANATOMY/PHYSIOLOGY PREP/STORE



ARCHITECTURAL
Occupancy: B
Assignable Area: 750 asf
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: lab grade acoustic tile at 10'
Doors: 3^{6}x8^{0} with window (dutch door)
Acoustic Attenuation: NC 45 or less
Light Attenuation: at exterior windows, if any
Accessibility: sink
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
-(8) 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
Equipment heat gain: 50 btuh/sf

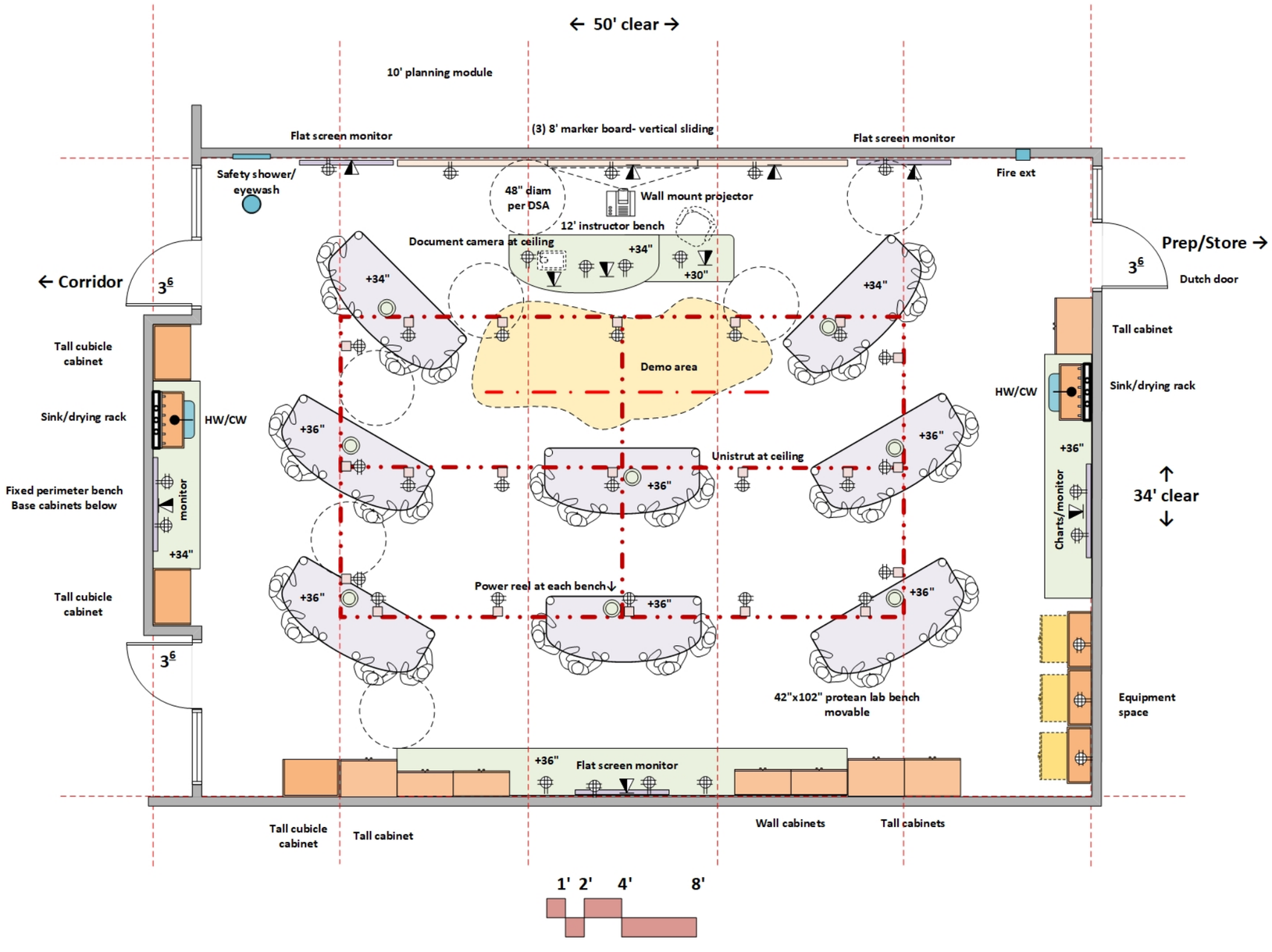
ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
208v power at washer
Data junction boxes
Lighting: indirect LED @ 500 LUX with dimmer

PLUMBING
Hot/Cold water at sinks with vacuum breakers
RO feed at washer and point-of-use water polisher
Pure water via point-of-use water polisher
Sink at perimeter bench with disposal
Domestic water at safety shower/eyewash

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Vented storage cabinets with 100 cfm exhaust at each cabinet per Div. 23
Mobile lab benches
RO unit at wall above washer
Resin tops and sinks; Faucets & fittings
Metro shelf units
Marker boards
Fire extinguisher cabinet
Safety Shower/Eyewash unit

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Scientific equipment

PHYSICS/ASTRONOMY/ANTHROPOLOGY LABORATORY



ARCHITECTURAL
Occupancy: B; Number of students: 28-32
Assignable Area: 1,650 asf
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: lab grade acoustic tile at 10'
Doors: 3^6x8^0 with window
Dutch door to prep/store
Acoustic Attenuation: NC 40 or less
Light Attenuation: black out blinds at windows
Accessibility: student island, sink, and instructor bench
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
-(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
Equipment heat gain: 25 btuh/sf

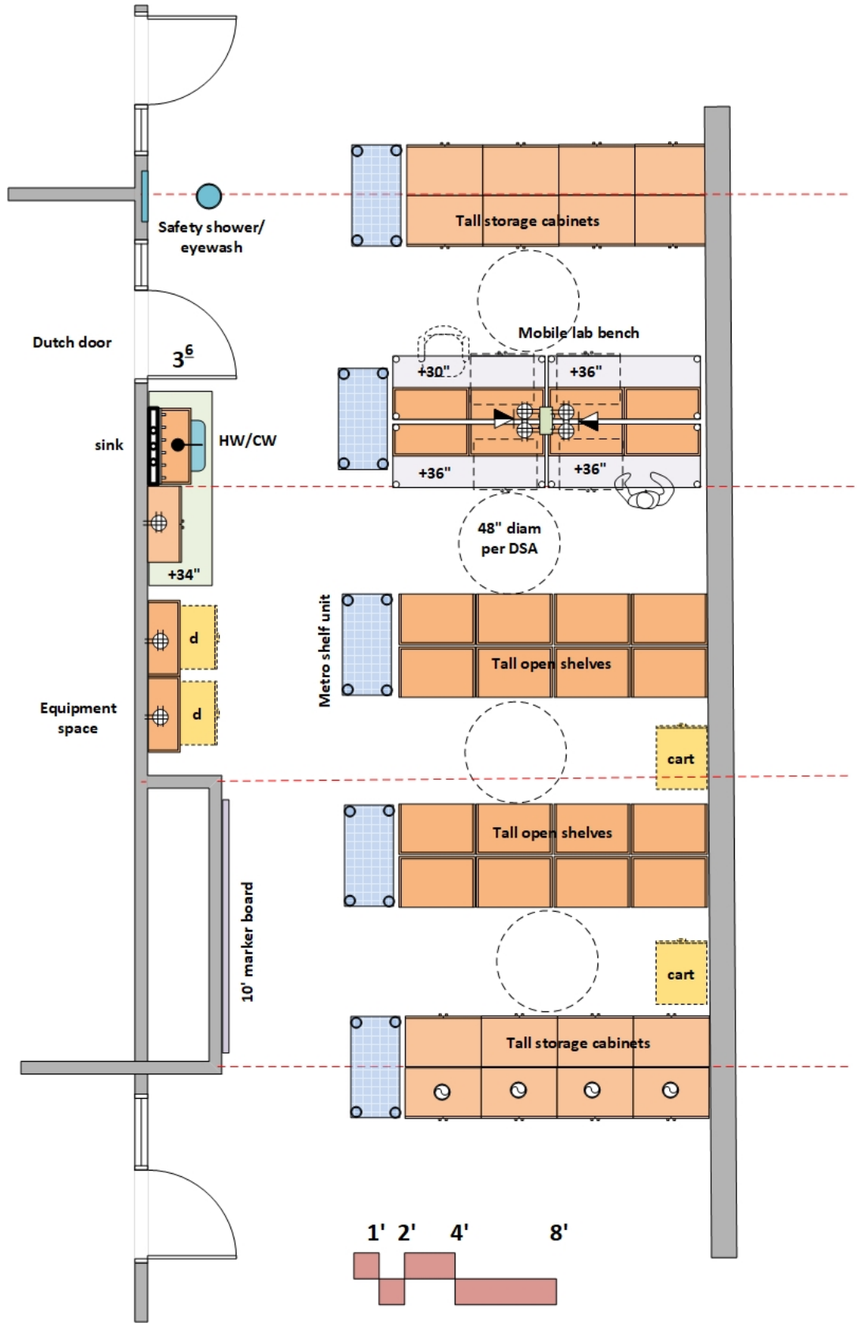
ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
-(1) duplex per student at islands
Power reels at Unistrut frame at ceiling- one per lab bench
Data junction boxes islands, perimeter and instructor bench
Wireless data
Lighting: indirect LED @ 500 LUX with dimmer
Locate lighting controls at lab entry doors and at instructor bench

PLUMBING
Hot/Cold water at sinks with vacuum breakers
Sinks at perimeter bench
Domestic water at safety shower/eyewash

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Lockable mobile cabinets at each mobile lab bench
Resin tops and sinks; Faucets & fittings
Marker board; Monitors; Projector
Unistrut frame at ceiling
Power reels at ceiling Unistrut frame
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments

PHYSICS/ASTRONOMY/ANTHROPOLOGY PREP/STORE



ARCHITECTURAL
Occupancy: B
Assignable Area: 750 asf per lab
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: lab grade acoustic tile at 10'
Doors: 3^{6}x8^{0} with window (dutch door)
Acoustic Attenuation: NC 45 or less
Light Attenuation: at exterior windows, if any
Accessibility: sink
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 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
Equipment heat gain: 25 btuh/sf

ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
Data junction boxes
Lighting: indirect LED @ 500 LUX with dimmer

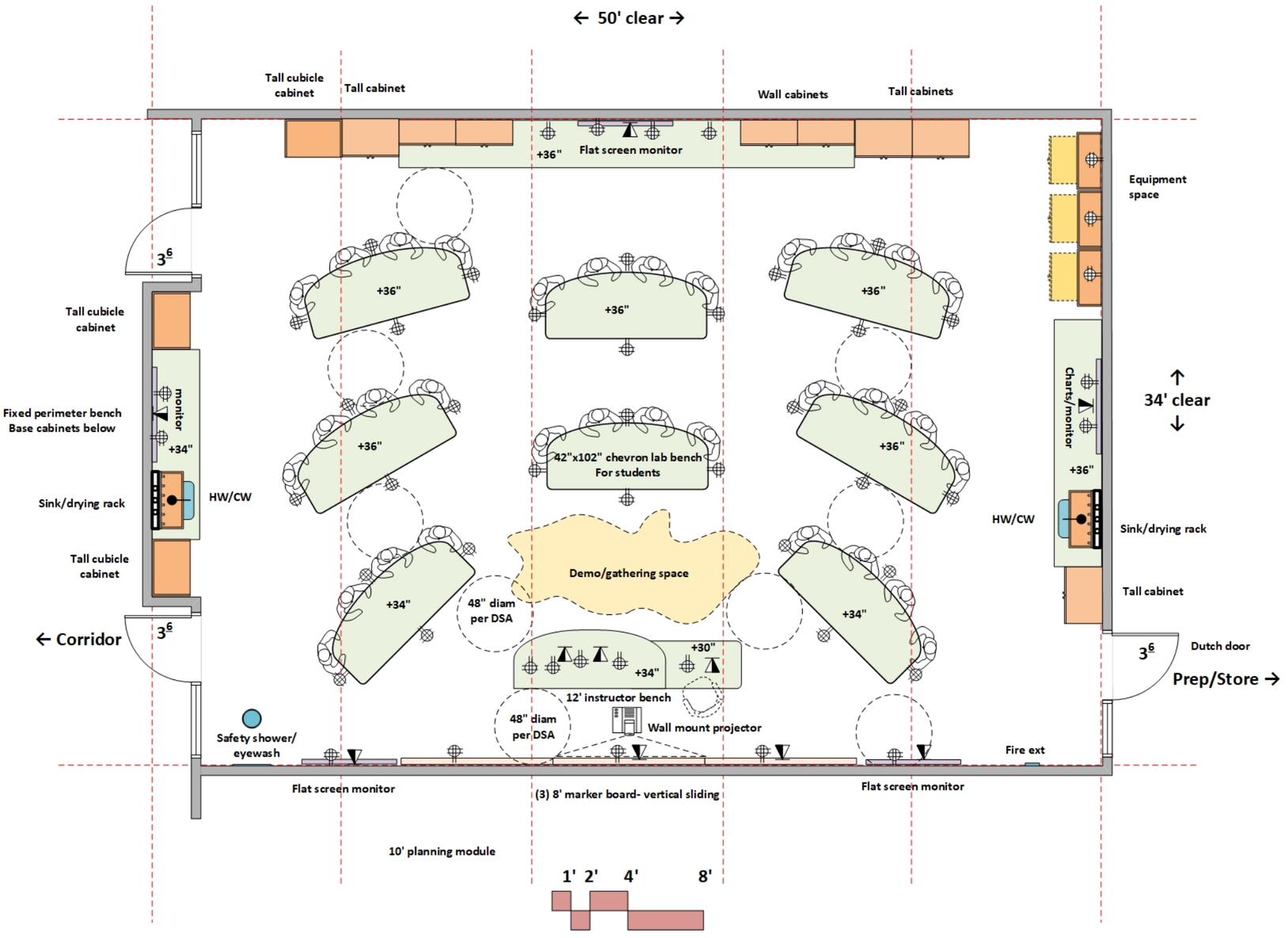
PLUMBING
Hot/Cold water at sinks with vacuum breakers
Sinks at perimeter bench
Domestic water at safety shower/eyewash

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Resin tops and sinks; Faucets & fittings
Mobile lab benches
Metro shelf units
Marker boards
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Scientific equipment

GEOSCIENCE LABORATORY

Consider dual use as Art Lab



ARCHITECTURAL
Occupancy: B; Number of students: 28-32
Assignable Area: 1,650 asf
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: 10' acoustic tile
Doors: 3^6x8^0 with window
Acoustic Attenuation: NC 40 or less
Light Attenuation: at exterior windows, if any
Accessibility: student island, sink, and instructor bench
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 deg. F, +/- 2 deg. F
100% exhaust- no recirculation of air; Exhaust on emergency power supply
-(12) air changes per (exhaust at lower wall) 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
Equipment heat gain: 25 btuh/sf

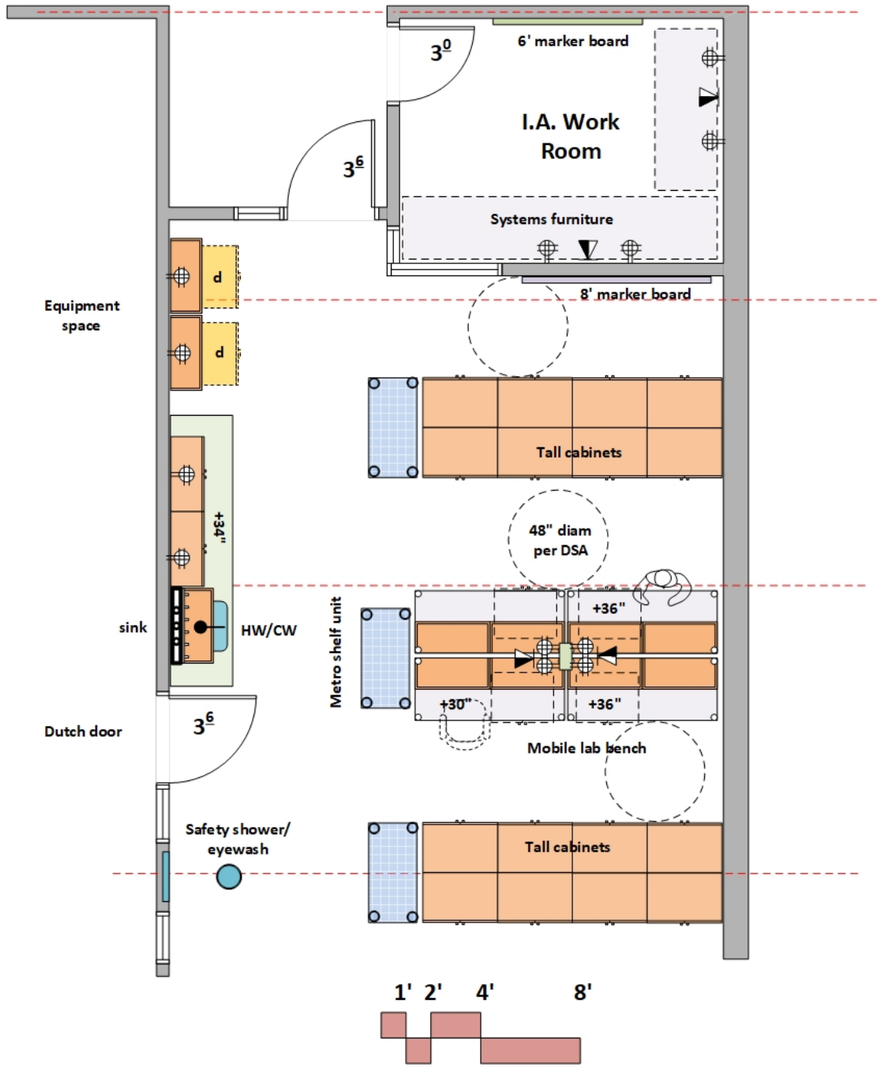
ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
-(1) duplex per student at islands
Data junction boxes islands, perimeter and instructor bench
Wireless data
Lighting: indirect LED @ 500 LUX with dimmer
Locate lighting controls at lab entry doors and at instructor bench

PLUMBING
Hot/Cold water at sinks with vacuum breakers
Sinks at perimeter bench
Domestic water at safety shower/eyewash

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Resin tops and sinks; Faucets & fittings
Marker board; Monitors; Projector
Fire extinguisher cabinet

COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments

GEOSCIENCE PREP/STORE



ARCHITECTURAL
Occupancy: B
Assignable Area: 750 asf
Floor: vinyl tile or sealed concrete
Walls: gypsum board and enamel paint
Ceiling: lab grade acoustic tile at 10'
Doors: 3^{6}x8^{0} with window (dutch door)
Acoustic Attenuation: NC 45 or less
Light Attenuation: at exterior windows, if any
Accessibility: sink
Security: card key access

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

MECHANICAL
Hours of operation: 6 am to 11 pm; Temperature: 68-72 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
Equipment heat gain: 25 btuh/sf

ELECTRICAL
110v fourplex and duplex outlets (maximum of four duplex per circuit)
Data junction boxes
Lighting: indirect LED @ 500 LUX with dimmer

PLUMBING
Hot/Cold water at sinks with vacuum breakers
Domestic water at safety shower/eyewash

CONTRACTOR FURNISHED EQUIPMENT
Wood casework- base cabinets, wall cabinets, tall cabinets
Resin tops and sinks; Faucets & fittings
Metro shelf units
Fire extinguisher cabinet

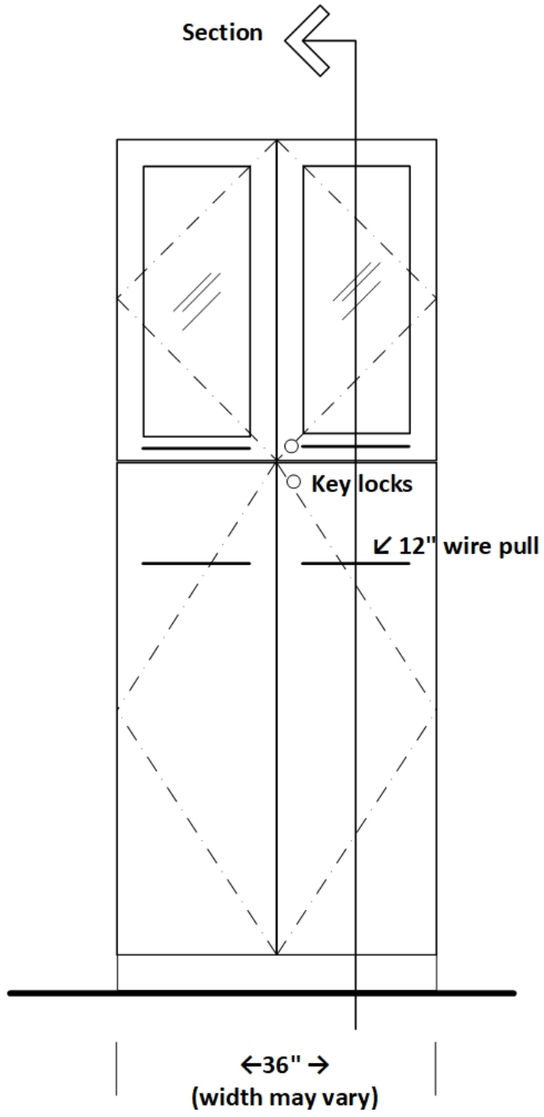
COLLEGE FURNISHED EQUIPMENT
Chairs
Benchtop analytical instruments
Scientific equipment

SECTION DETAILS

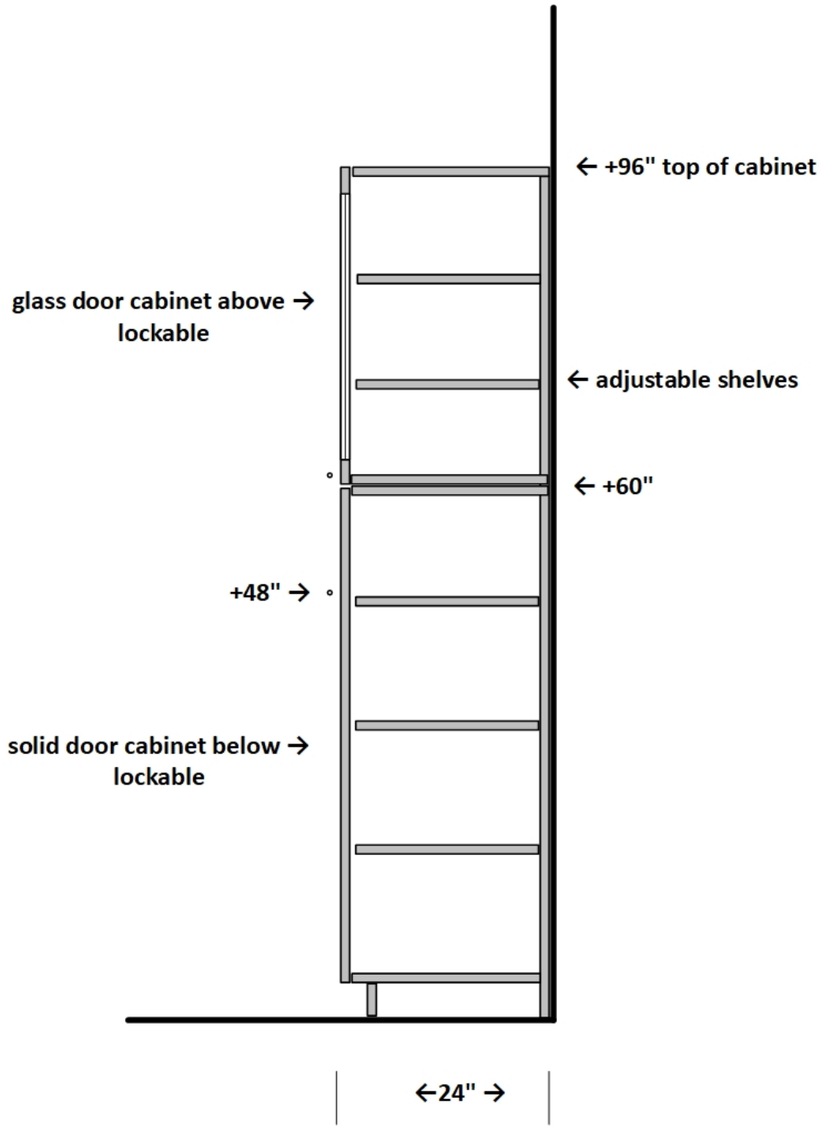
The following pages illustrate typical section details of different lab casework/equipment conditions.

SECTION DETAIL 01

Tall Storage Cabinet
Located in Labs and Prep Room



Elevation

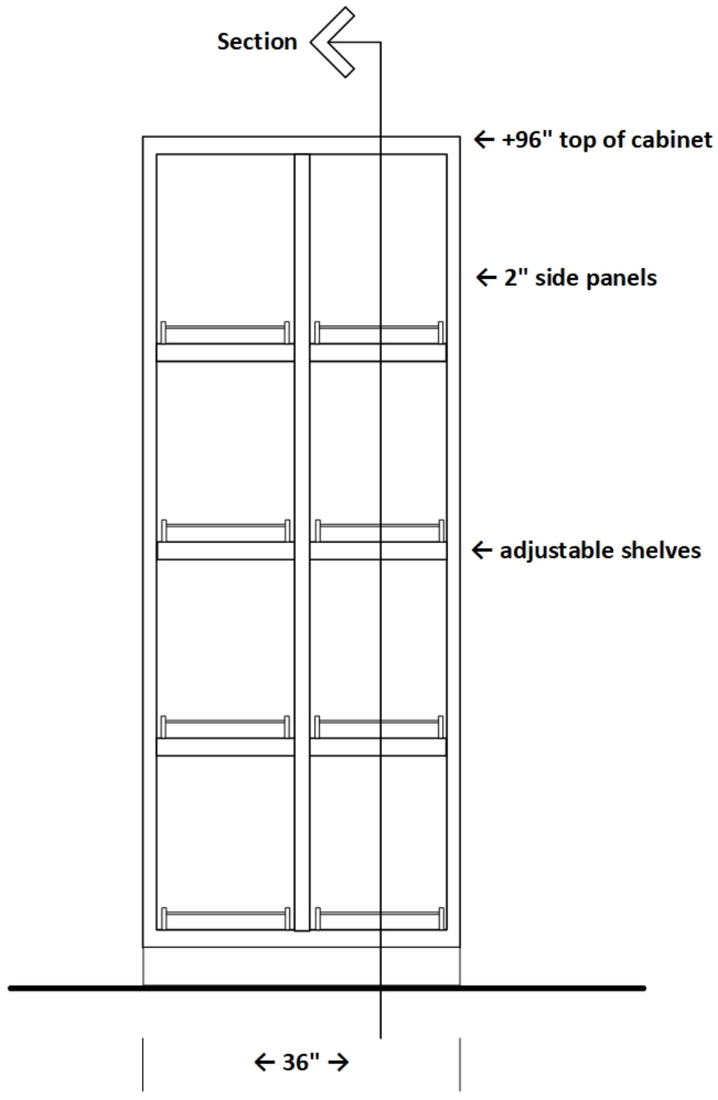


Section

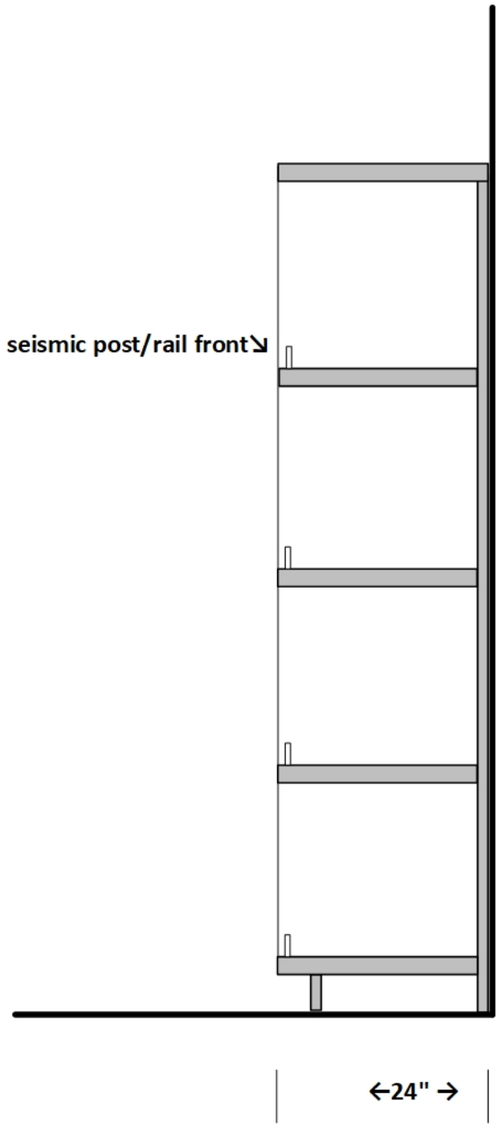
3" 6" 12" 24"

SECTION DETAIL 02

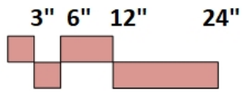
Tall Cubicle Cabinet
Located in Labs (3 per lab) near corridor doors



Elevation

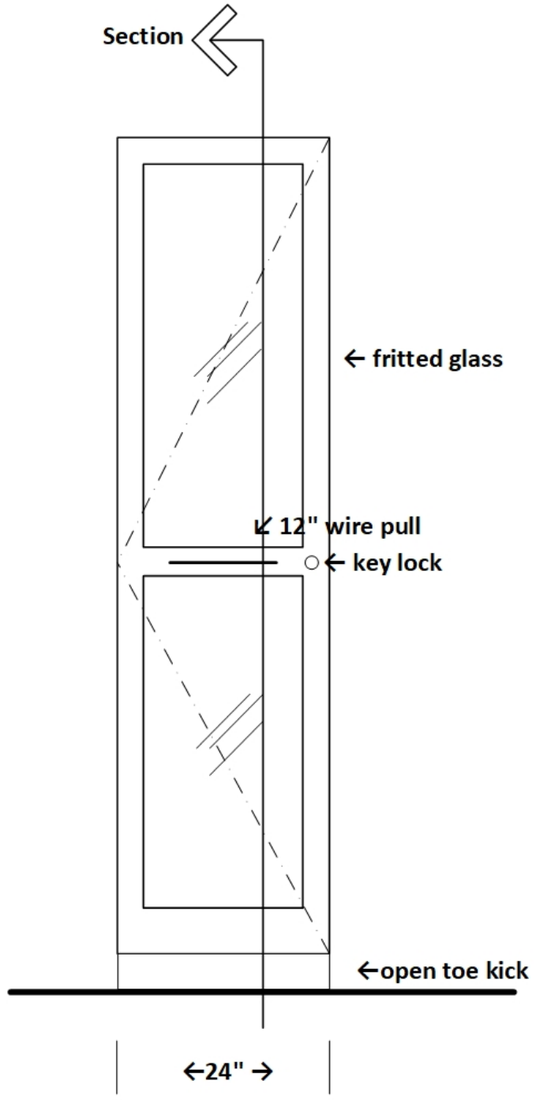


Section

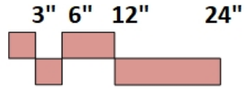


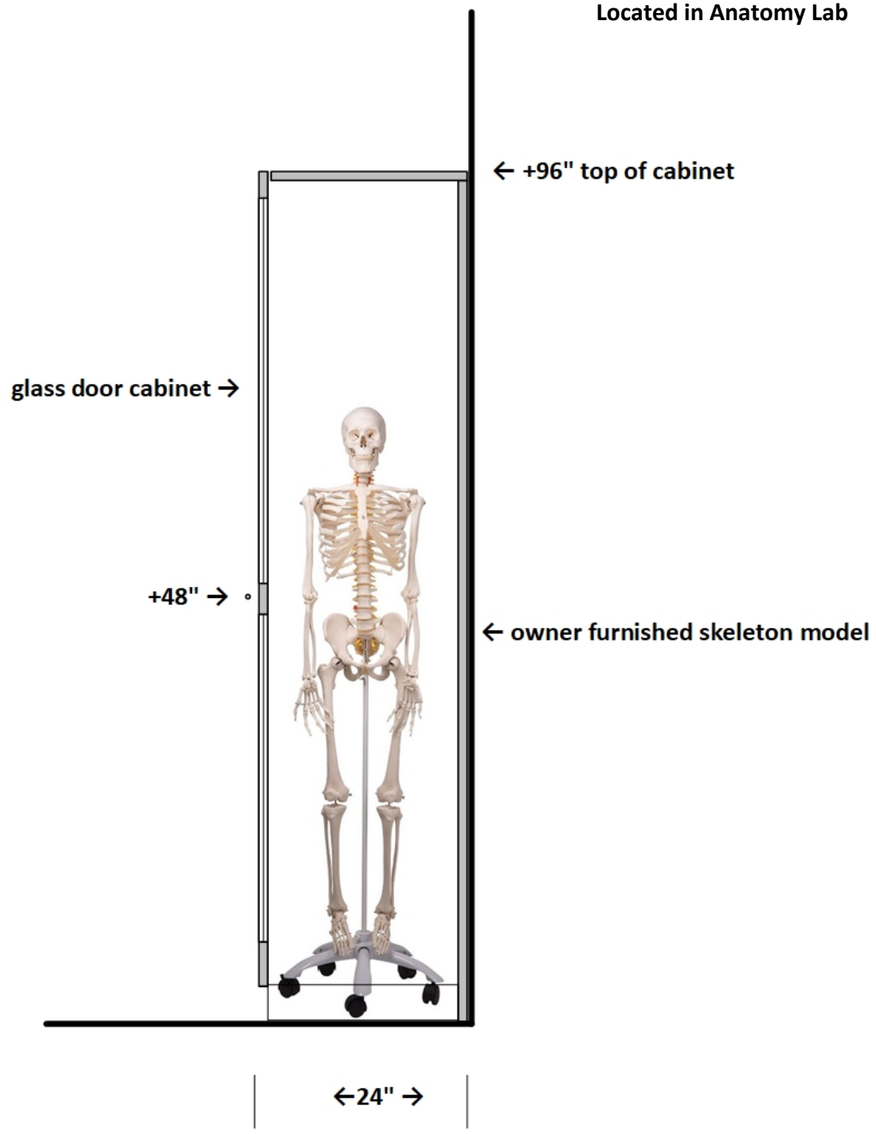
SECTION DETAIL 03

Tall Skeleton Cabinet
Located in Anatomy Lab



Elevation

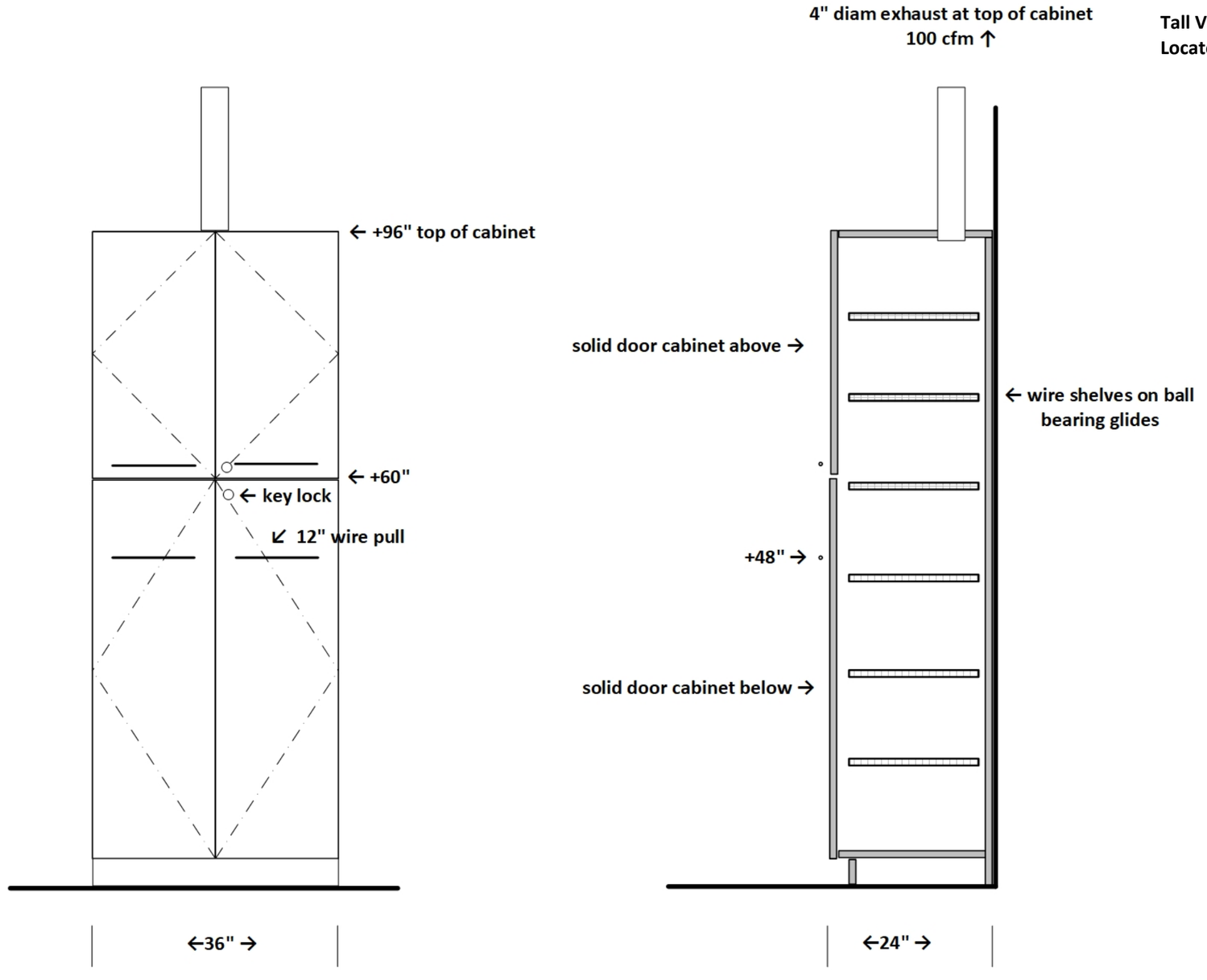




Section

SECTION DETAIL 04

Tall Vented Storage Cabinet
Located in Anatomy Prep



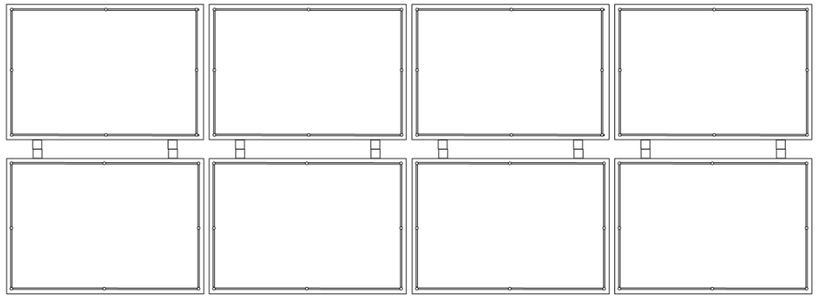
Elevation

3" 6" 12" 24"

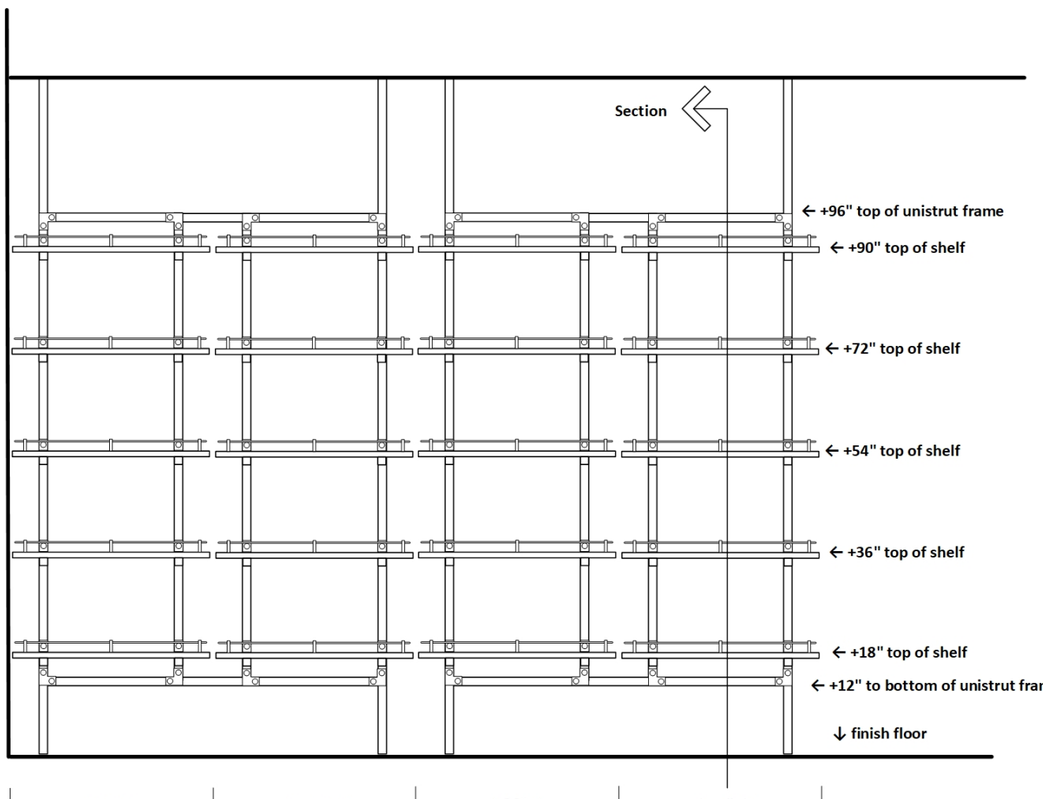
Section

SECTION DETAIL 05

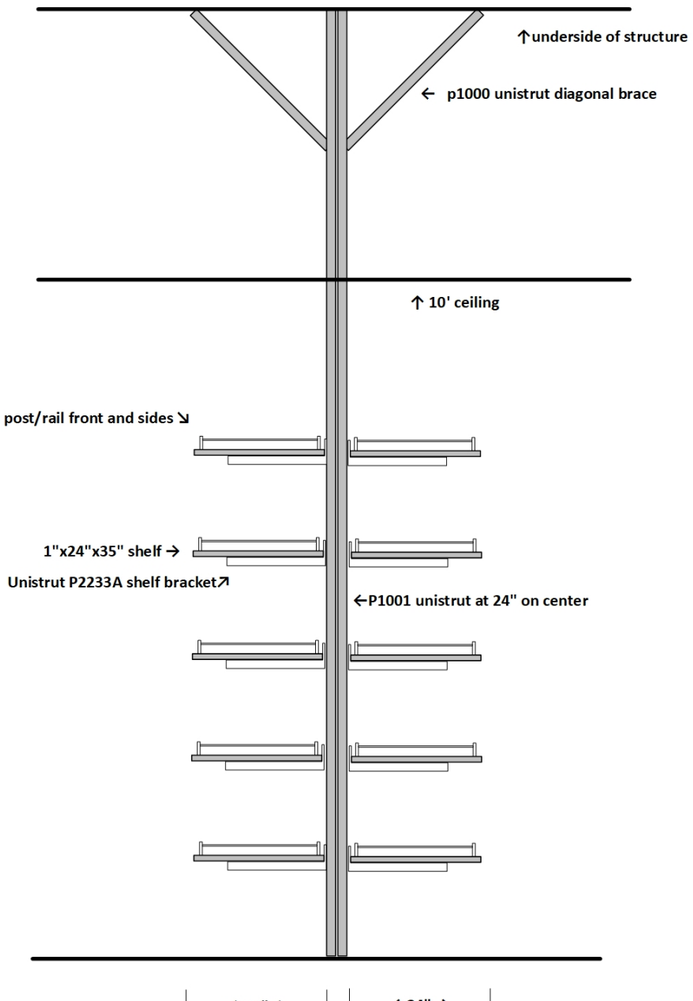
Tall Open Shelves
Located in Physics Prep



Plan



Elevation

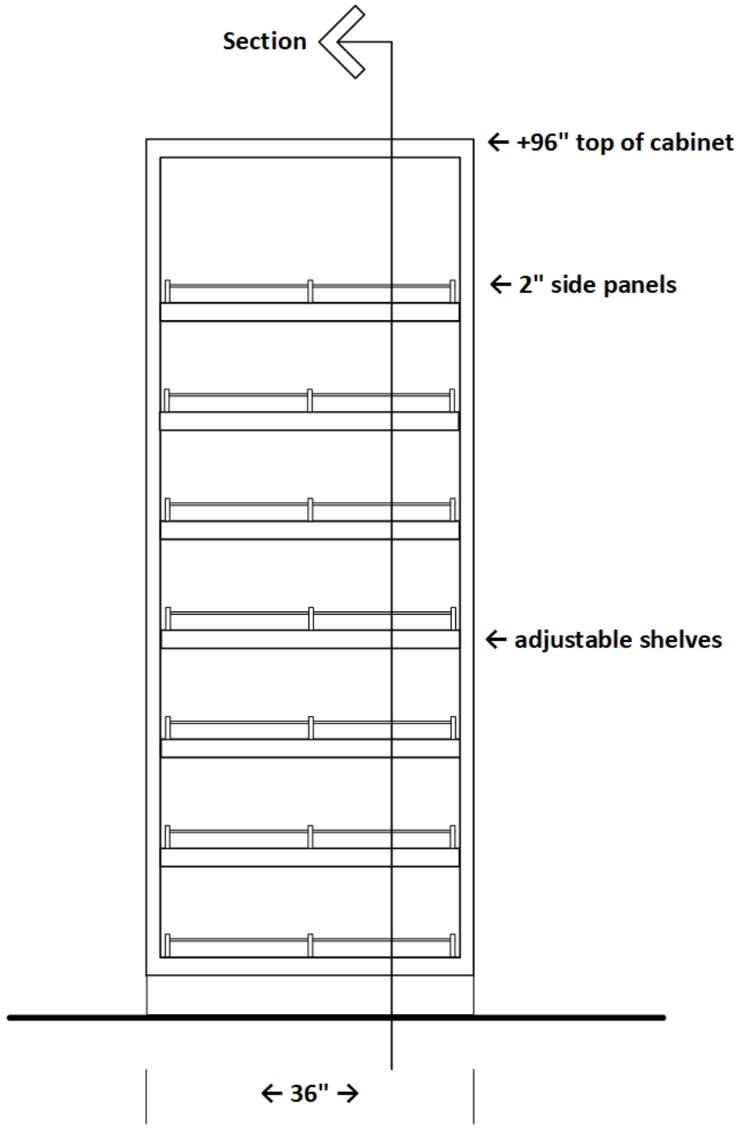


Section

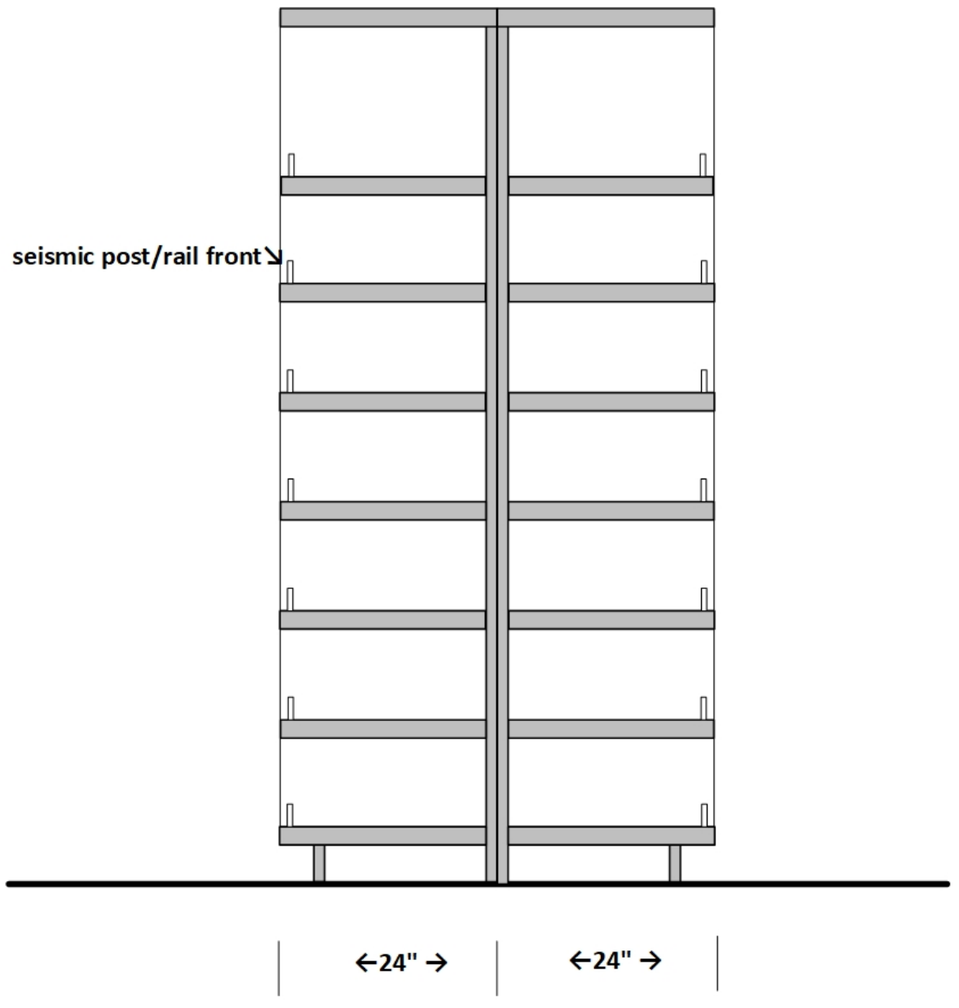
3"6" 12" 24"

SECTION DETAIL 06

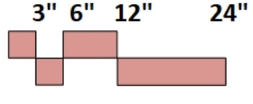
Tall Open Shelf cabinet
Located in Chemistry Prep



Elevation

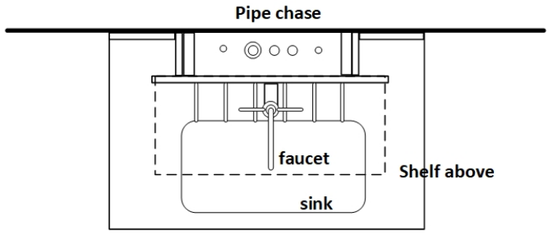


Section

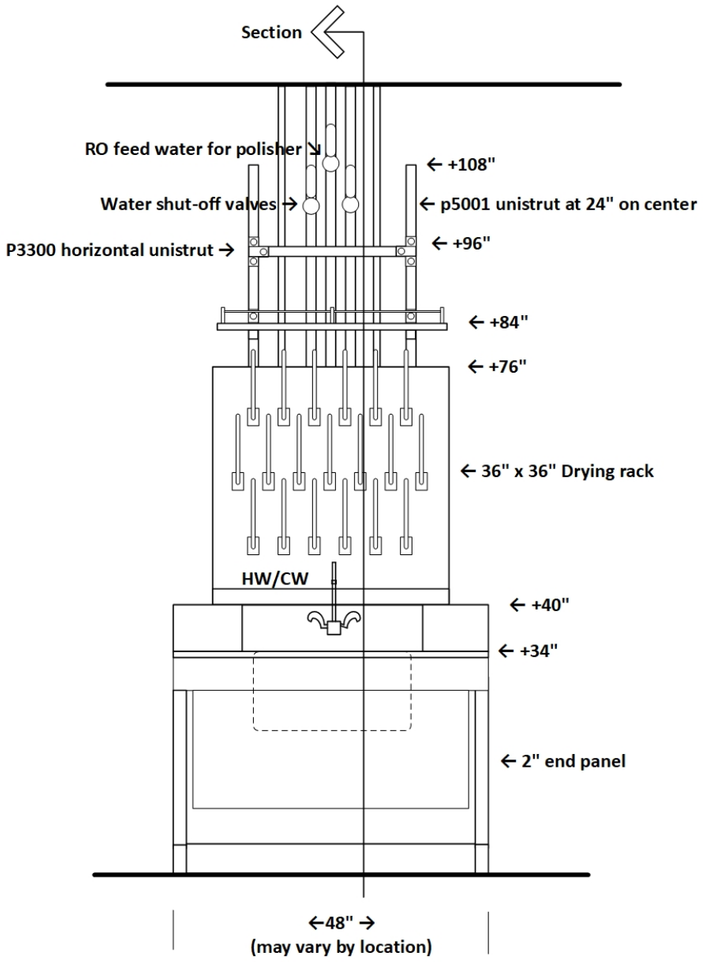


SECTION DETAIL 07

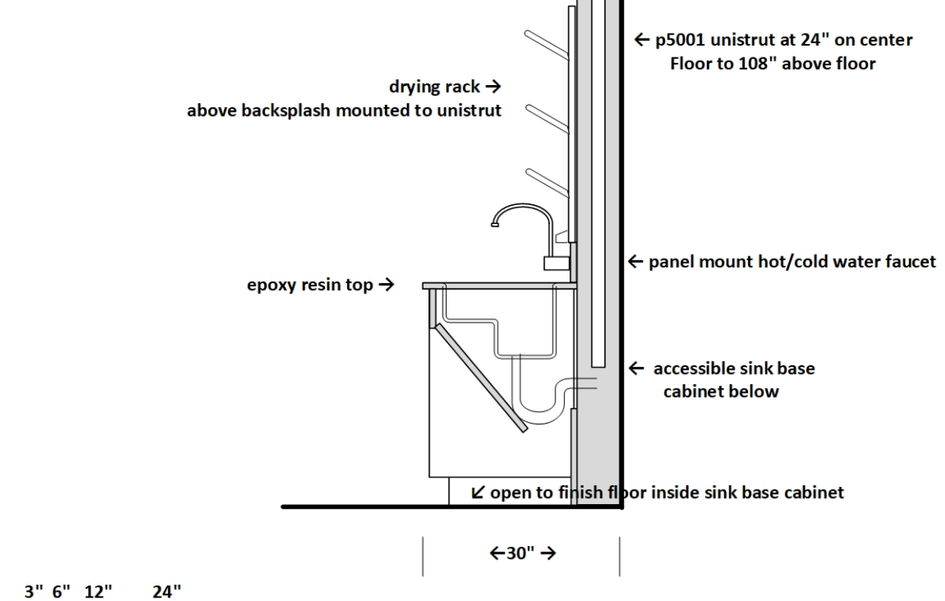
Accessible Sink at wall
Located in Labs



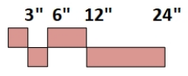
Plan



Elevation

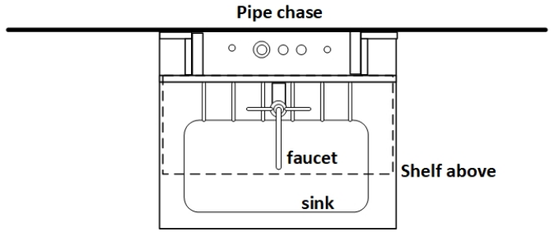


Section

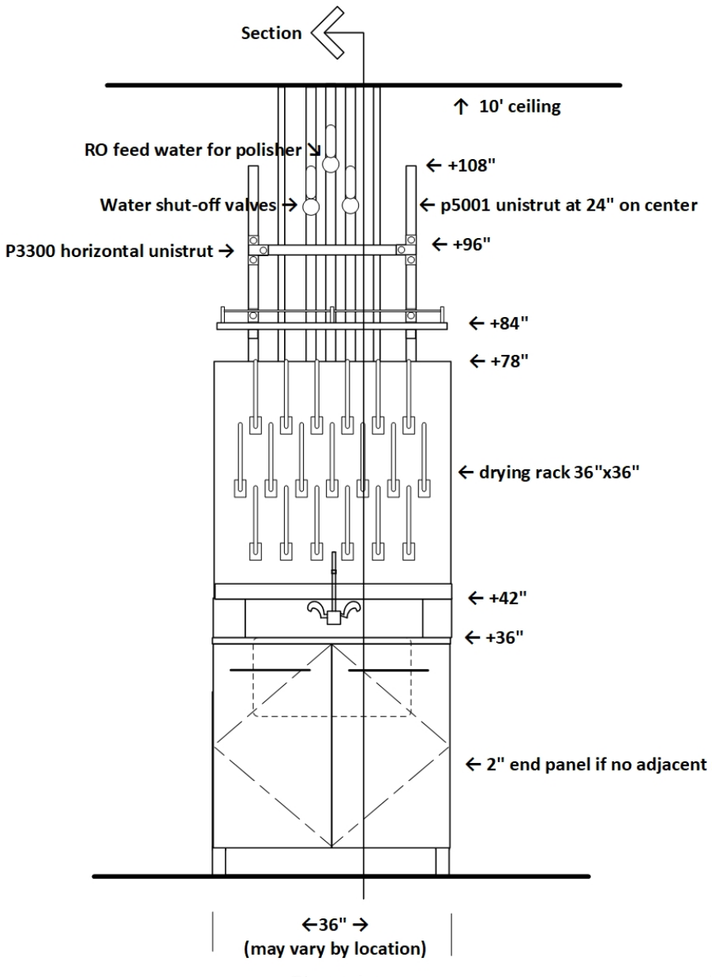


SECTION DETAIL 08

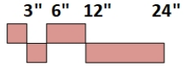
Standard Sink at Wall
Located in Labs

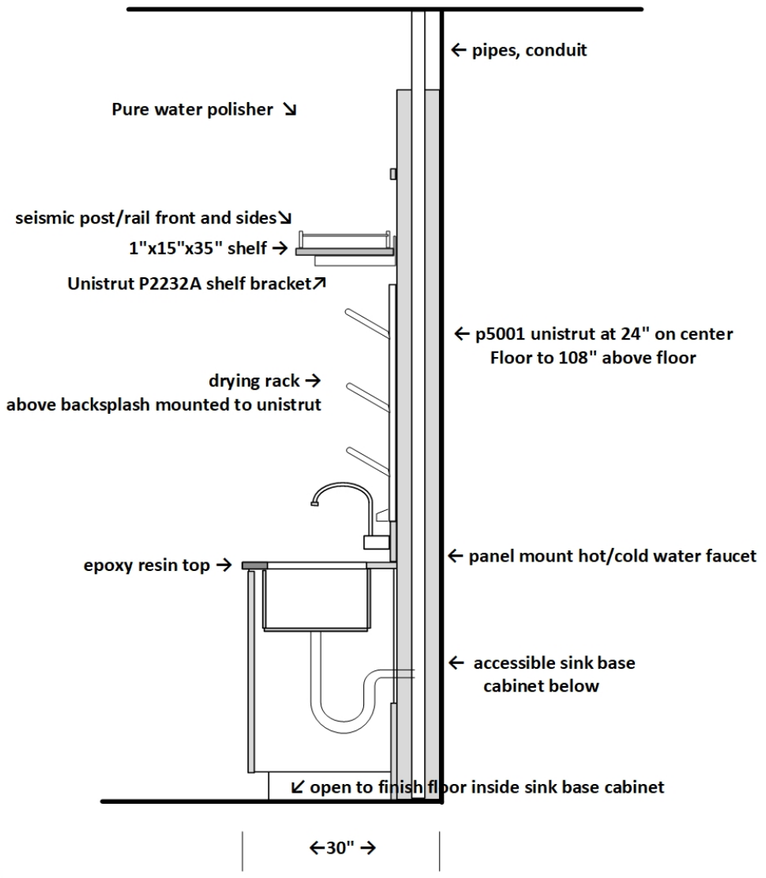


Plan



Elevation

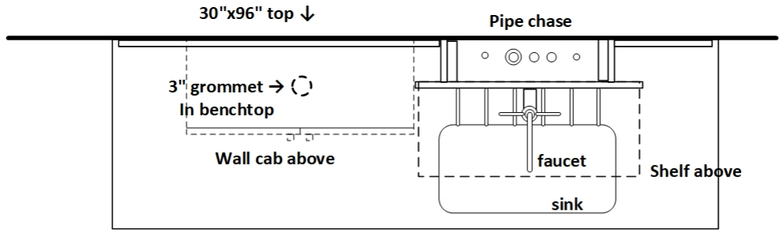




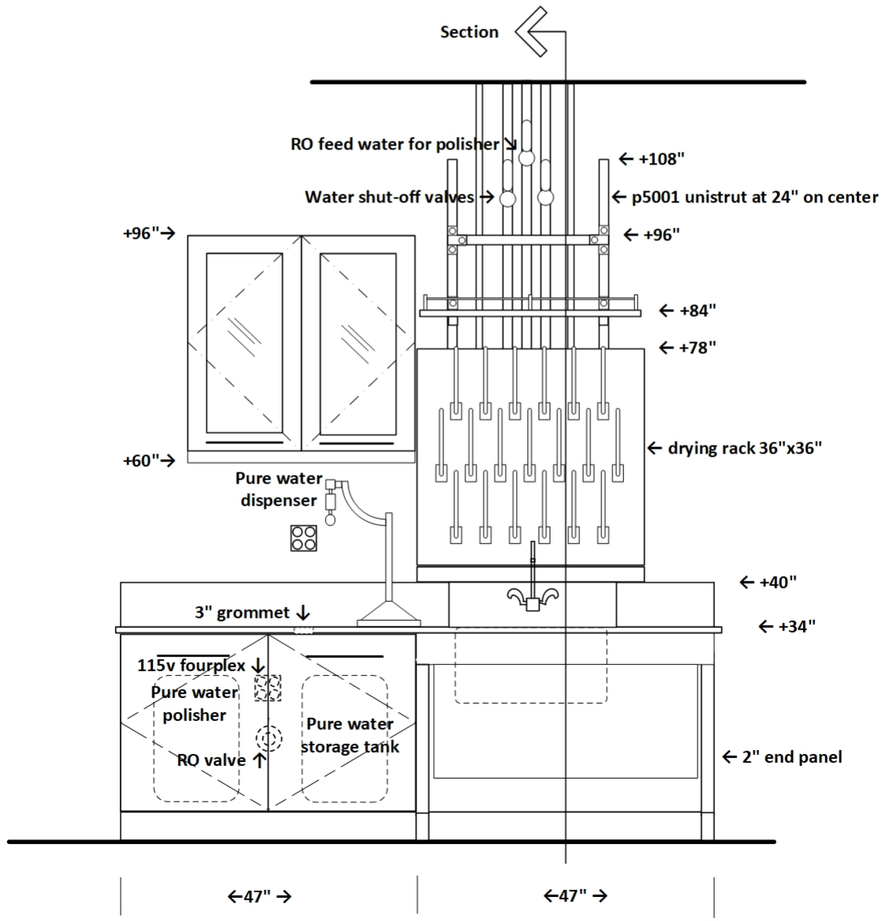
Section

SECTION DETAIL 09

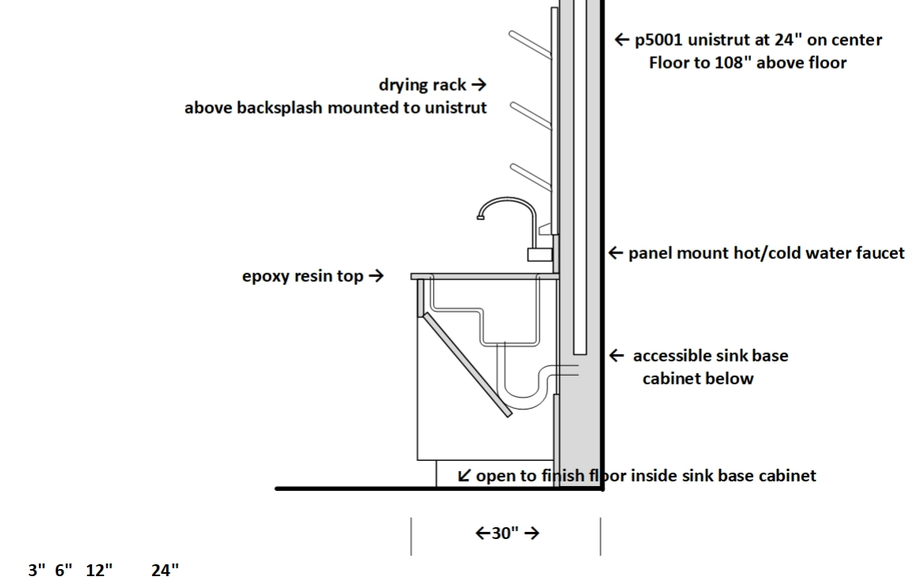
Sink Station in Prep Room with water polisher
Biology and Anatomy Prep
Similar for Chem Prep except longer wall bench
Similar for Physics and Geoscience Prep- except no polisher



Plan



Elevation

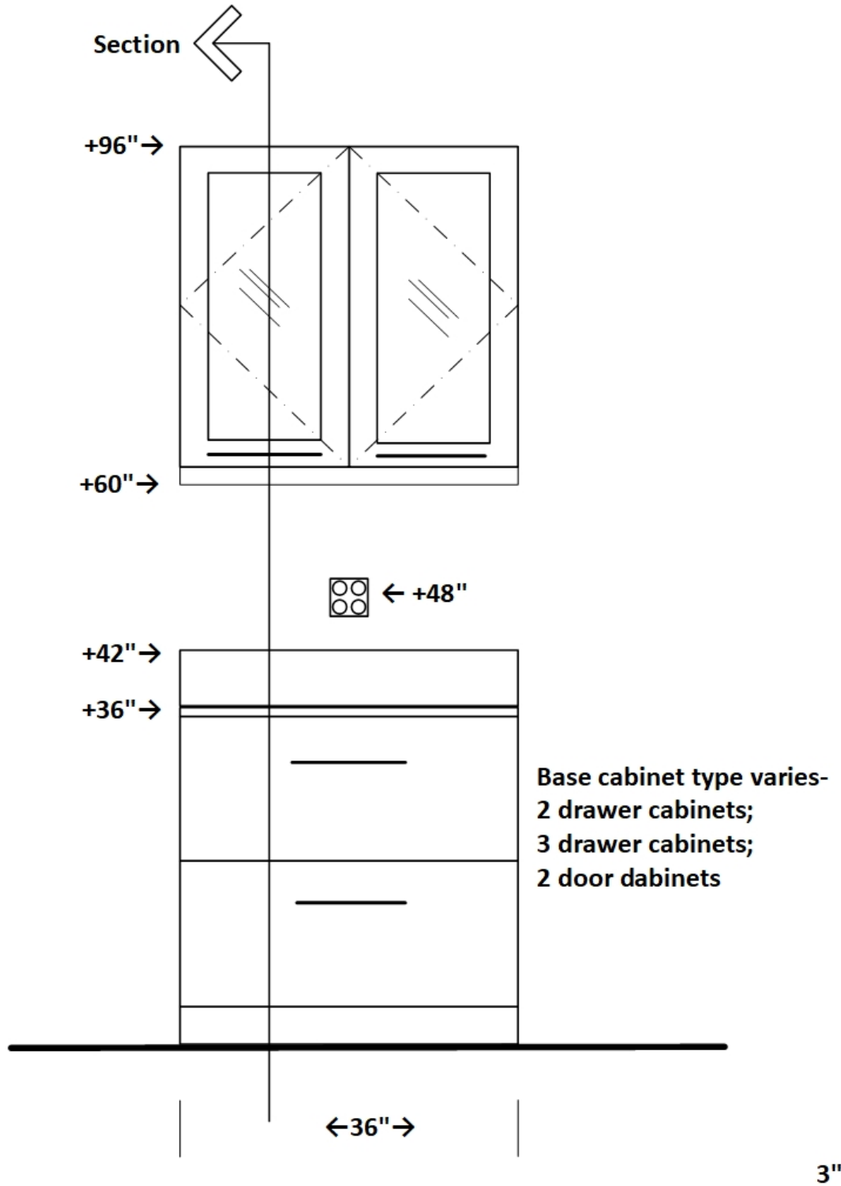


Section

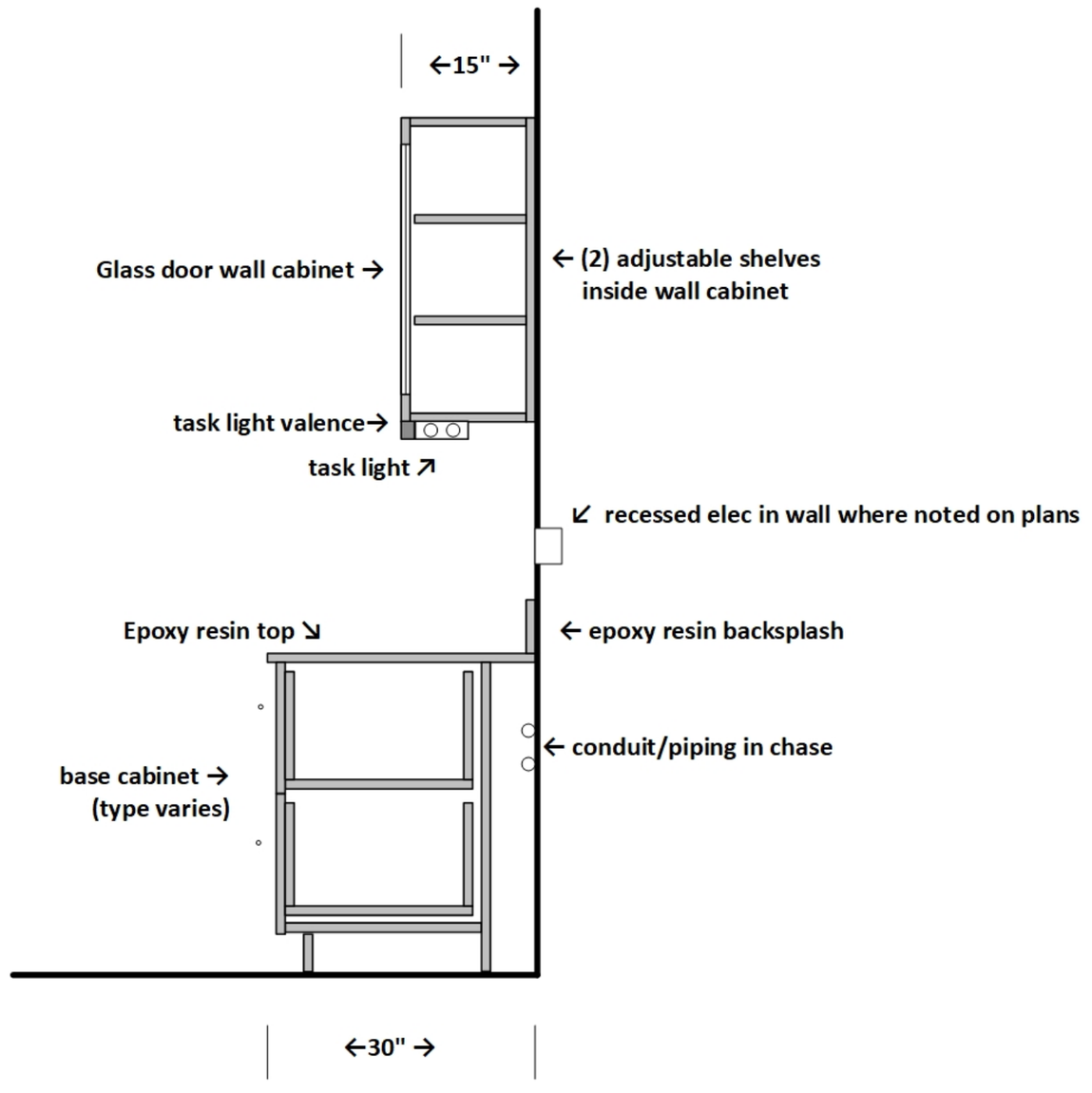
3" 6" 12" 24"

SECTION DETAIL 10

Lab bench with wall cabinet at wall
Located in Labs and Prep room



Elevation

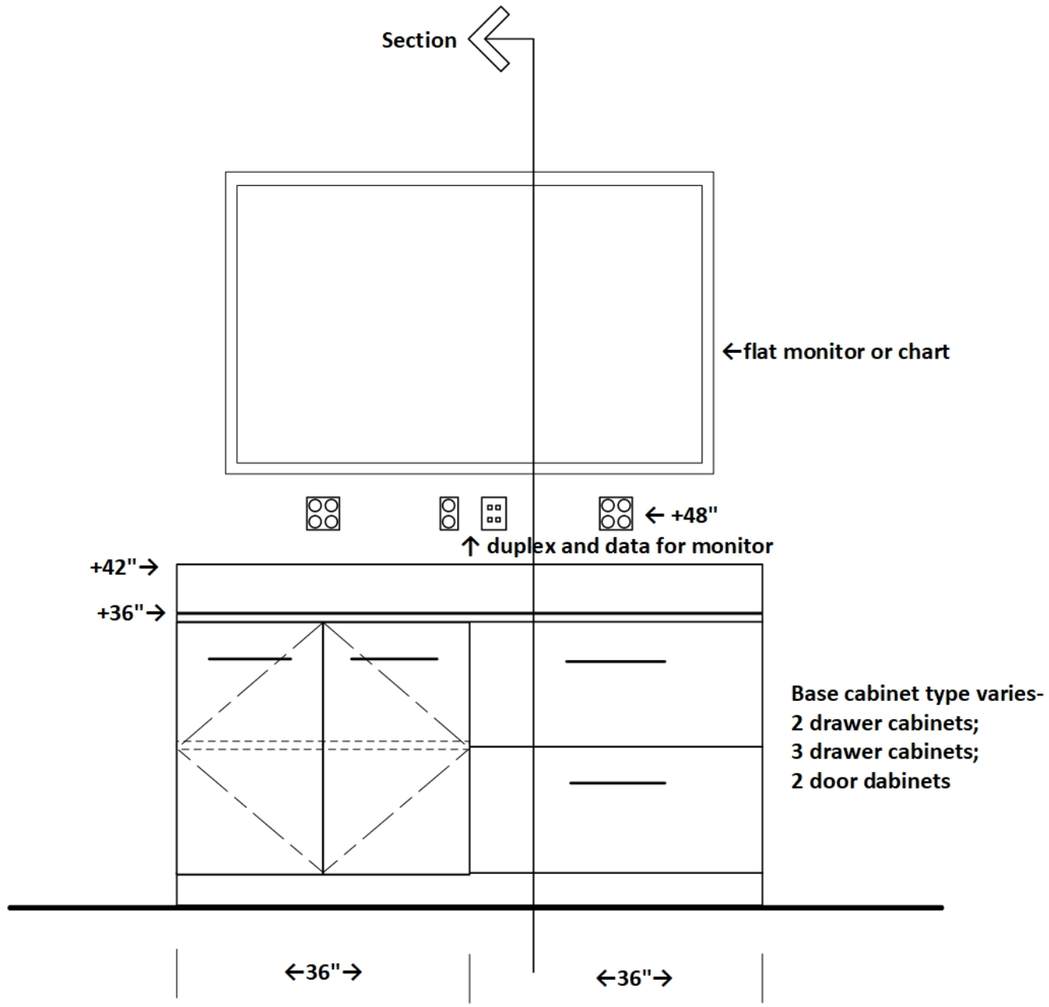


Section

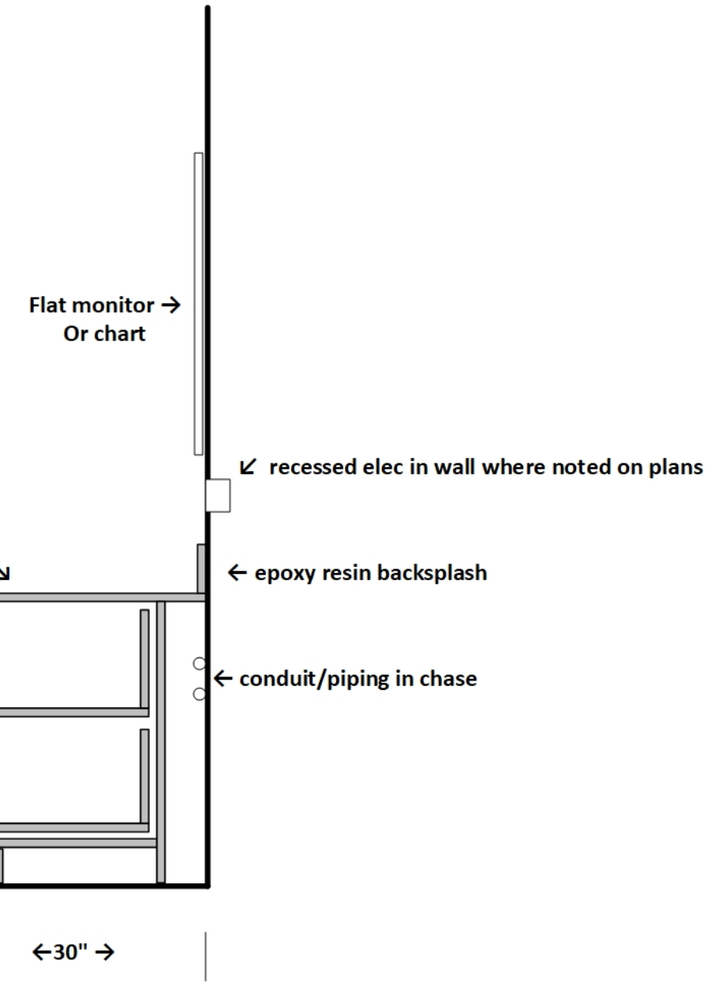
3" 6" 12" 24"

SECTION DETAIL 11

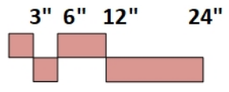
Lab bench with monitor or chart
Located in Labs



Elevation



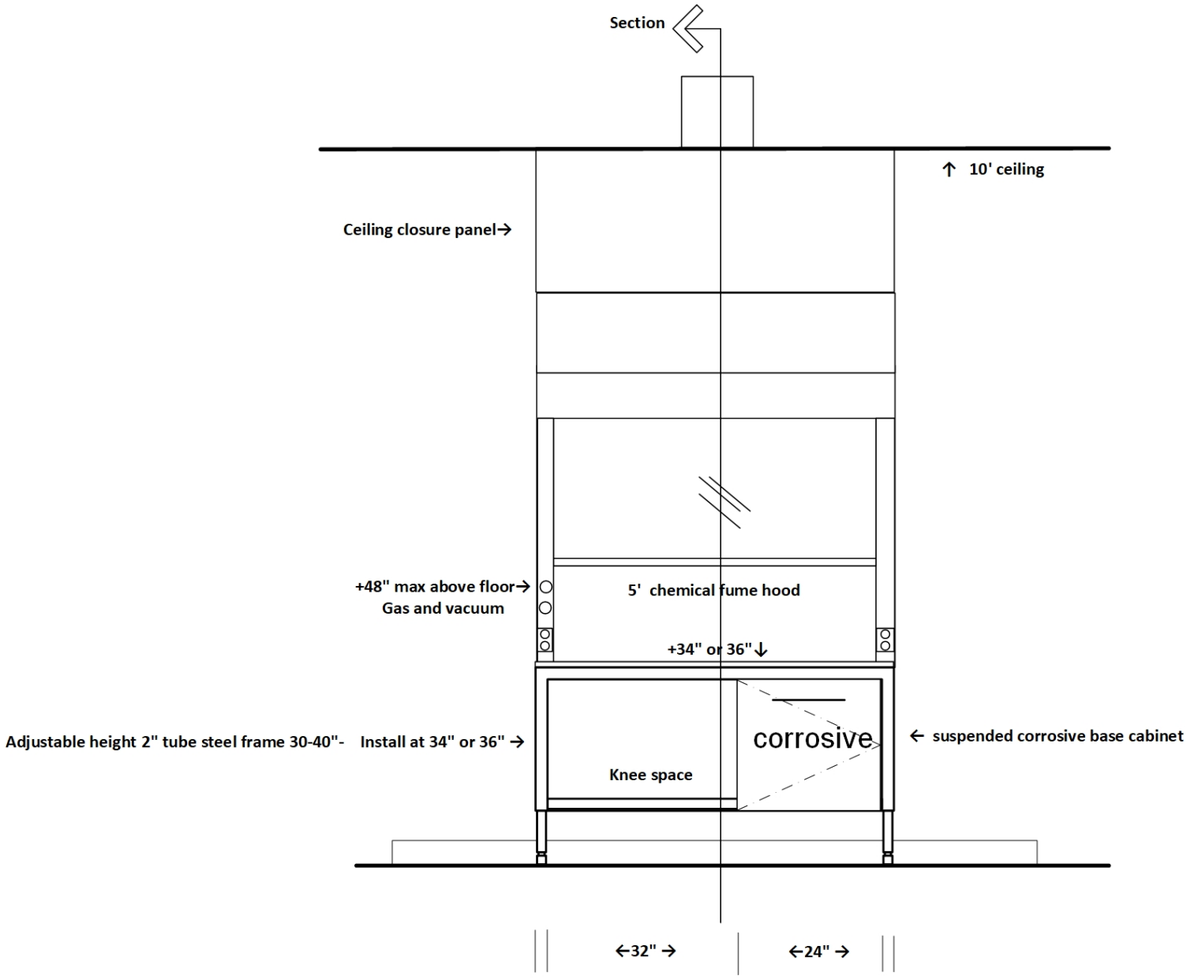
Section



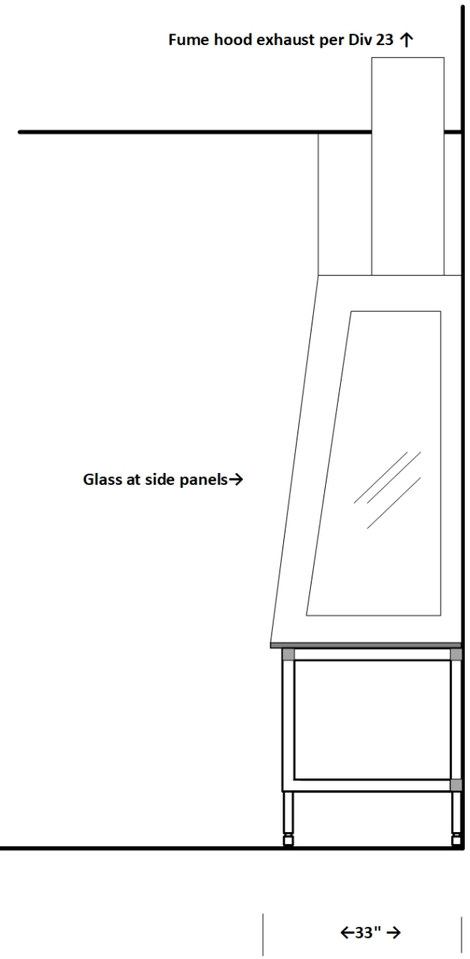
SECTION DETAIL 12

Chemical Fume Hood at Wall
Located in Labs and Chem Store

5’ fume hood shown
Similar or 4’ and 6’ fume hoods



Elevation



Section

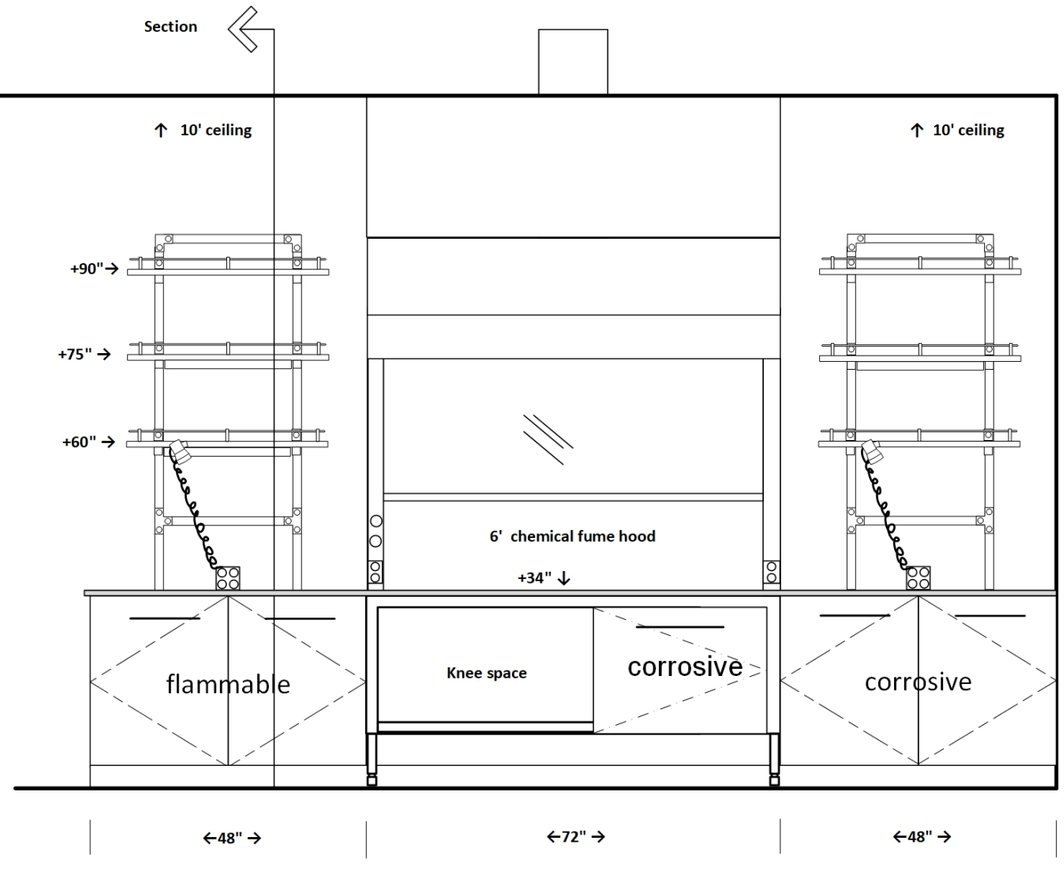
3"6" 12" 24"

SECTION DETAIL 13

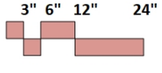
Chemical Fume Hood at Peninsula
Located in Biology and Chemistry Prep

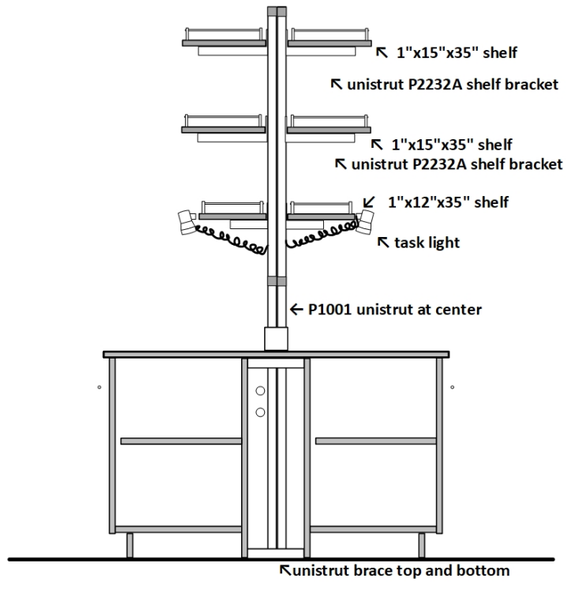
Chemistry Prep shown
Similar for Biology Prep

Corrosive cabinets vented
Flammable cabinets not vented



Elevation

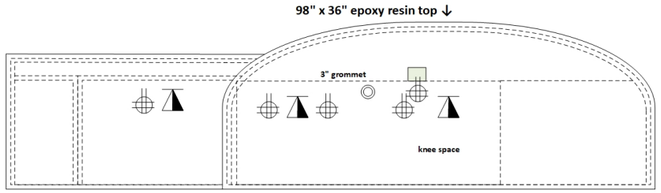




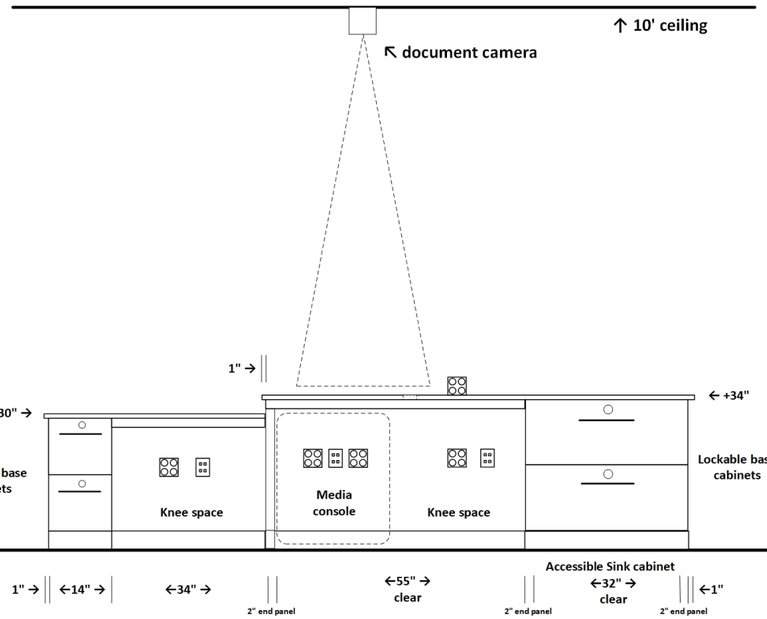
Section

SECTION DETAIL 14

Instructor Island Bench no sink
Located in Physics Lab
Mirror image in Geoscience Lab

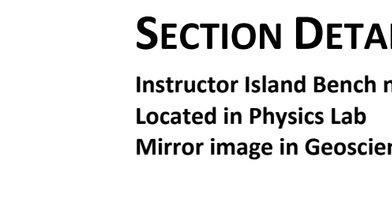


Top View

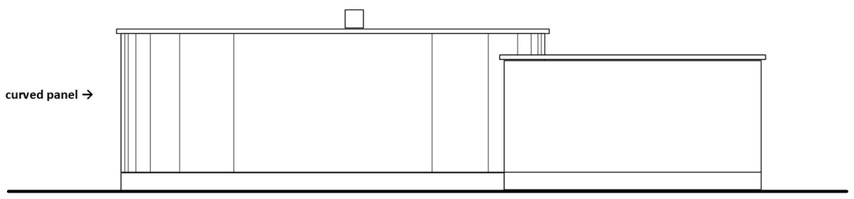


Front Elevation

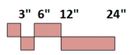
Section



Side Elevation

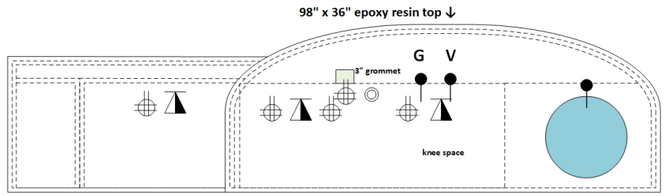


Back Elevation (facing students)

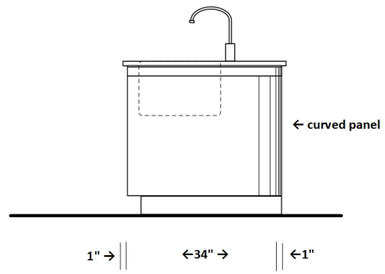


SECTION DETAIL 15

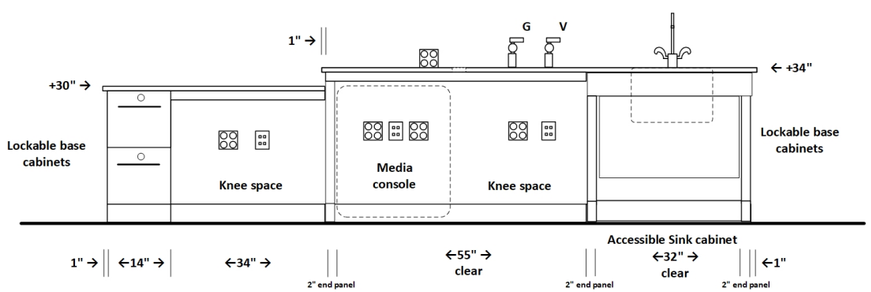
Instructor Island Bench with sink
Located in Chemistry Lab and Anatomy Lab
Mirror image in Biology Lab



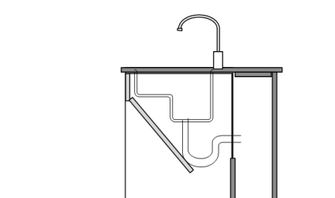
Top View

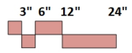


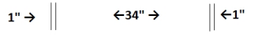
Side Elevation



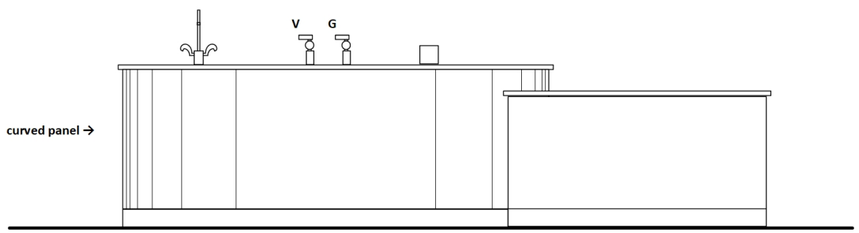
Front Elevation







Section



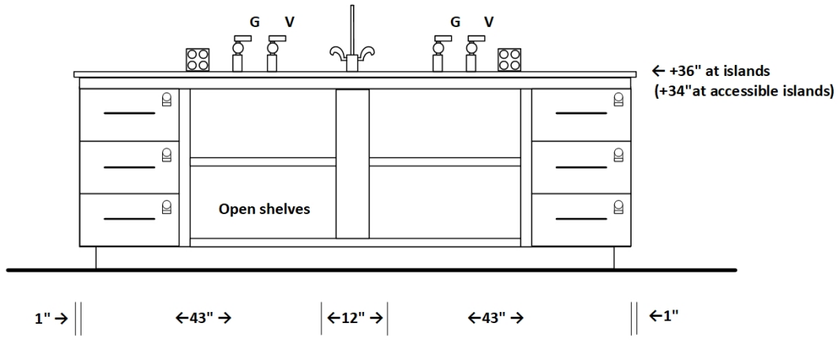
Back Elevation (facing students)

SECTION DETAIL 16

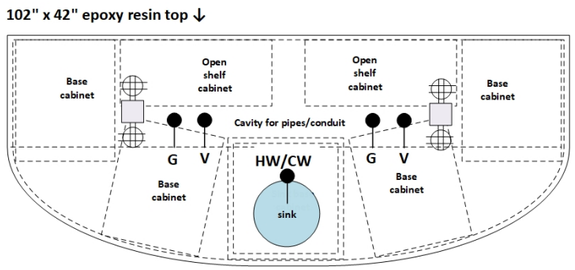
Chemistry Student Island Bench
Located in Chem Lab

150 sections drawers required in Chemistry Lab.
4 base cabinets x 3 drawers = 12 drawers per island
8 islands x 12 = 96 section drawers
Minus 6 section drawers at accessible island = 90 section drawers at islands.

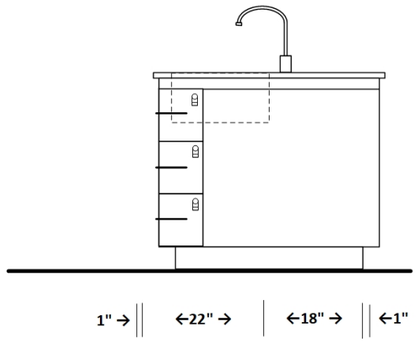
60 additional section drawers required at lab perimeter.
60 divided by 3 = 20 section drawer base cabinets at perimeter.



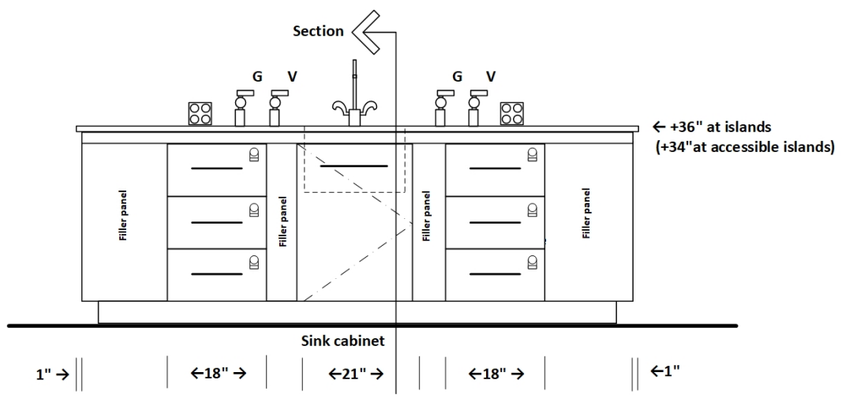
Back Elevation



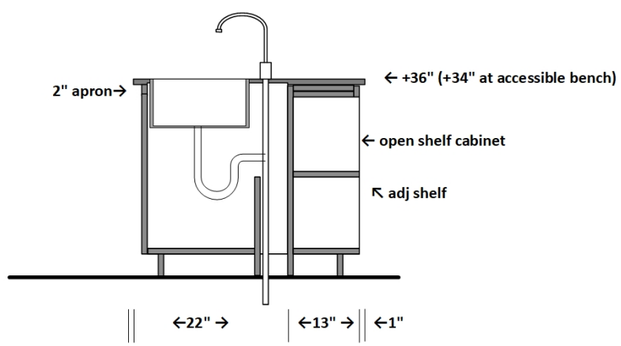
Top View



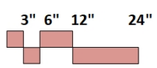
Side Elevation



Front Elevation

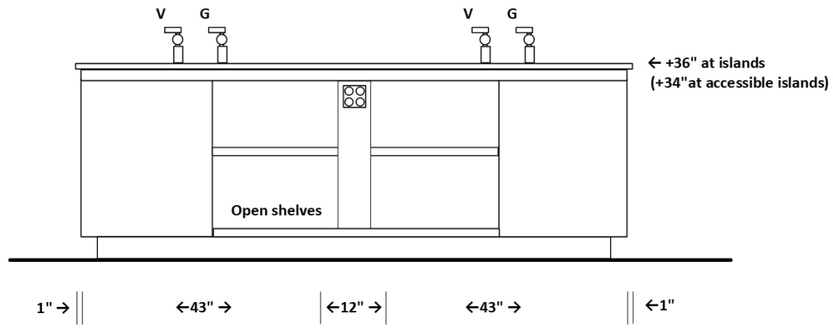


Section

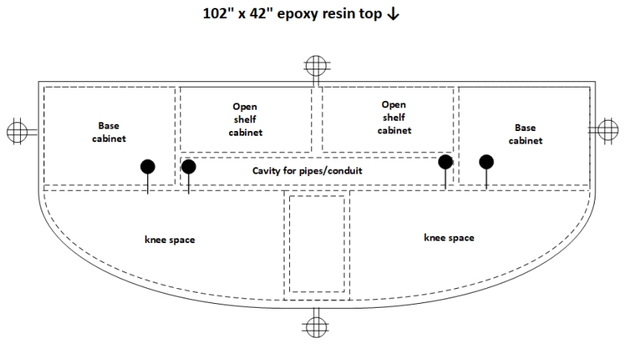


SECTION DETAIL 17

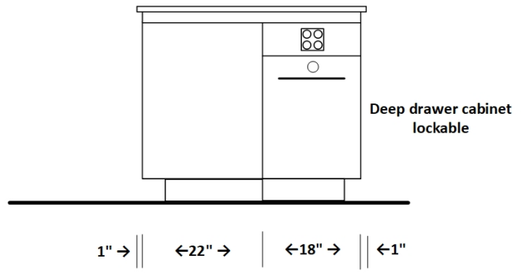
Biology Student Island Bench
Located in Biology Lab



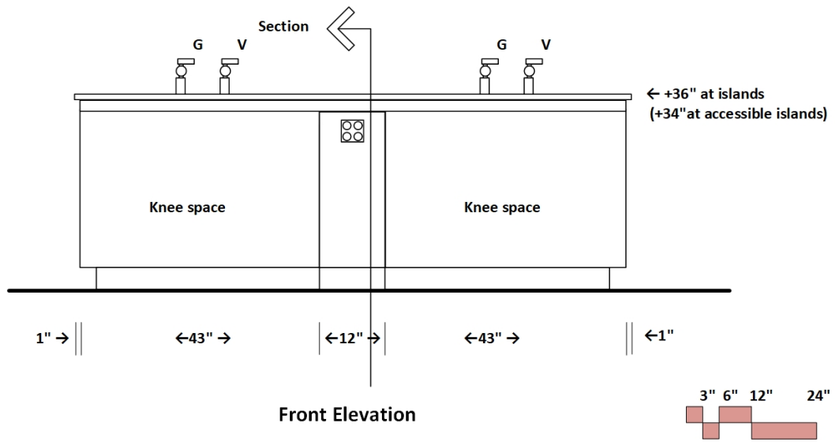
Back Elevation



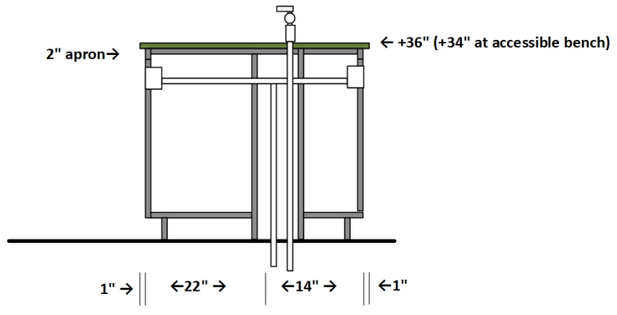
Top View



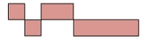
Side Elevation



Front Elevation



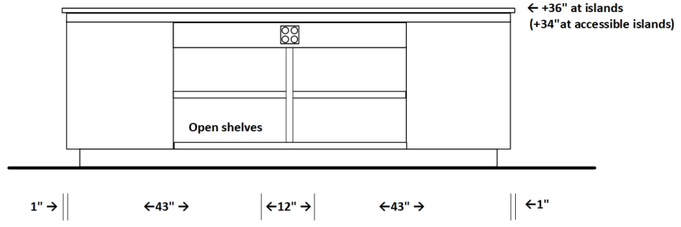
Section



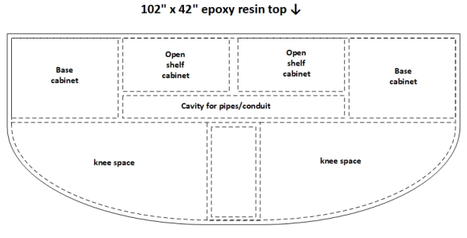
SECTION DETAIL 18

Anatomy Student Island Bench
Located in Anatomy/Physiology Lab

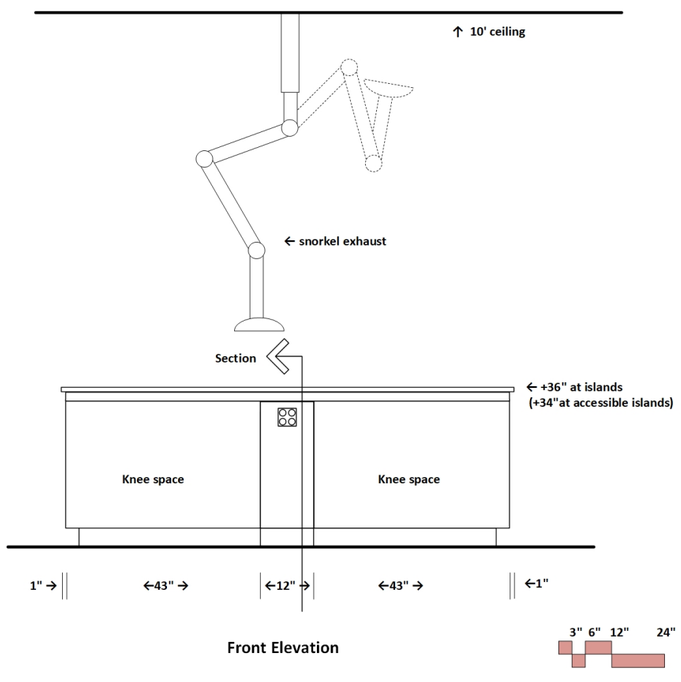
Same as Geoscience lab bench, except there is a snorkel exhaust above each island.



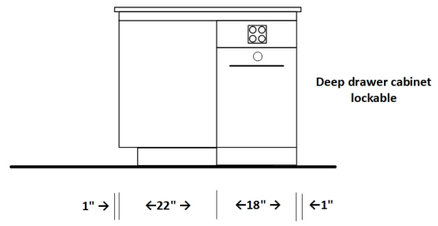
Back Elevation



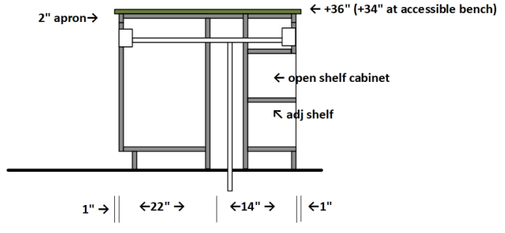
Top View



Front Elevation



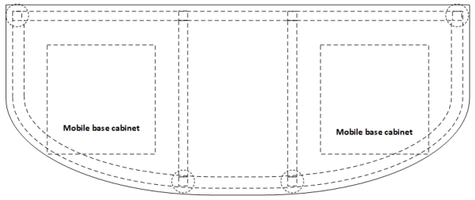
Side Elevation



Section

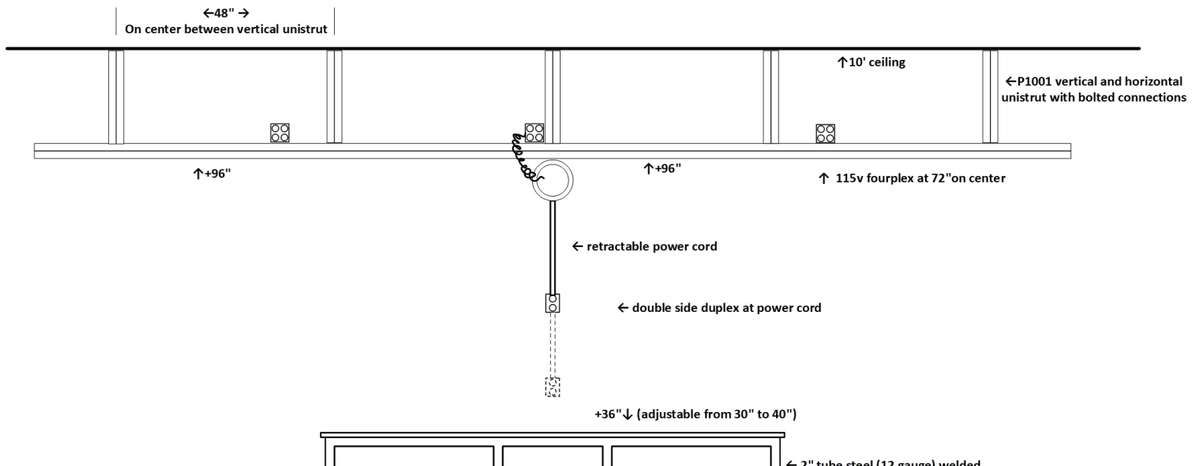
SECTION DETAIL 19

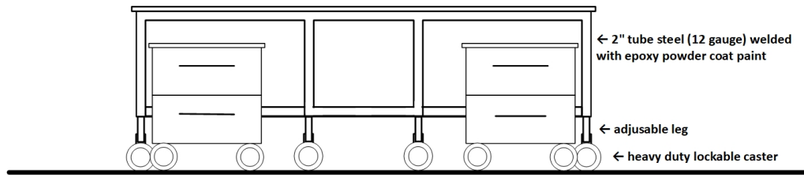
Physics Student Island Bench
Located in Physics/Astronomy/Anthropology Lab



↑102" x 42" epoxy resin top

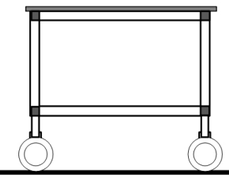
Top View





Mobile base cabinet on casters
24" wide x 24" deep x 27" high

Front Elevation



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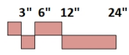
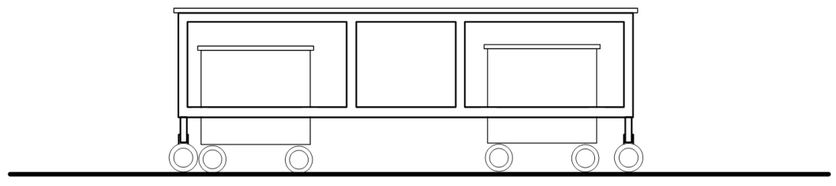
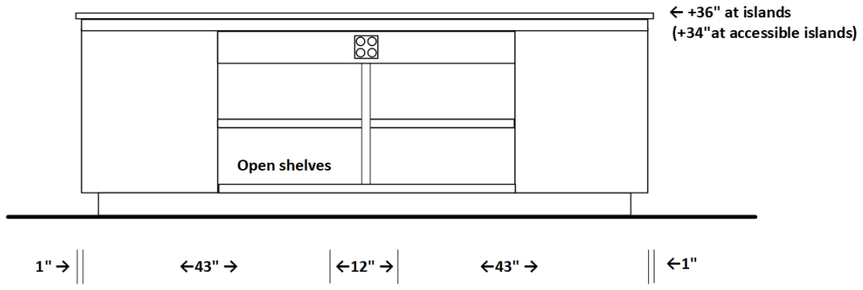




Rear Elevation

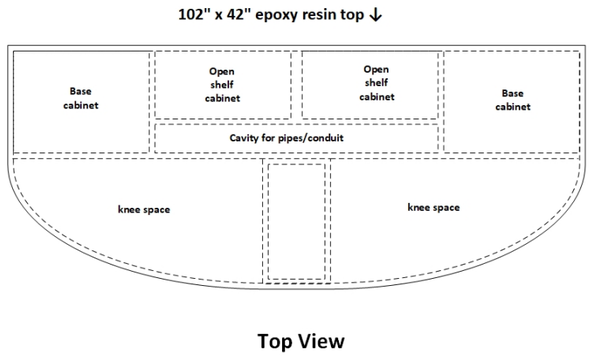
SECTION DETAIL 20

Geoscience Student Island Bench
Located in Geoscience Lab

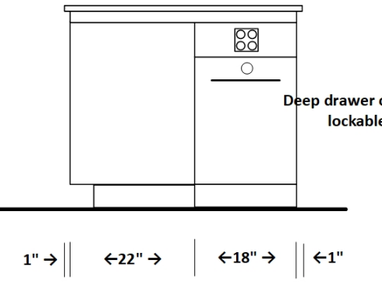


Back Elevation

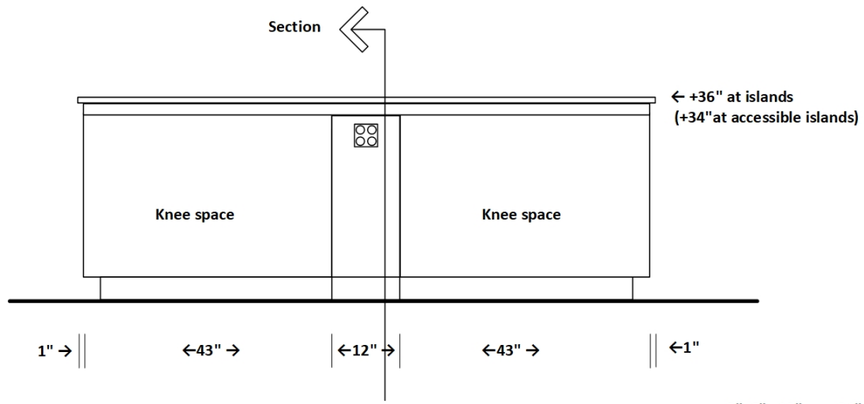
Same as Anatomy/Physiology island except no snorkel exhaust at each island.



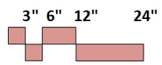
Top View

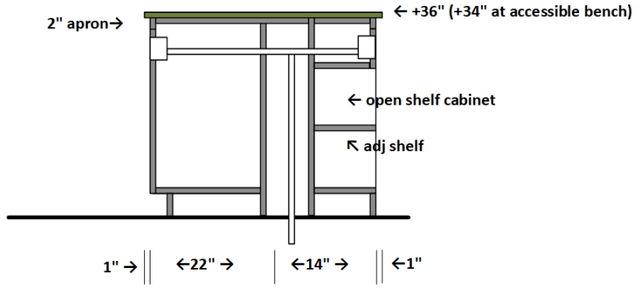


Side Elevation



Front Elevation

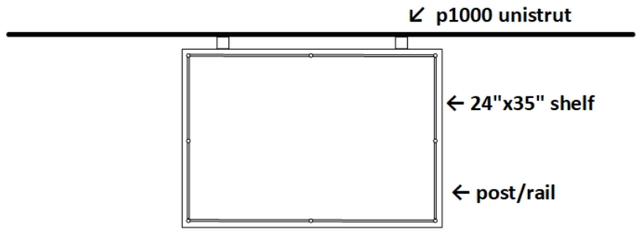




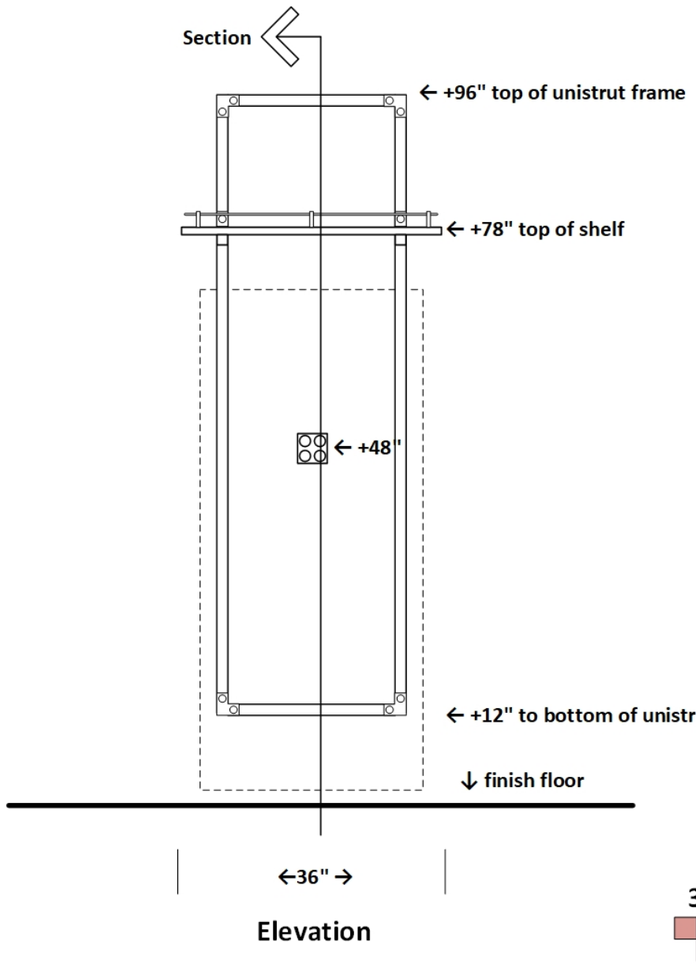
Section

SECTION DETAIL 21

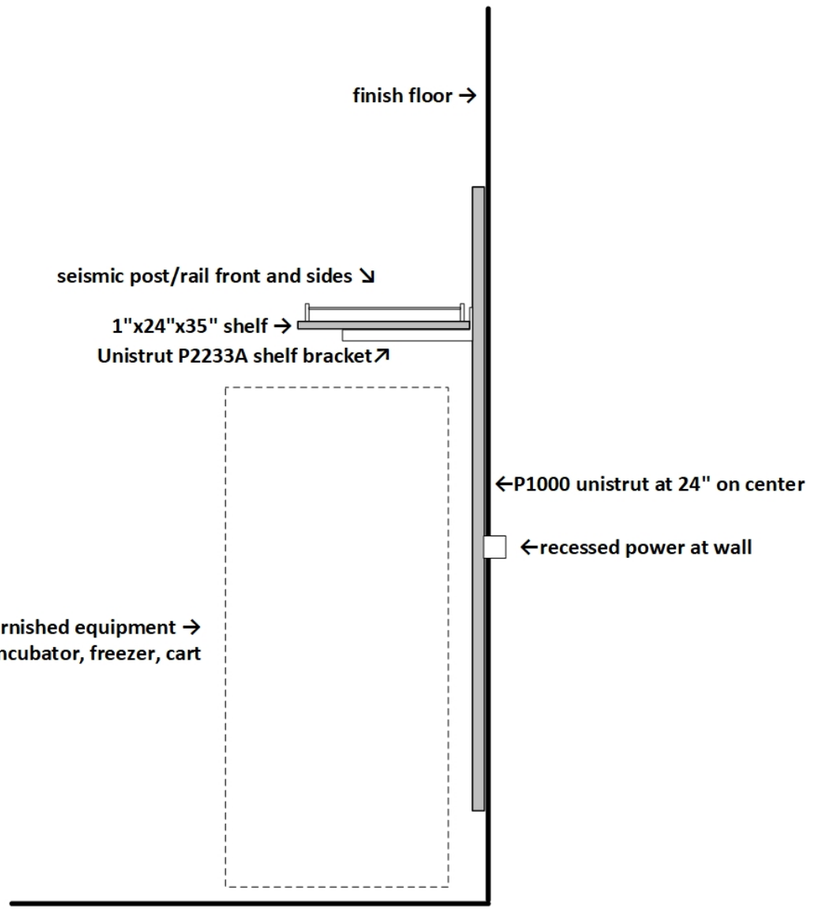
Equipment Space
Located in Labs and Prep Rooms



Plan



Elevation

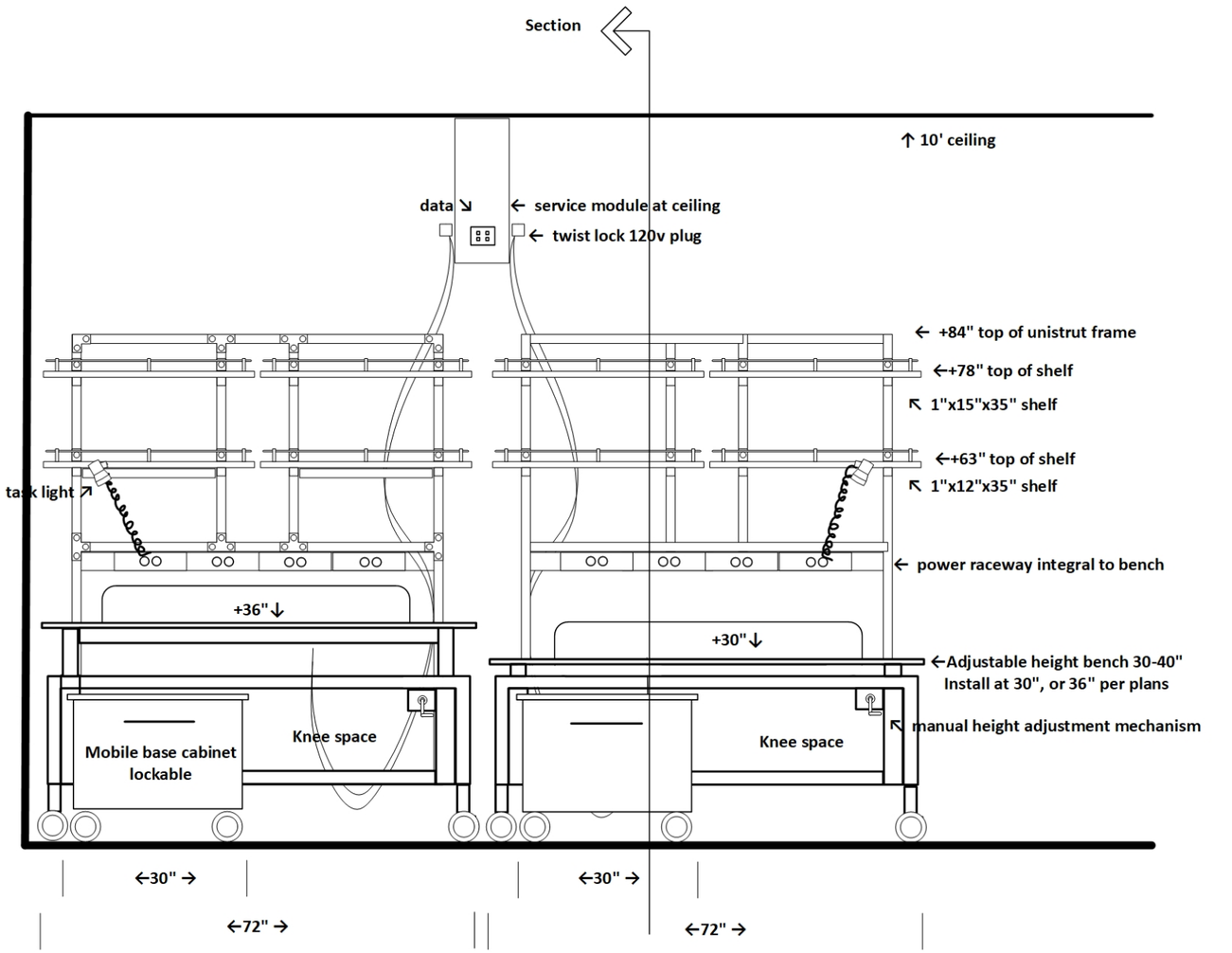


Section

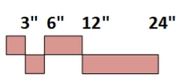
3"6" 12" 24"

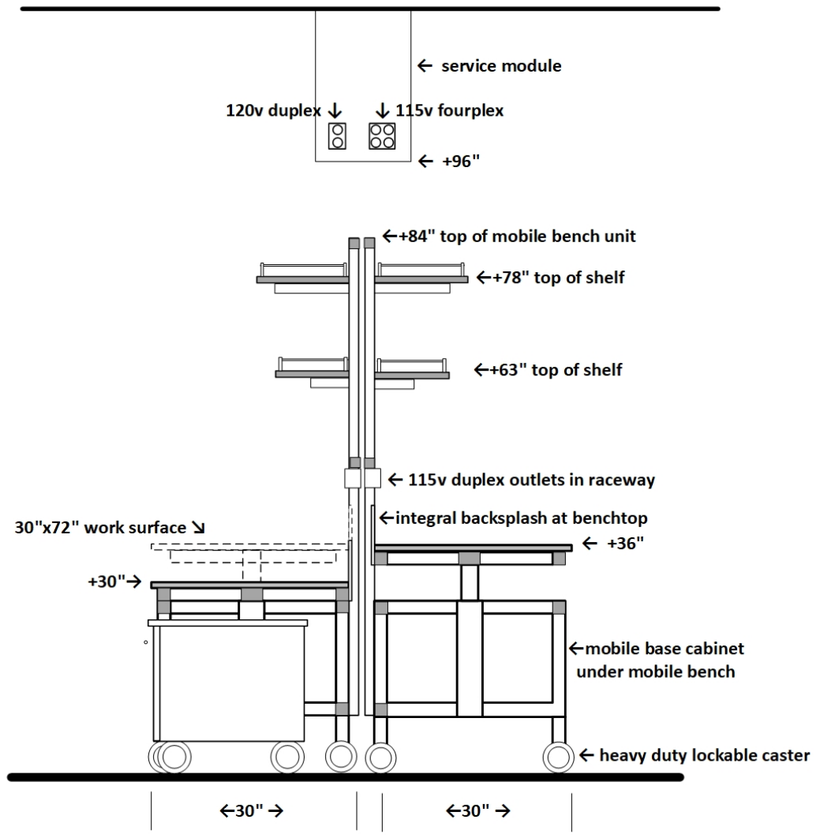
SECTION DETAIL 22

Protean Lab Bench
Located in Prep Rooms



Elevation





Section

PHOTOS

The following photos are of other similar labs that have been built at community college campuses in the state of California.

ASTRONOMY/PHYSICS LABORATORY

Miramar College

BIOLOGY LABORATORY

ANATOMY

Southwestern College

PREP ROOM

Miramar College
Common Prep/Store for life science and physical science labs

PREP ROOM

Las Positas College
Common Prep/Store for life science and physical science labs

EQUIPMENT CUT SHEETS

The following cut sheets are of Contractor Furnished equipment that will be installed as part of the building construction. Owner furnished equipment such as refrigerators, freezers, benchtop instruments, ovens, etc., are not included herein.

6' Protector ClassMate Laboratory Hood

View online: https://www.labconco.com/product/6-protector-classmate-laboratory-hood-10/6778

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: 160605102

Fume hood will be specified with glass side panels, opaque back panel.

Fume hood will be specified with combination sash.

6’ fume hood requires 800 cfm per division 23.
5’ fume Hood requires 600 cfm per division 23.
4’ fume hood required 500 cfm per division 23.

Specifications

- **Weight:** 610.0 lbs
- **Weight metric:** 276.7 kg
- **Dimensions:** 72.0" w x 32.7" d x 59.0" h
- **Dimensions metric:** 182.9 x 81.9 x 149.9 cm
- **Electrical:** 100-115V, 50/60 Hz, 10A
- **Product Subcategory:** Educational
- **Nominal Width:** 6'
- **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

SAFETY SHOWER CUT SHEET

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 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.

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

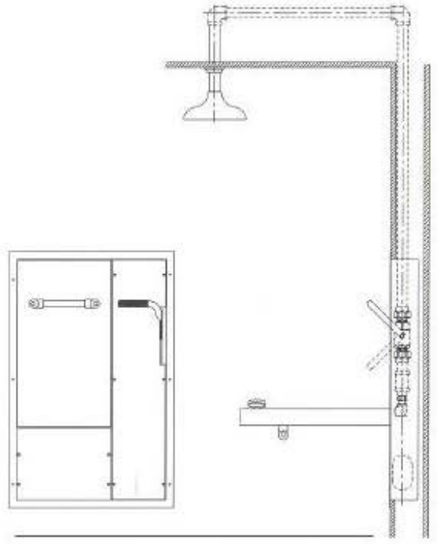
Available Options:

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.

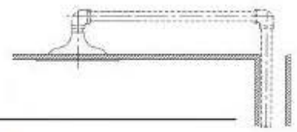
CTSSBF2150

Recessed Safety Station with Drain Pan



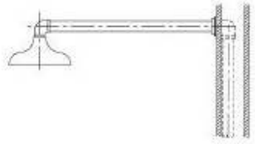
CTSSBF2160

Same as above except with recess mounted shower head.



CTSSBF2170

Same as above except with wall mounted shower head.



WaterSaver Faucet Co. 312.666.5500 Voice 312.666.8597 Fax wsflab.com

Unit 2150 will be specified.

Requires drain inside wall cavity for eyewash per Division 22.

Provide drain at floor for shower.

AUTOCLAVE CUT SHEET

Model: SSR-24A
Pre Vacuum
Chamber dimensions: 24” W x24” H x 36”D
Exterior dimensions: 43” W x 73” H x 58”D

480v power with disconnect

Integral electric steam generator

Steam canopy above

Floor sink

Requires RO water feed

CONSOLIDATED STERILIZER SYSTEMS

Consolidated Sterilizers

Designed to Transform Your Laboratory

Models	
SSR-2A (16" x 16" x 26")	
SSR-3A (20" x 20" x 38")	
SR-24A (24" x 24" x 36")	
SR-24B (24" x 24" x 48")	
SR-26A (26" x 26" x 39")	

Small Lab Series Steam Sterilizers General Specifications

General Specification

Steam Sterilizer, Radial-Arm Door(s), Hinged, Single Chamber, Double Wall

Consolidated Small Lab Series Sterilizers are designed to sterilize at temperatures between 212° F and 275° F (100° C and 135° C) through the use of steam. Choose from a variety of sizes and programmable control options for pre-vacuum or gravity operation. Consolidated sterilizers offer a range of performance options to meet the most demanding applications in clinical, animal and life science, biotechnology, pharmaceutical, and commercial/industrial applications.

Table of Contents

Features and Benefits

Simplified Maintenance, Low Cost of Ownership.
All Consolidated sterilizers are manufactured in the USA and built from commonly available parts to allow quick and cost effective field-level service and maintenance.

Serviceability.
Easy access to replaceable components, local component availability and common electrical and plumbing parts permit qualified facility or area service companies to maintain the sterilizer.

Control Flexibility.
A choice of programmable controllers allows a broad range of performance functions, complete with alarm, monitoring and communications required for internal or third-party compliance.

Performance Cycles—Basic to Advanced.
The fully-jacketed sterilizer design permits vacuum and pressure control when configured for pre-vacuum, post-vacuum, and more sophisticated functions such as air-over-pressure. Consolidated sterilizers are ideal for sterilizing wrapped and unwrapped goods, liquids, waste, and other applications.

Green and Environmentally Friendly.
Unique, new technologies reduce water and energy consumption without compromising performance.

Cloud-Enabled.
Consolidated sterilizers can be connected to the internet and can be pre-configured for cloud-based monitoring, alerting and data collection.

Consolidated Small Lab Series Sterilizers are available in single door, pass-thru and dual (tower) models. A versatile control system offers a range of performance options to meet the most demanding applications in life science, biotechnology, pharmaceutical, and commercial/industrial applications. Model PT-SR-24A-X1 shown with X1™ control system.

Table 3. Power and Steam Usage

Model	Chamber Dimensions (w x h x f-b)	Air Removal Method	Electrically Heated					Steam Heated		
			Generator Size (kW)[2]	Generator Current (amps)[3]				Steam Consumption		
				208V	240V	380V	480V	Peak (lb/hr)	Per Cycle[1] (lb/cycle)	Idle (lb/hr)
SSR-2A	16" x 16" x 26" 40.6 x 40.6 x 66 cm	Gravity	25	69	60	37	30	180	17	5
		Vacuum	25	69	60	37	30	180	25	5
SSR-3A	20" x 20" x 38" 50.8 x 50.8 x 96.5 cm	Gravity	25	69	60	37	30	180	20	7
		Vacuum	25	69	60	37	30	180	35	7
SR-24A	24" x 24" x 36" 61 x 61 x 91.4 cm	Gravity	25	69	60	37	30	180	30	7
		Vacuum	30	83	72	46	36	180	50	7
SR-24B	24" x 24" x 48" 61 x 61 x 122 cm	Gravity	25	69	60	37	30	180	35	9
		Vacuum	30	83	72	46	36	180	55	9
SR-26A	26" x 26" x 39" 66 x 66 x 99 cm	Gravity	25	69	60	37	30	180	35	9
		Vacuum	30	83	72	46	36	180	55	9

[1] Assuming 30 minute sterilizing time at 250° F (121° C) and 20 minute drying time.
[2] If current draw for 25kW is too high contact Consolidated for 20kW generator.
[3] Current drawn by generator. Local codes and regulations may affect breaker size.
Note: For dual (tower) models contact Consolidated for additional information.

Table 4. Water Feed Requirements, Carbon-Steel Steam Generators[4]

Characteristic	Recommended Condition	Maximum Condition
Temperature	As Supplied	140° F (60° C)
Total Hardness	0–17 mg/L	85 mg/L
Alkalinity	50–180 mg/L	350 mg/L
Total Dissolved Solids	0–150 mg/L	250 mg/L
pH	7.5–8.5	7.5–9.0
Total Silica	0.1–1.0 mg/L	2.5 mg/L
Resistivity	2,000–6,000 ohms/cm	26,000 ohms/cm[5]

[4] Stainless-steel generators require deionized water >1 MΩ/cm.
[5] If water supplied is greater than 26,000 Ω/cm contact Consolidated for recommendation.

Typical Utility Requirements

General.

- Steam (S): ¾" NPT, 50-80 psi dynamic.
- Electrical (E1, E3): 110V, AC or 220V, AC, 1-phase, 15 amps—dedicated and isolated.
- Water (W2): ½" NPT, 45 psi dynamic minimum.
- Drain (D): open drain to funnel connection in floor, diameter 3" minimum.
- Backflow preventer not provided.

Optional Vacuum Systems (maximum one per unit).

- Economy, Post-Vac (W3): ½" NPT, 45 psi minimum.
- Hi-Vacuum with Water Ejector (W3): 1¼" NPT, 45 psi minimum.
- Hi-Vacuum with Vacuum Pump (W3): ½" NPT, 45 psi minimum.

Electric Steam Generator Utilities:

- Power Supply (E2): available in 208/240/380/480V, single or three phase.
- Generator Feedwater (W1): hot/treated water, ½" NPT, 60 psi dynamic minimum.

RO UNIT FOR AUTOCLAVE CUT SHEET

UNIT TO PROVIDE RO WATER FOR AUTOCLAVE, WASHERS AND WATER POLISHERS

CONSOLIDATED STERILIZER SYSTEMS

WPS-1200
Water Purification Systems

WPS-1200 Water Purification Systems

Consolidated offers two water systems as part of the WPS-1200 line. The WPS-1200-RO reverse osmosis water purification system produces Type IV laboratory-grade water ideal for steam sterilizers and glassware washers per ASTM D1193-06. This robust system includes an RO module and a reservoir tank. Each module consists of two pre-treatment filters and a reverse osmosis filter. The pre-treatment filters remove particles larger than 5 microns, free chlorine, chloramines, and other undesirable traits. The reverse osmosis membrane filter removes greater than 90% of inorganic ions, hardness, and dissolved solids, as well as other particles and microorganisms.

If deionized water is required, the WPS-1200-DI system incorporates extra filtration to produce deionized water with >1 megohm•cm resistivity for clean steam or other high purity applications.

WPS-1200 Benefits

- Improves equipment life and performance by removing at least 90% of all dissolved solids that cause scale build-up.
- Designed specifically for autoclaves and glassware washers.
- Reduction of scale build up translates to increased uptime as well as reduced maintenance and energy costs.
- Designed to be very low maintenance and easy to use with a low cost of ownership.
- System includes a pressurized storage tank.
- Tank is floor standing and can be mounted remotely.
- 100% seamless composite construction with durable, high density polyethylene inner liner.

WPS-1200 Features

- Filters have a special 1/4 turn quick change design that allows simple, quick and clean filter replacement. Filters can be easily changed in minutes without the use of tools or the need for a service call.
- Flexible design allows system to be installed integral to the sterilizer[1] or on a nearby wall.
- Pressurized storage allows purified water to be used for general lab use.
- Environmentally safe; 100% lead-free.
- Color indicator on DI filter signals when to change the filter.

[1] *Increases the footprint of the sterilizer.*

Quick, Clean, Hassle-Free Filter Replacement.
NO Service Calls,
NO Tools!

Why Purify Your Water?

Many steam sterilizers use an electric steam generator to create the required steam. When the steam is created, salts and minerals from the feed water are left behind. If hard tap water is used to generate the steam, over time these mineral deposits will accumulate and coat the generator heating elements, continually decreasing the functionality of the generator until it stops working. Consolidated's Water Purification Systems will remove these contaminants and help ensure maximum uptime.

Product Summary

Specificaitons	Model WPS-1200-RO	Model WPS-1200-DI
Production Water Quality	Type IV (ASTM D1193-06)	DI >1 megohm•cm
Application	For steam sterilizers with carbon steel steam generators	For steam sterilizers with stainless steel steam generators (i.e. clean steam)
Sterilizer Size (volumetric)	up to 42.4 cu.ft. 1200 liters	up to 42.4 cu.ft. 1200 liters

Model WPS-1200-RO System with RO module and 11 gallon tank shown.

CONSOLIDATED STERILIZER SYSTEMS

WPS-1200
Water Purification Systems

Specificaitons	Model WPS-1200-RO	Model WPS-1200-DI
Dimensions	38" H x 20.5" W x 8" D 96.5 x 52.1 x 20.3 cm	38" H x 30.5" W x 8" D 96.5 x 77.5 x 20.3 cm
Required Clearance	Add 6" (15.25 cm) on all sides for cover removal and service access.	
Operating Weight (not including storage tank)	40 lbs 18 kg	65 lbs 30 kg
Daily Production Rate*	350 gpd / 14.5 gph nominal 1,325 lpd / 55.2 lph	350 gpd / 14.5 gph nominal 1,325 lpd / 55.2 lph
Sterilizer Size (volumetric)	up to 42.4 cu.ft. 1200 liters	up to 42.4 cu.ft. 1200 liters
Tank		
Tank Dimensions	37 – 57" H x 16" D 94 – 144.8 cm x 40.6 cm	
Tank Weight (fully loaded)	110 – 210 lbs 50 – 95 kg	
Tank Volume	11 – 22 gallons 42 – 83 liters	
Water		
Facility Supplied Connection	1/2" NPT Ball Valve; 25 – 80 PSIG Dynamic; 1 GPM; 40-100°F (4.4-37.8°C)	
Drain Connection	1/4" (.64 cm) OD tube connection; Floor drain or Floor Sink, Gravity Flow	
Electrical		
	115VAC/60Hz; NEMA 5-15P Plug Branch Circuit Protection 15 or 20 Amp Ground Fault	

**Feed water temperature, feed water quality and age of filters affects production rate. Incoming water must meet water quality requirements,*

Water Feed Requirements, Carbon-Steel Steam Generators

The table below shows the recommended feed water requirements for a standard steel boiler. If water quality fails to meet maximum condition requirements listed below, then your water will require purification by the WPS-1200-RO. If you are unsure of your facility's water quality, please contact Consolidated to arrange for an initial assessment.

Characteristic	Recommended Condition	Maximum Condition
Temperature	As Supplied	140° F (60° C)
Total Hardness	0–17 mg/L	85 mg/L
Alkalinity	50–180 mg/L	350 mg/L
Total Dissolved Solids	0–150 mg/L	250 mg/L
pH	7.5–8.5	7.5–9.0
Total Silica	0.1–1.0 mg/L	2.5 mg/L
Resistivity	2,000–6,000 megohm•cm	26,000 megohm•cm*

** If water supplied is greater than 26,000 megohm•cm contact Consolidated for recommendation.*

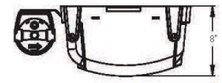
Water Feed Requirements, Stainless Steel Generators

Stainless-steel generators require deionized water >1 megohm•cm.

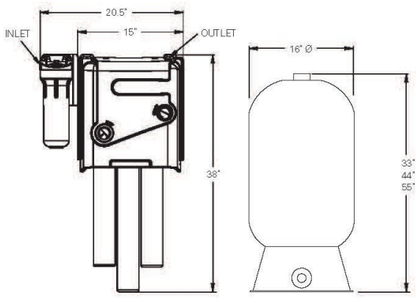
WPS-1200 Maintenance

- Proper pre-treatment is required to control scale formation and/or fouling (recommended preventive maintenance involves pre-treatment filter cartridge changes every 6 months[2]).
- Change RO cartridges regularly (recommended 2-3 year preventive maintenance program[2]).

[2] *Feed water quality and usage affects filter life and replacement frequency.*



NOTE:
Typical dimensions for the WPS-1200-RO. Extra filter for the WPS-1200-DI Not shown.



3 ENTERPRISE RD. SUITE C | BILLERICA, MA 01821
P: 617.782.6072 | F: 617.787.5865 | INFO@CONSTERIL.COM | CONSTERIL.COM

Featuring Green Technology for Energy Savings and Minimal Environmental Impact

WASHER CUT SHEET
Free-standing model

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. Free-standing 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.

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

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.

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.

Made in U.S.A.

Exclusive Labconco feature

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 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

SINK CUT SHEET

DURCON
A WILSONART COMPANY

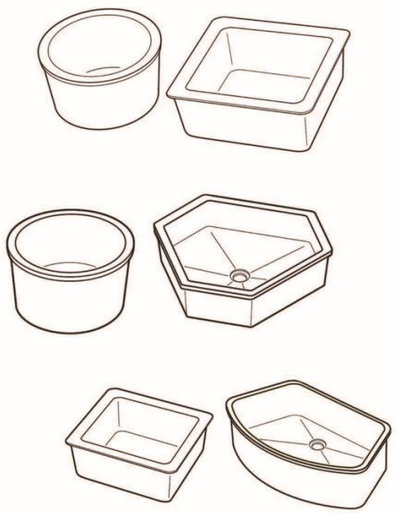
PRODUCT DIMENSIONS - EPOXY RESIN SINKS [IMPERIAL]

DropIn® Sinks

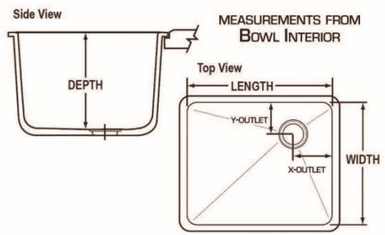
MODEL Number	OUTLET Placement	WEIGHT [lbs]	LENGTH [inches]	WIDTH [inches]	DEPTH [inches]	X-OUTLET [inches]	Y-OUTLET [inches]	ADA Compliant
D01C	Center	9	9	6	5.8	4.5	3	
D03C	Center	16	12	8	5.8	6	4	
A05	Corner	18	14	10	5	3.5	3.5	♿
D05	Corner	24	14	10	6.25	3.5	3.5	
D05C	Center	24	14	10	6.25	7	5	
D06C	Center	34	12	12	12	6	6	
A07	Corner	24	14	14	5	3.5	3.5	♿
D08	Corner	25	15	8	6	3.5	3.5	
D09	Corner	25	15	8	10.75	3.5	3.5	
D10E	End	22	16	8	6.75	4.5	4	
D10C	Center	22	16	8	6.75	8	4	
D15	Corner	30	16	12	8	3.5	3.5	
D15C	Center	31	16	12	8	8	6	
D19	Corner	42	16	16	9.56	3.5	3.5	
D20	Corner	32	16	16	7.5	3.5	3.5	
D21	Corner	58	16	16	15	3.5	3.5	
D22C	Center	20	18	6.5	6	9	3.25	
D24C	Center	30	18	14	10.5	9	6.825	
A25	Corner	35	18	15	5	3.5	3.5	♿
A25M	Corner	30	18	15	2.375	3.5	3.5	♿
D25	Corner	39	18	15	7.88	3.5	3.5	
A26	Corner	39	18	15	5.00 / 11.00	4.5	4.5	♿
D30	Corner	58	18	15	10.75	3.5	3.5	
D30C	Center	50	18	15	10.75	9	7.5	
D30D	Corner	110	37.5	15	10.75	3.5	3.5	
D32	Corner	49	18	15	15.13	3.5	3.5	
D33	Corner	59	21	17	9.75	3.81	3.81	
D33E	End	59	21	17	9.75	4.5	8.5	
D45	Corner	61	21.5	15.5	11	4.75	4.75	
D50	Corner	54	24	16	8.25	3.5	3.5	
D50C	Center	54	24	16	8	12	8	
D51	Corner	60	24	16	9.62	3.5	3.5	
D52	Corner	77	24	18	11	3.5	3.5	
D54	Corner	45	25	15	8	3.5	3.5	
A55	Corner	51	25	15	4.75	3.5	3.5	♿
D55	Corner	72	25	15	10	3.5	3.5	
A56	Corner	70	25	15	5.00 / 11.00	4.5	4.5	♿
D57	Corner	71	25	15	13.62	3.5	3.5	
D58	Corner	79	25	15	17.75	3.5	3.5	
D59	Corner	74	28	15	11.75	3.5	3.5	
D61	Corner	94	30	16	17.75	4.5	4.5	
D65C	Center	98	35.5	19.5	9.75	17.75	9.75	
D68E	End	120	30	16	10	4.75	8	
D70C	Center	77	24	16	15.5	12	8	
D78C	Center	94	36	18	12	18	9	
D99	Center	61	31	18	10	11.31	4.5	
DRS10	Center	14	10 Diameter		7.75	Center		
DRS12	Center	18	12 Diameter		7.75	Center		
DH20C	Center	65	30	26	7	14.77	14	

Measurements are taken from sink bowl interior. All dimensions are nominal, and may vary by manufacturing location. Cutsheets available upon request.

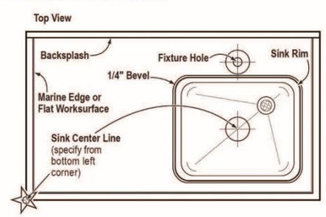
DropIn® Sink Styles



Dimensions Key



Installation Detail



ADA Lab sink: A56
25” long x 15” wide x 5/11” deep
With sediment trap

Standard Lab sink at wall: D59
28” long x 15” wide x 11.75” deep
With sediment trap

Round Sinks: No number
12” deep x 18” diameter
5/11” deep x 18” diameter for ADA locations
Will be manufactured custom by Durcon

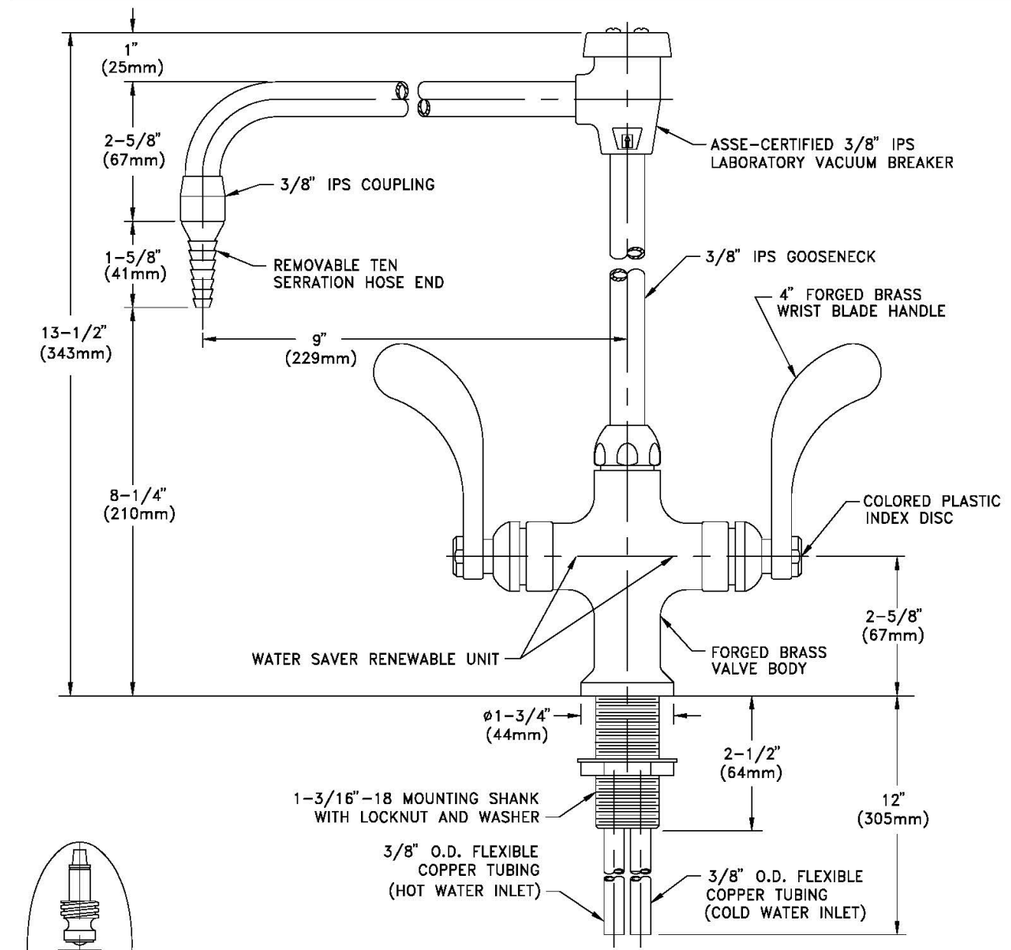
COLORTECH

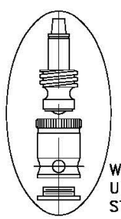
Laboratory Service Fixtures by
WaterSaver Faucet Co.

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

CT414-9VB-BH

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





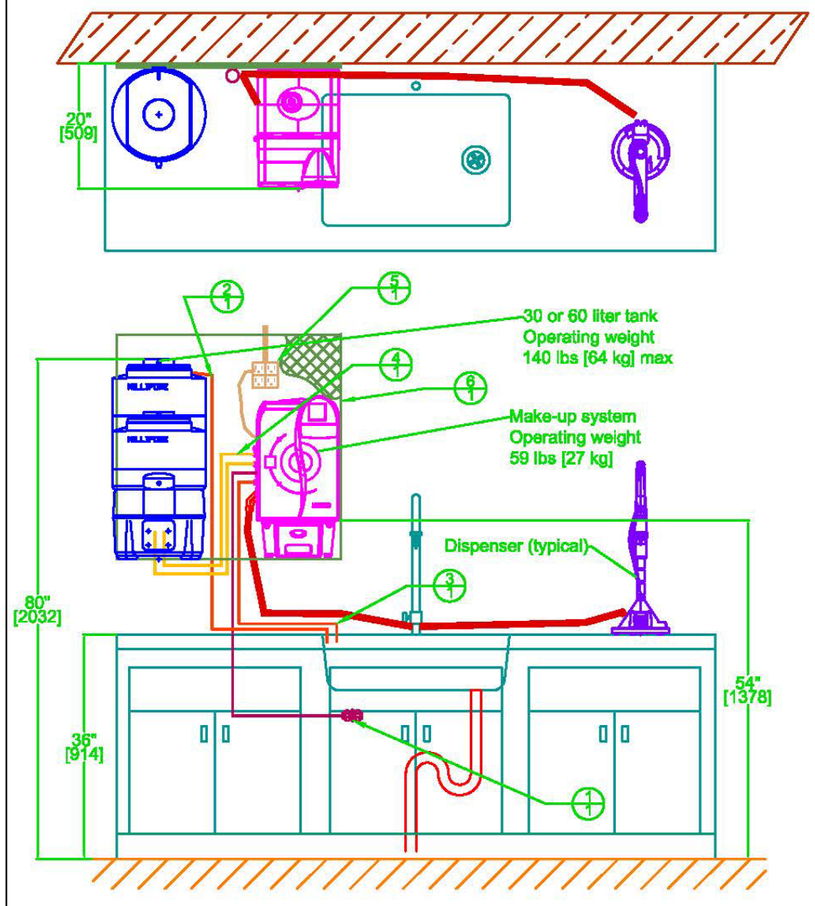
WATER SAVER RENEWABLE UNIT WITH REPLACEABLE STAINLESS STEEL SEAT

MEASUREMENTS MAY VARY ±1/4".

NOTES:
1. CSA CERTIFIED UNDER CAN/CSA B125.M89. COMPLIES WITH ANSI/ASME A112.18.1M.
2. FIXTURE IS FURNISHED WITH COLORTECH POWDER-COATED FINISH.

Drawing Number: _____ Revision Number: 031803-KJS

Faucet will be specified with satin chrome finish, epoxy powder coat.



System and 30 or 60 liter tank wall mounted

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 dipsenser(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.

MILLIPORE

NA CUSTOM WATER SYSTEMS - BIOSCIENCE DIVISION
BILLERICA MASSACHUSETTS 01821

Millipore Installation Details

Typical Milli-Q/ Elix Advantge installation dimensions

Siwus-CS- 111009E

Locate at each lab prep sink where required.
Requires RO water supply and duplex power outlet.

Includes 30 litre storage tank, wall mounted on shelf.

Can be Owner Furnished/Owner installed, or Contractor Furnished/Contractor Installed.

WATER POLISHER PHOTO

This is photo of point-of-use water polisher at Southwestern College Science Building in Chula Vista, CA.

The polisher unit and storage tank unit sit in base cabinet. There is a fourplex power outlet at back of base cabinet.
There is RO water feed valve at back of base cabinet.

RO water feed connects to the water polisher.

There is 3” grommet hole in benchtop through which dispenser pipe passes.
The pure water dispenser stis on the benchtop next to sink.

This is the most cost-effective method of providing pure water in a science building.

Flammable Liquid Safety Cabinet, 60 Gal. 2 Shelves, 2 Door, Manual Close, Yellow

View Gallery

Model Number:
1962X

UPC Code:
048441691920

Description:
Eagle's 60 Gallon, manual close, Flammable Liquid Safety Cabinet is constructed of 18-gauge (1 mm) steel. The sides, top, bottom, and doors are double-walled with a 1-1/2 in (3.8 cm) air space between walls. Includes two vents, each have 2 in (5.1 cm) threaded fittings and a fire baffle and cap. Cabinets have a high gloss powder coat finish with red trilingual warning, plus grounding attachment, 3-point latch system, and 2-in (5.1 cm) raised, leakproof door sill. Each shelf is adjustable on 3 in (7.6 cm) centers, supported by 4 brackets, with a 350 lbs (159 kg) safe allowable load. Cabinets are FM-Approved and meet NFPA Code 30 and OSHA requirements.

Capacity:
60 gal. (227.2 L)

Color:
Yellow

Door Style:
Manual Close

Inside Dimensions:
30.75" W x 30.34" D x 60.5" H (78.1 x 77.1 x 153.7 cm)

Lock:
True

Number of Shelves:
2

Shelf Depth:
29" (73.7 cm)

Shelf Model Number:
29944

Uniform Fire Code:
False

2/27/2020

Width:
34" (86.4 cm)

Depth:
34" (86.4 cm)

Height:
65" (165.1 cm)

Weight:
371 lbs. (168.3 kg)

Approvals:

FM APPROVED

Compliance:

OSHA

NFPA CODE 30

Flammable cabinets are not vented per NIH design guidelines.

Chem Store Room cabinets to be 60 gal capacity each cabinet.

All other Prep room cabinets to be 24 gal capacity each cabinet.

Acid & Corrosive Metal Safety Cabinet, 60 Gal., 2 Shelf, 2 Door, Self Close, Blue

View Gallery

2/27/2020

Model Number:
CRA6010X

UPC Code:
048441691876

Description:
Eagle's 60 Gallon, self-closing, Acid & Corrosive Safety Cabinet is constructed of 18-gauge (1 mm) steel. The sides, top, bottom, and doors are double-walled with a 1-1/2 in (3.8 cm) air space between walls. Includes two vents, each have 2 in (5.1 cm) threaded fittings and a fire baffle and cap. Cabinets have a corrosion-resistant powder coat finish and includes trilingual warning label, plus grounding attachment, 3-point latch system, and 2-in (5.1 cm) raised, leakproof door sill. Each shelf is adjustable on 3 in (7.6 cm) centers, supported by 4 brackets, with a 350 lbs (159 kg) safe allowable load. Includes poly shelf and sump trays to help contain small spills and provide extra corrosion protection. Not recommended for use with Sulfuric, Nitric or Hydrochloric acids. Cabinets are FM-approved and meet NFPA Code 30 and OSHA requirements.

Capacity:
60 Gal. (227.2 L)

Color:
Blue

Door Style:
Self-Close

Inside Dimensions:
30.75" W x 30.3" D x 60.5" H (78.1 x 77.1 x 153.7 cm)

Lock:
True

Number of Shelves:
2

Shelf Depth:
29" (73.7 cm)

Shelf Model Number:
29944

Uniform Fire Code:
True

Width:
34" (86.4 cm)

Depth:
34" (86.4 cm)

Height:
65" (165.1 cm)

Weight:
382 lbs (173.3 kg)

Approvals:

FM APPROVED

Compliance:

OSHA

NFPA CODE 30

Warning:

All cabinets to be vented with 100 cfm exhaust per cabinet.

Chem Store Room cabinets to be 60 gal capacity each cabinet.

All other Prep room cabinets to be 24 gal capacity each cabinet.

UNISTRUT P1000/P1001 CUT SHEET

Used for Unistrut frame at walls and overhead Unistrut suspended frame at all labs where noted

P1000 unistrut will be used at wall frame members to which shelf brackets will attach. Backing at walls will need to be specified by Architect.

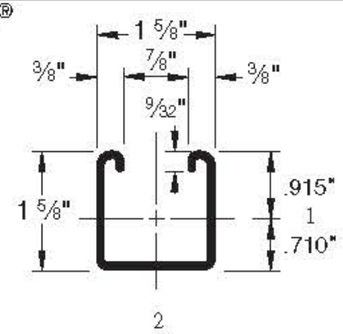
Shelf units are adjustable/removable/relocatable. All shelf units can be moved to other shelf unit/storage cabinet locations.

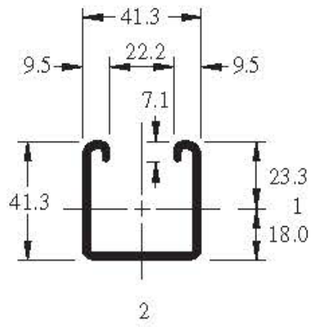
P1001 members are used at horizontal and vertical frames that hang from structure. Power conduit and fourplex power boxes attach to Unistrut frame.

P1000® & P1001 Channels

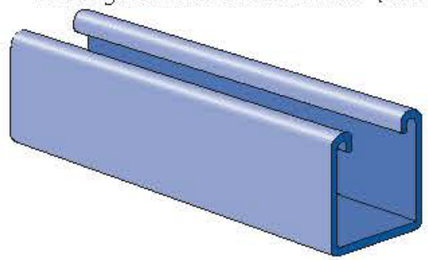
UNISTRUT

P1000®

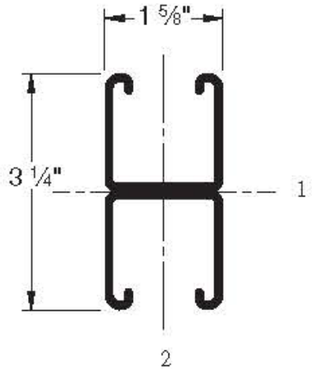


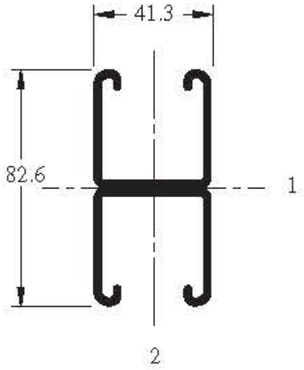


Wt/100 Ft:189 Lbs (281 kg/100 m)
Allowable Moment 5,070 In-Lbs (570 N•m)
12 Gauge Nominal Thickness .105" (2.7mm)

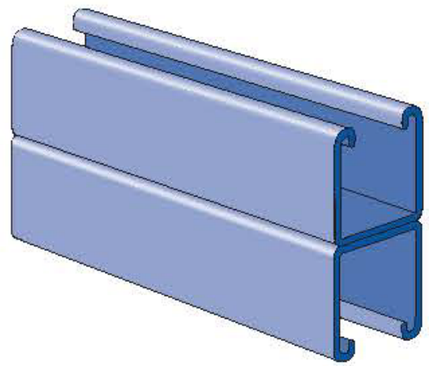


P1001

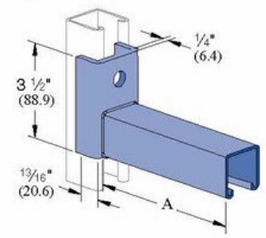




Wt/100 Ft: 378 Lbs (562 kg/100 m)
Allowable Moment 14,360 In-Lbs (1,620 N•m)
12 Gauge Nominal Thickness .105" (2.7mm)



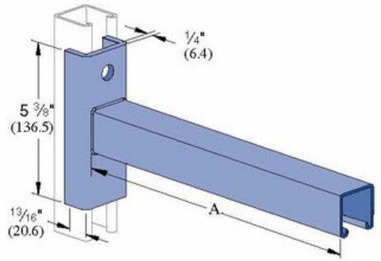
P2231A, P2232A



Part Number	"A" In (mm)	Wt/100 pcs Lbs (kg)	Vertical Channel Part No.	Vertical Channel Gauge	Uniform Design Load Lbs (kg)
P2231A	6 152.4	191 86.6	P1000	12	1,600 725.7
			P1100	14	1,200 544.3
			P2000	16	800 362.9
P2232A	12 304.8	292 132.4	P1000	12	800 362.9
			P1100	14	600 272.2
			P2000	16	400 181.4

Safety Factor - 2½

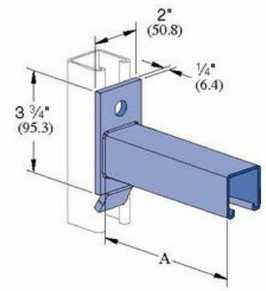
P2233A, P2234A



Part Number	"A" In (mm)	Wt/100 pcs Lbs (kg)	Vertical Channel Part No.	Vertical Channel Gauge	Uniform Design Load Lbs (kg)
P2233A	18 457.2	436 197.8	P1000	12	600 272.2
			P1100	14	450 204.1
			P2000	16	300 136.1
P2234A	24 609.6	536 243.1	P1000	12	450 204.1
			P1100	14	330 149.7
			P2000	16	220 99.8

Safety Factor 2½

P2513A thru P2516A



When installed in inverted position use 60% of loads shown.

Part Number	"A" In (mm)	Wt/100 pcs Lbs (kg)	Vertical Channel Part No.	Vertical Channel Gauge	Uniform Design Load Lbs (kg)
P2513A	6 152.4	161 73.0	P1000	12	1,200 544.3
			P1100	14	800 362.9
			P2000	16	600 272.2
P2514A	12 304.8	261 118.4	P1000	12	600 272.2
			P1100	14	400 181.4
			P2000	16	300 136.1
P2515A	18 457.2	361 163.7	P1000	12	400 181.4
			P1100	14	270 122.5
			P2000	16	200 90.7
P2516A	24 609.6	461 209.1	P1000	12	300 136.1
			P1100	14	200 90.7
			P2000	16	150 68.0

Safety Factor 2½

Note

When used for mechanical supports, load capacities of brackets and fittings should be in compliance with the American Standard Code for Pressure Piping.

UNISTRUT P2232A/P2233A CUT SHEET

P2231A for 12” deep shelves.
Modified to 4.5” height to allow shelf placement without covering bolt connector.

P2232A for 15” deep shelves.
Modified to 4.5” height to allow shelf placement without covering bolt connector.

P2233A for 24” deep shelves.
Modified to 6.5” height to allow shelf placement without covering bolt connector.

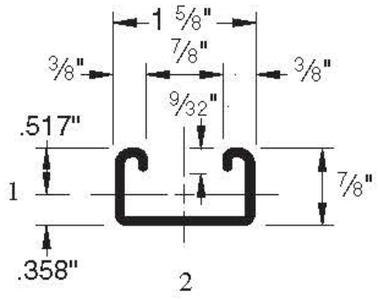
All Unistrut members will be specified with epoxy powder coat white color.

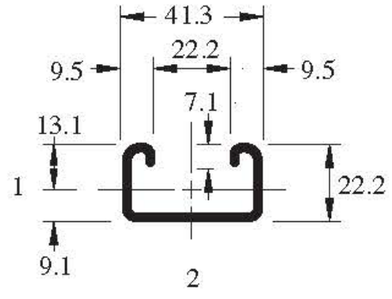
P3300 & P3301 Channels

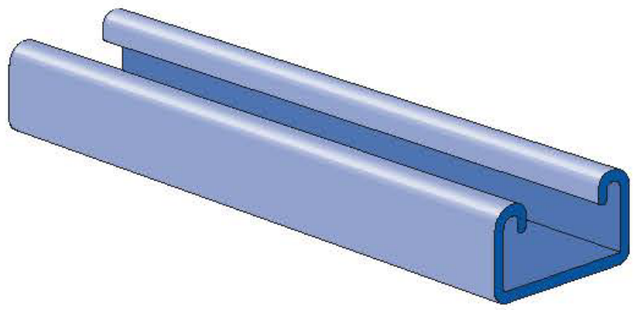
UNISTRUT®

P3300

Wt/100 Ft: 134 Lbs (200 kg/100 m)
Allowable Moment 1,800 In-Lbs (200 N•m)
12 Gauge Nominal Thickness .105" (2.7mm)





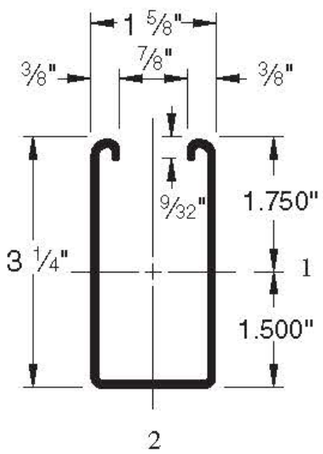


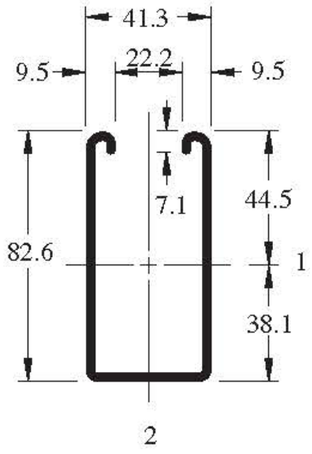
P3300 channel to be used at top horizontal member at sink stations in labs and prep rooms.

P5000 & P5001 Channels

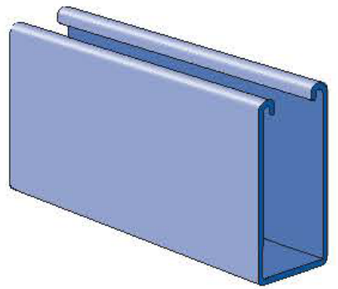
UNISTRUT®

P5000





Wt/100 Ft: 305 Lbs (454 kg/100 m)
Allowable Moment 15,770 In-Lbs (1,780 N•m)
12 Gauge Nominal Thickness .105" (2.7mm)



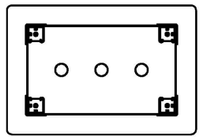
P5000 unistrut to be used at sides of pipe drop at wall sink locations in labs and prep room.
The vertical P5000 runs from the floor up to 108” above the floor. The pair of vertical P5000 channels create an open pipe chase for water pipes and conduit.
Water pipes have exposed shut-off valves visible to view.

CEILING SERVICE MODULE CUT SHEET

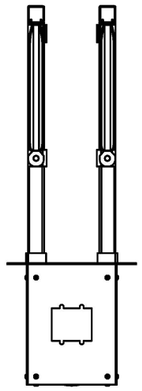
2 1

B B

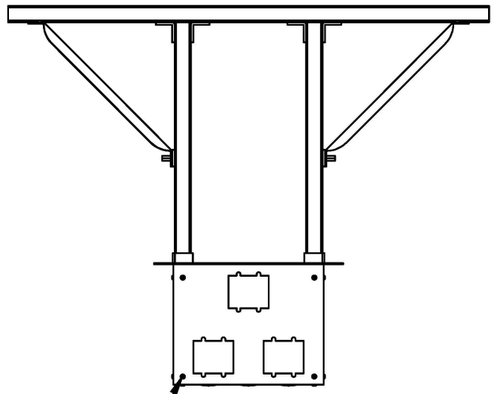
ASSEMBLY
CEILING SERVICE MODULE



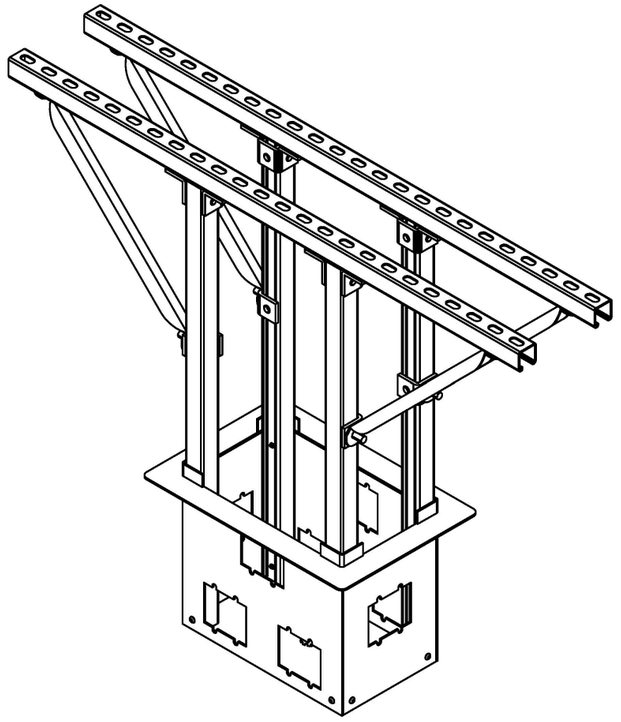
TOP VIEW



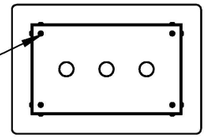
SIDE VIEW



FRONT VIEW



EXPOSED 1/4"-20
ALLEN PAN HEAD SCREWS



BOTTOM VIEW

A A

PROJECT	SCRIPPS / PITZER SCIENCE BUILDING			
CLIENT		KARAN & ASSOCIATES, INC.		
DRAWN BY	P.V.			
COMMENTS:		SIZE A	TITLE CEILING SERVICE MODULE	REV
		SCALE: NTS	DATE: 04/01/20	

2 1

Suspended from ceiling in Prep Rooms at mobile lab bench locations.

Exposed module is 9” wide x 15” length x 24” height.

Manufactured by Karan & Associates
(Mono-Systems no longer makes this product)

METRO SHELF UNIT CUT SHEET

Metro shelf unit to be specied at 36” wide x 72” long x 72” high, with heavy duty lockable casters and adjustable shelves.

METRO

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.

Dry Storage — Chrome or Super Erecta Brite™

All Environments — Metroseal 3™ with ^Microban® Antimicrobial Product Protection

Mobile Stem Caster Cart

Mobile Dolly Truck

Super Adjustable 2™ Advantage . . .

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

Corner Release System

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

METRO

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

EMERSON. Storage Solutions

METRO SUPER ADJUSTABLE 2™ SUPER ERECTA SHELF®
Adjustable Wire Shelving

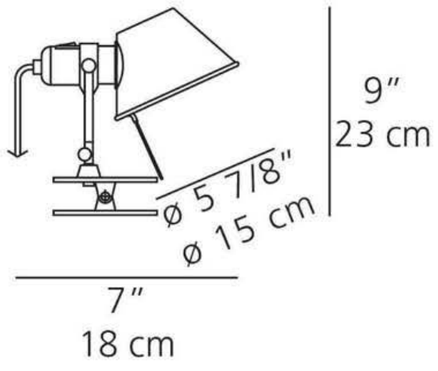
10.01A

TASK LIGHT CUT SHEET

LED Task light at adjustable shelf attaches to shelf edge and is easily moved/removed. Task light plugs into raceway at mobile lab bench.

Task lights at fixed wall cabinets will be hardwire undercabinet mount by Div 26.

Tolomeo clip spot



4' Purifier Logic+ Class II A2 Biological Safety Cabinet with 10" sash opening Catalog #302310001

- **Product Subcategory:** Class II, Type A2 Biological Safety Cabinets
- **Nominal Width:** 4'
- **Protection Type:** Product and Personnel
- **Nominal Sash Opening:** 10" (25 cm)
- **Region:** U.S. and Canada
- **Base Stand:** Required (not included)
- **Conformance:** ADA, CAN/CSA C22.2, ETL, NSF 49, UL
- **Exhaust : No external exhaust**
- **Lighting:** LED
- **Power Cord & Plug:** North America, 115V, 15A
- **Estimated Shipping Weight:** 510.0 lbs
- **Estimated Shipping Weight metric:** 231.3 kg
- **Dimensions:** 55" w x 31.2" d x 61.7" h
- **Dimensions metric:** 140 x 79.2 x 156.7 cm
- **Electrical:** 115V, 60 Hz, 12A