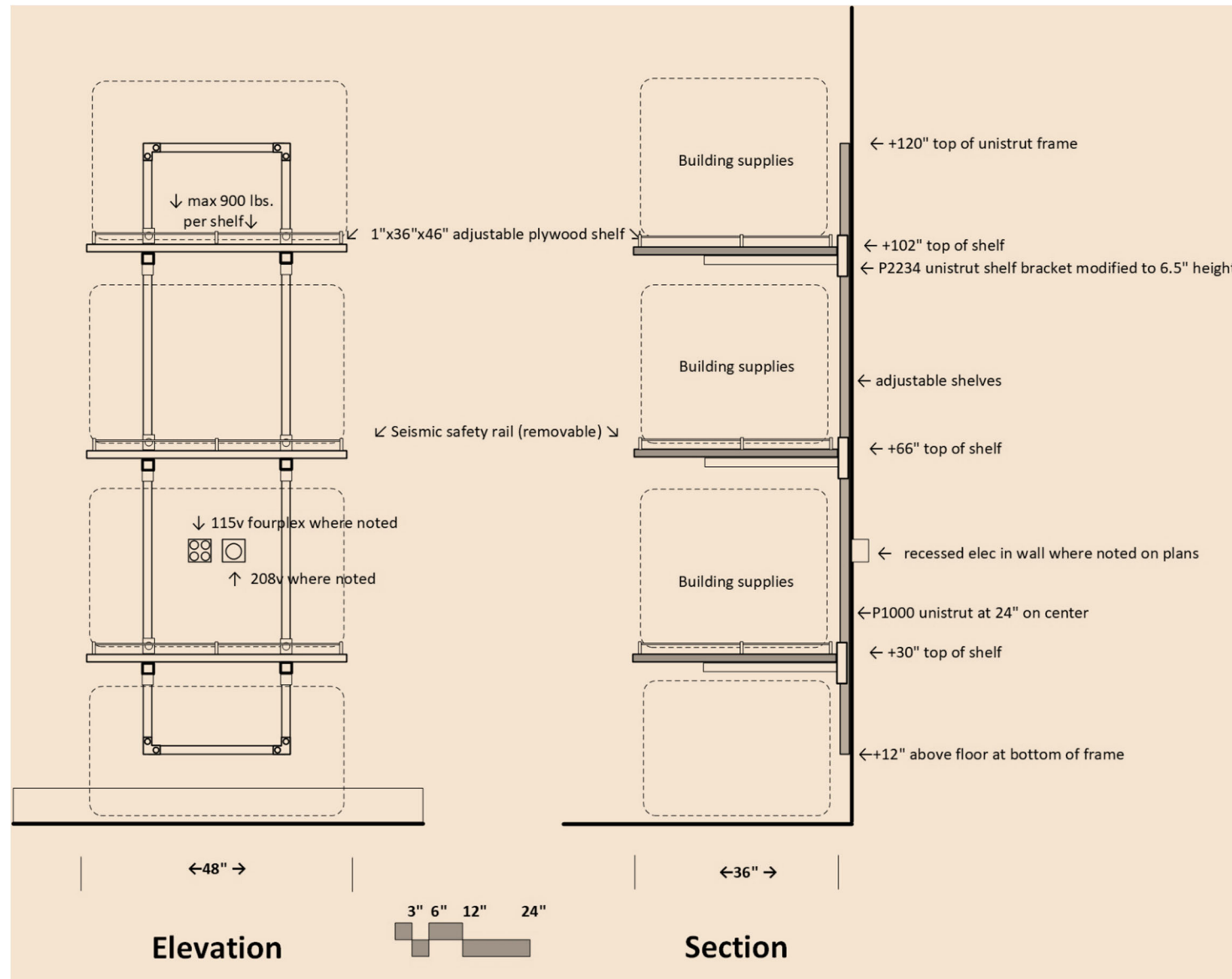


LABORATORY DESIGN
MTSU SCCM New Building
Murfreesboro, Tennessee
2020 March 30



CONTENTS



Executive Summary	3
First Floor Plan	4
Lab Design Concept	5
Symbol Legend	6
Materials Laboratory	7
Soils Laboratory	9
Mixing Laboratory	11
Building Systems Laboratory	14
Student Projects Laboratory	16
Section Details	18
Equipment Cut Sheets	34

EXECUTIVE SUMMARY

This is the sixth draft of the laboratory program/Schematic Design for the new MTSU SCCM building, located in Murfreesboro, Tennessee.

This document defines the basis of design for the five teaching and research laboratories. They are:

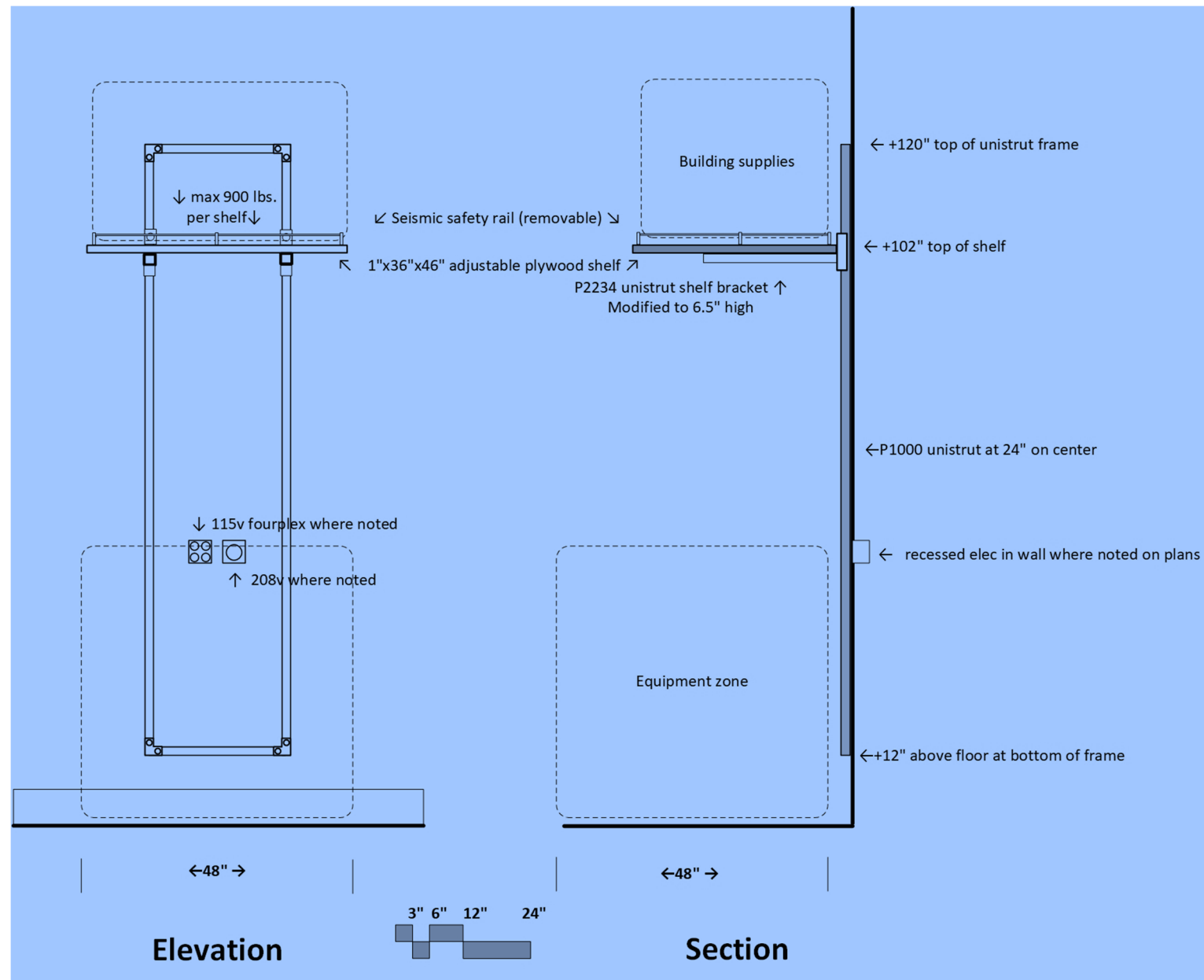
- Materials Laboratory (Previous Lab #4)
- Soils Laboratory (Previous Lab #3)
- Mixing Laboratory (Previous Lab #2)
- Building Systems Laboratory (Previous Lab #6)
- Student Projects Laboratory (Previous Lab #7)

This draft contains a plan view concept illustration for each lab. Also included are section details of each different casework/equipment configuration in each lab. Detailed equipment information is included in the Equipment spreadsheets following each lab room data page. Equipment locations for equipment requiring 208v power are noted. This draft includes faculty comments received in meeting held 2020 Feb 05.

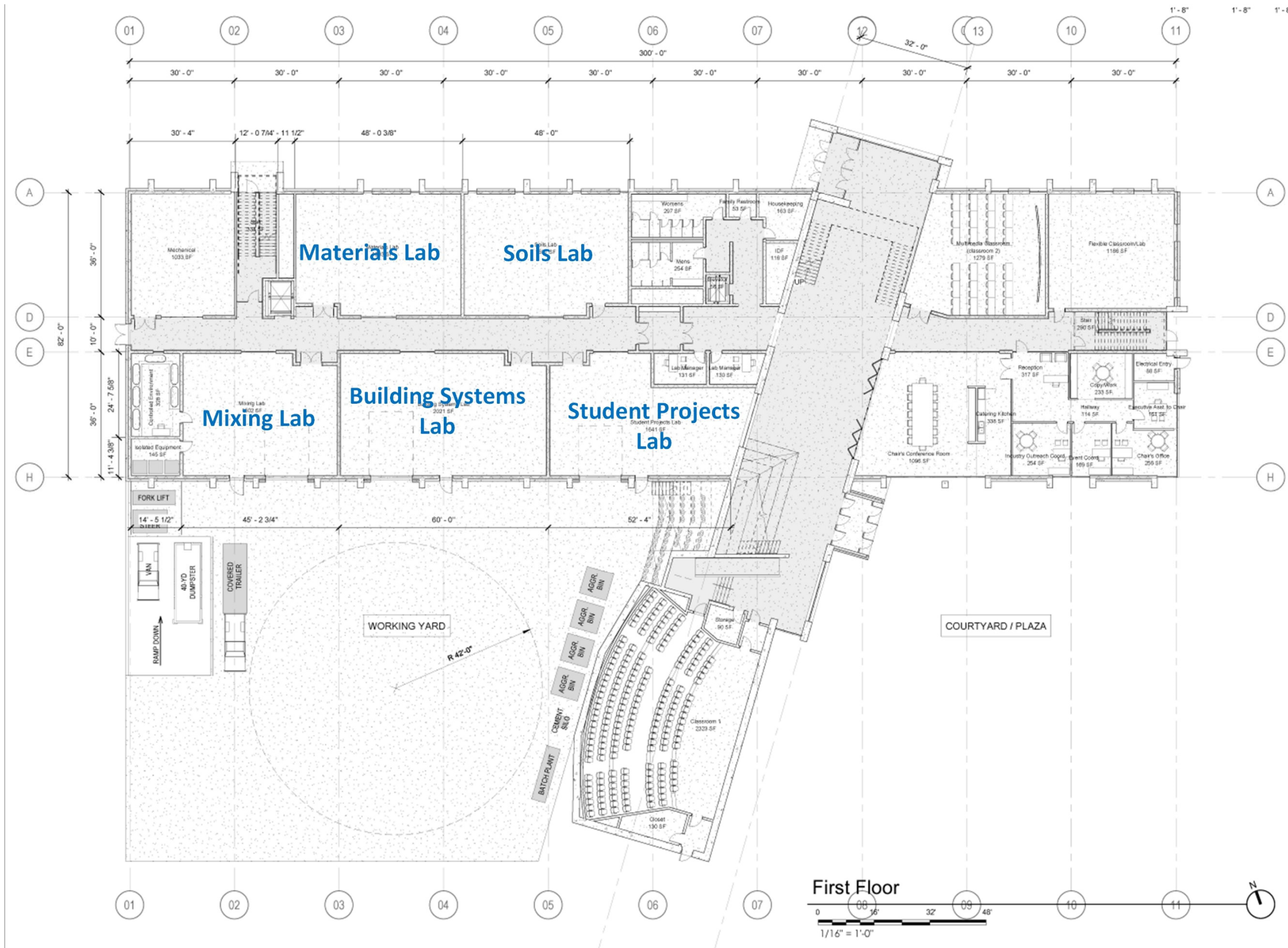
The design approach is based upon the goal to create Protean Lab Design features- Adaptable, Flexible, Versatile. All elements except for sink stations and fume hoods are designed to be moved/adjusted/adapted after occupancy.



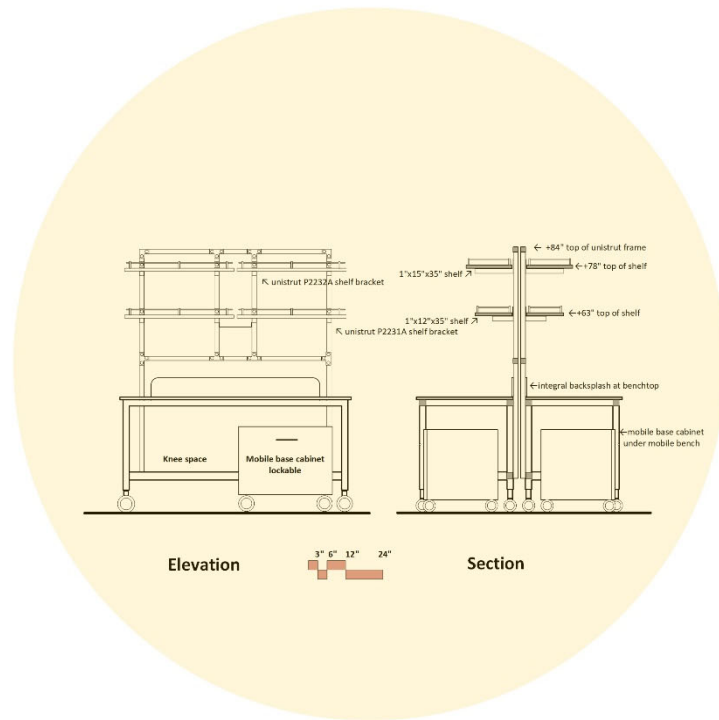
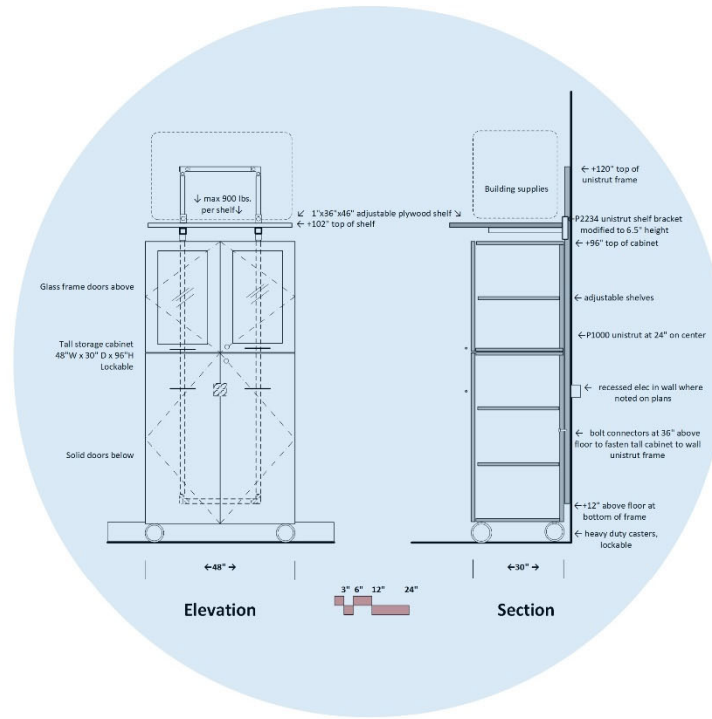
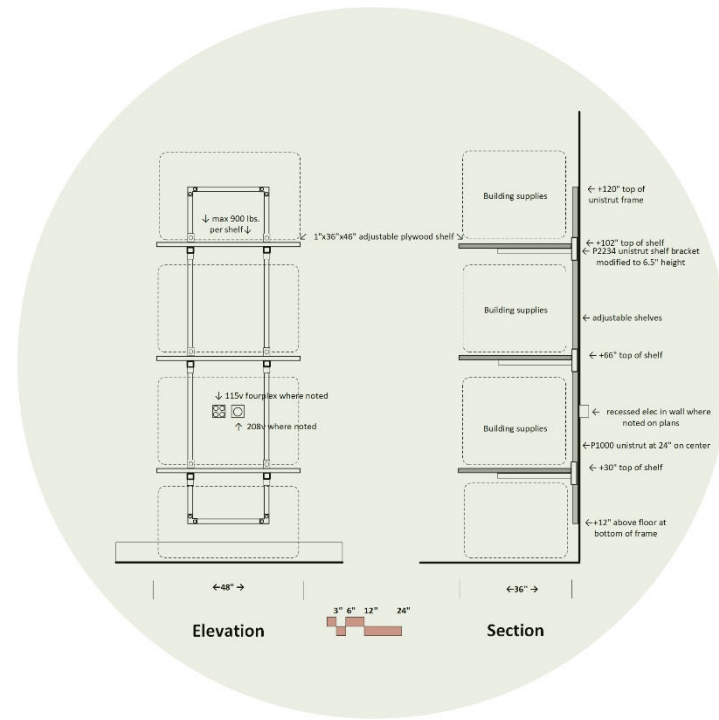
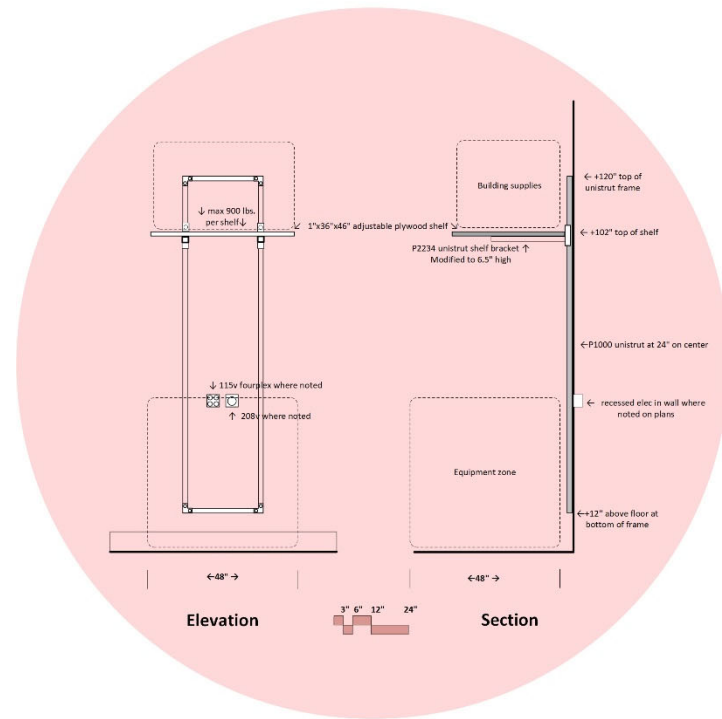
Glen Berry, AIA-NCARB
Laboratory Planning Consultant
glenb@herainc.com



FIRST FLOOR PLAN



LAB DESIGN CONCEPT



The lab design concept is based on Protean Lab Methodology. Protean = adaptable, flexible, versatile.

Protean equipment spaces at walls can be converted to multiple Protean storage shelves by simply moving shelves from other locations and placing in the equipment space.

Storage shelves can be converted to tall cabinets by moving cabinets from other locations.

Storage cabinets can be moved and the vacant space can be used for Protean lab bench units.

Shelves and equipment can be replaced with mobile Protean lab bench units.

Protean lab bench units can be moved, and the vacant space can be converted to Protean equipment space, or Protean shelf space, or Protean cabinet space.

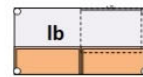
All Protean lab components are interchangeable and moveable/adjustable/relocatable.

The Protean lab components are designed and specified to be non-proprietary. Multiple manufacturers can bid the Protean lab furniture system.

SYMBOL LEGEND



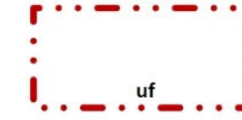
6' chemical fume hood
Variable Air Volume
800 cfm



Mobile lab bench
Integral shelves above
72"L x 36"W x 30-40 adj H
12 gauge welded tube steel
Adjustable height
2 rows shelves above (1 shelf at Soils Lab)
Mobile base cabinet below
Heavy duty lockable casters



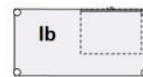
Utility sink
Stainless steel
27"W x 62" L x 36"H
One sink bowl 24"x24"x12"D
Sediment trap



Unistrut frame at 9' above floor where noted
At 11'6" above floor where noted
P1001 horizontal unistrut
P1001 vertical unistrut at 48" on center
115V fouxplex at 48" on center
Power reels at each mobile bench below
500 lb. point load capacity



Fixed lab bench worktop
36" above floor standing height
34" above floor accessible height
30" depth front to back
1" epoxy resin



Mobile instructor lab bench
Mobile student lab bench
no shelves above
72"L x 36"W x 30-40 adj H
12 gauge welded tube steel
Adjustable height
Mobile base cabinet below
Heavy duty lockable casters



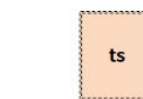
Lab sink with drying rack above
31"W x 18"W x 10"D
Epoxy resin
Sediment trap



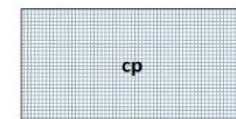
Overhead crane
2000 lb. capacity



Tall cabinet
48"W x 30"D x 96"H
Adjustable shelves
Lockable doors
45 square feet storage per cabinet
Open wall shelf above
Heavy duty casters
Cabinet is attached to unistrut at wall, and can be moved



Tall open shelf storage
Heavy duty Unistrut supports
36"D x 48" W each shelf
Multiple rows as wall space permits
Locate above equipment where noted
3 rows floor to ceiling where noted
Provide removable seismic/safety rail at front and sides



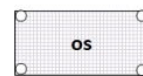
Concrete pit
For mixing concrete samples
60"W x 120"L x 36"D
Drain tube at top of pit
Sediment trap



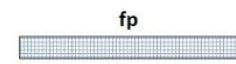
Flat pane monitor
72" diagonal



Wall cabinet
36"W x 15"D x 36"H
Adjustable shelves
Lockable doors
9 square feet storage per cabinet



Mobile heavy duty open shelf unit
72"L x 36"W x 84" H if located at wall
72"L x 36"W x 48" H if located at center lab area
Heavy duty lockable casters
Shelf unit above
Specify solid, corrosion resistant shelves



Floor pit drain
12"W x 120"L x 12"D
Sediment trap



Electrical panel
200 amp 42 circuit



Cylinder restraint
For Owner furnished inert cylinder gases
2 horizontal unistrut at 18" and 36" above floor
Welded chain link restraint



Safety Shower/Emer Eyewash Unit
Eyewash recessed in wall
Floor drain below at floor
Tempered water



120/208v elec outlet
Specific plug type may vary by equipment



Hot/cold water spray faucet at utility sink



115v fourplex elec outlet
Maximum of 3 fourplex per circuit
Dedicated circuit at wall equipment space



Cold water valve at hose bib



Data outlet- provide box and conduit
Number and type of data to be determined



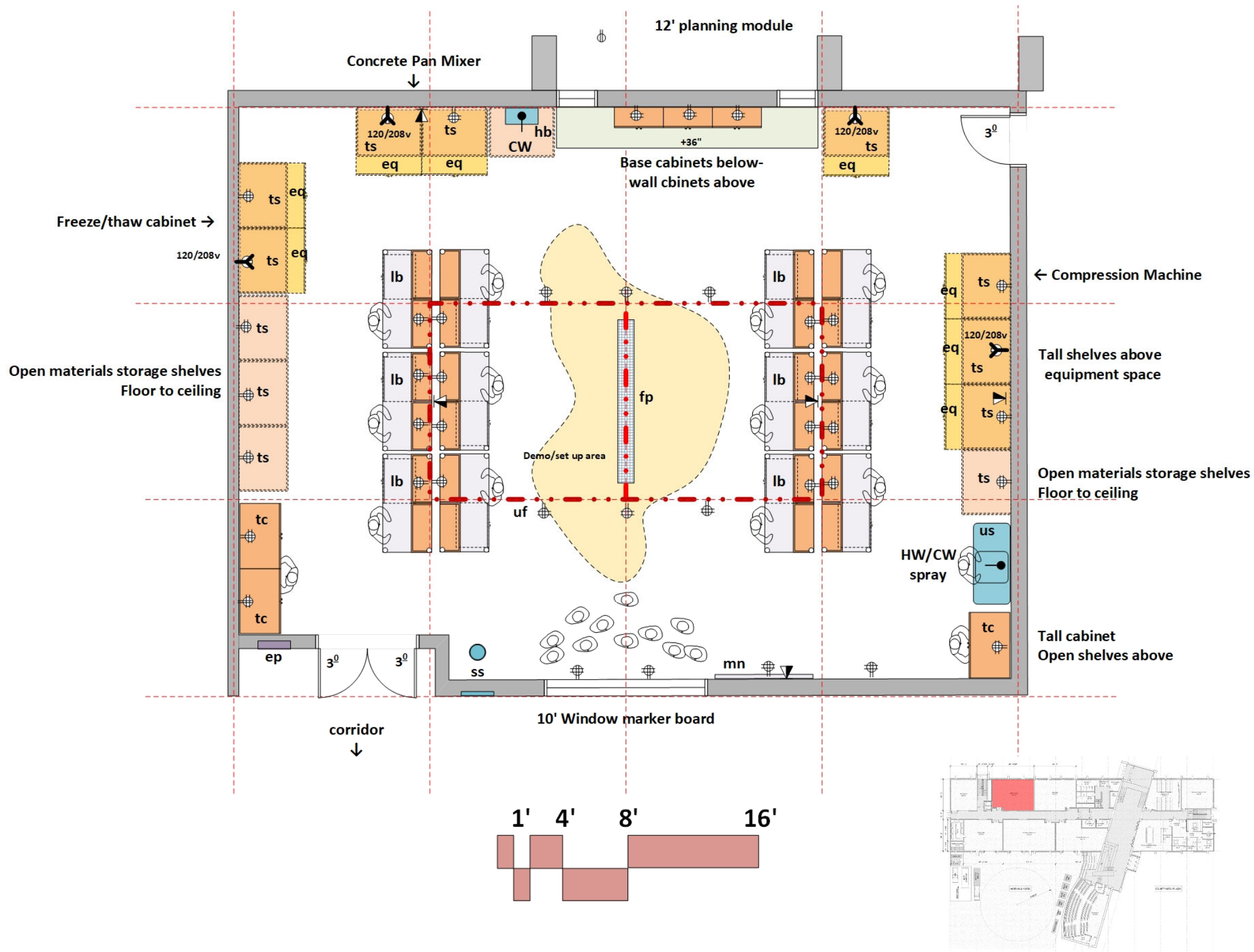
Hose bib



Equipment space- 4' square foot print
Open at floor for Owner furnished equipment
115v and/or 208v power at wall or above on unistrut frame
For Owner furnished equipment, chambers, carts

MATERIALS LABORATORY

Program Requirements



ARCHITECTURAL

Function: Research laboratory for construction materials research/testing
 Centerline dimensions: 36'x48'
 Program minimum clear floor area: 1600 asf, not including walls, columns, recessed doors
 Occupancy: B
 Number of students: 12-18
 Floor: sealed concrete
 Walls: concrete masonry
 Ceiling: open to structure- high bay
 Doors: 3'-0x8'-0" pair with view window
 Sound attenuation: NC 45 or less- sound attenuation at walls
 Security: digital access

STRUCTURAL

Slab on grade

MECHANICAL

Temperature: 68-72 deg F +/- 2 deg F
 Humidity: Ambient
 Dust Collection system
 Equipment heat gain: 25 btuh/sf

PLUMBING

Hot/Cold water at sink
 Cold water at hose bib
 Domestic tepid water at safety shower with floor drain

ELECTRICAL

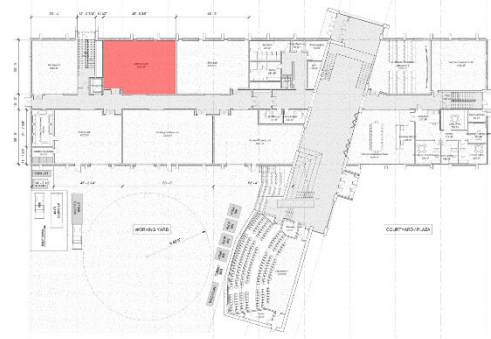
115v20a1ph outlets at walls and unistrut
 208v power at equipment space where noted
 Power reels at unistrut
 Hardwire and wireless data (WAP)
 Lighting: direct/indirect LED at 500 LUX.

CONTRACTOR FURNISHED EQUIPMENT

- Casework
- Mobile lab bench work stations
- Utility sink
- Equipment space shelving
- Unistrut frame at ceiling
- Open shelf units
- Window Marker board
- Monitor
- Safety shower/eyewash

MTSU FURNISHED EQUIPMENT

- Construction equipment, tools
- Benchtop equipment
- ~43 linear feet equipment space required per equipment spreadsheet
- ~50 linear feet equipment space provided in design
- ~400 square feet shelf storage space provide at tall cabinets and equipment spaces



MATERIALS LABORATORY

Equipment Schedule

Identification				Tracking and Location					Dimensions / Mounting					Electrical/Communications							House Services				Local Services		Environmental Control		Remarks				
Equip. Tag	Equipment Description	Manufacturer	Model No.	Furnish & Install	Existing	New	Existing Building	Room	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Mounting Location	Number of Outlets	Dedicated Circuits	Hard Wire / Plug	Volt	Emergency	UPS	Disconnect Box	Data	Alarm	Cold Water	Hot Water	Drain	Comp. Air	Other Gases	Exhaust Direct		Exhaust Indirect			
Material and Testing Lab				Lab 4																													
EQ4-01	Digital Scales	A&D Weighing	Myers FG-150KBM 300 lbs digital scale	OFOI		1	VET	Lab 2,3 & 4	12	15	4	10	F	1		plug	115																
EQ4-02	Windsor Probe System	James Instruments	W/P-1000 Windsor Probe Digital Readout	OFOI		1	N/A	Lab 4	12	12		5	UC	N/A		N/A	115																
EQ4-03	Perma2 Permeability Tester	Humboldt	HG-9036 Full Package	OFOI		1		Lab 4	12	15			B	1		plug	115					1											Computer dependent
EQ4-04	Surf Resistivity Meter	Gatec Scientific/Humboldt	900037 SURF Package	OFOI		1	N/A	Lab 4		84			UC	1		plug	110					1											Computer dependent
EQ4-05	ASR Detect Kit	Humboldt	AS-3000 ASR Detect Kit / H-2878	OFOI	1			Lab 4	12	12			UC	N/A		N/A																	Shelf storage
EQ4-06	Freeze Thaw Cabinet	Humboldt	H-3185SSD F/T Cabinet with digital readout	OFCI	1			Lab 4	3.5	13	36		F		1	HW	220																volt with disconnect / biggest item
EQ4-07	Glassware & PlasticWare		Model GW and WB	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC/B	0		N/A																	Cabinetry Storage / Wall Mounted Shelving
EQ4-08	Pans and Containers		Model SC and HM	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC	0		N/A																	Cabinetry Storage / Wall Mounted Shelving
EQ4-09	Safety Equipment		Lab Coats, Goggles, Tongs, Gloves, signs	OFOI	1	1	VET	All labs	36	36	60		UC	0		N/A																	Need a safety cabinet in each lab
EQ4-10	Heavy Duty Lumber Storage Racks	Adumly	6 Shelf Lumber Storage Rack	OFCI		1	N/A	Lab 4	54	120	120		W/F	0		N/A																	Home Depot style lumber shelving / ceiling to floor / forklift accessible
EQ4-11	Plywood Rack	Global Industrial	Adjustable Floor Sheet Rack, Steel w/Plywood Deck, 48"L x 24"W x	OFOI		1	N/A	Lab 2,3,4,6,7	24	48	60		F	0		N/A																	
EQ4-12	Sealed Humidity Controlled Environment, 6hp -35°C	Espec	EWPU248-6CAL	OFOI	1	2	VET	Lab 4	36	42	78		F	1		Plug	110																Our 2 units are completely worn out. Very dependent on these chambers for research Needs to be near strain gauge testing station
EQ4-13	Batching/Dispatching Control Software	Command Alkon	Command Alkon Series Equipment	OFCI		1	N/A	Lab 2, 4, 8	72	72			W	1		Plug	110/220					1											Computer dependent
EQ4-14	Concrete Pan Mixer	IMER	Mortarman 750 Electric Mixer	OFOI		1	N/A	Lab 2, 4, 8	90	62	63		F	1		HW	220						1		1								Vertical shaft mixer, movable w/ forklift, or on wheels
EQ4-15	Petrography Equipment	Thinsection Equipment	Bench lap, rotary saw, set of clamps	OFOI		1	N/A	Lab 4 or lab 8	60	60			B	1		Plug	110																Computer dependent needs it's own work area free from dust
EQ4-16	Cylinder End Grinder	Forney	LA-0165	OFOI		1	N/A	Laydown	26	35	54		F	1		Plug	110						1		1								Item Cost: \$16,350
EQ4-17	Vacuum pump station		cart includes vacuum & oil	OFOI	1		VET	Lab 4	36	19	69		F	1		Plug	110																Misc items: vaccum, steel pot, pump oil
EQ4-18	CoreLok device	InstroTek	CoreLok	OFOI	1		VET	Lab 4	24	19			B	1		Plug	110																Counter top storage
EQ4-19	Small kiln	Paragon	HT-10D	OFOI	1		VET	Lab 4	15	24			B	1		Plug	110																Counter top storage
EQ4-20	Compression Machine	Instron/Satec	?	OFCI	1		VET	Lab 4	39	96	68		F		1	HW	220																Computer Dependent with wall mounted TV
EQ4-21	Compression Machine	Forney	F-325	OFCI	1		VET	Lab 4	20	36	58		F	1		Plug	110																
EQ4-22	Adiacal	Grace	Adiacal	OFOI	1		VET	Lab 4	24	24			UC	0		Plug	110																Stored on shelf / Operates in conjunction with a computer
EQ4-23	RCPT station			OFOI	1		VET	Lab 4	28	57	42		B	1		Plug	110																Computer Dependent
EQ4-24	Strain Gage station			OFOI	1		VET	Lab 4	28	57	42		B	1		Plug	110																Computer Dependent / Near humidity chambers
EQ4-25	10,000 lb load frame	Myers	Catalog Part No. 7691	OFCI	1		VET	Lab 4	28	18	60		B	1		Plug	110																Counter top storage
EQ4-26	Linear traverse microscope	Humboldt	H-2964A	OFOI	1		VET	Lab 4	20	30	20		B	1		Plug	110																Computer Dependent / Free from dust

SOILS LABORATORY

Program Requirements

ARCHITECTURAL

Function: Teaching laboratory for chemical analysis of construction materials
 Centerline dimensions: 36'x48'
 Program minimum clear floor area: 1600 asf, not including walls, columns, recessed doors
 Occupancy: B
 Number of students: 24
 Floor: sealed concrete
 Walls: concrete masonry
 Ceiling: open to structure
 Doors: 3'-0"x8'-0" pair with view window
 Sound attenuation: NC 45 or less- sound attenuation at walls
 Security: digital access

STRUCTURAL

Slab on grade

MECHANICAL

Temperature: 68-72 deg F +/- 2 deg F
 100% exhaust- no recirculation of exhaust air
 8 air changes per hour occupied
 4 air changes per hour unoccupied
 Humidity: Ambient
 Equipment heat gain: 25 btuh/sf

PLUMBING

Hot/Cold water at sinks
 Domestic tepid water at safety shower with floor drain

ELECTRICAL

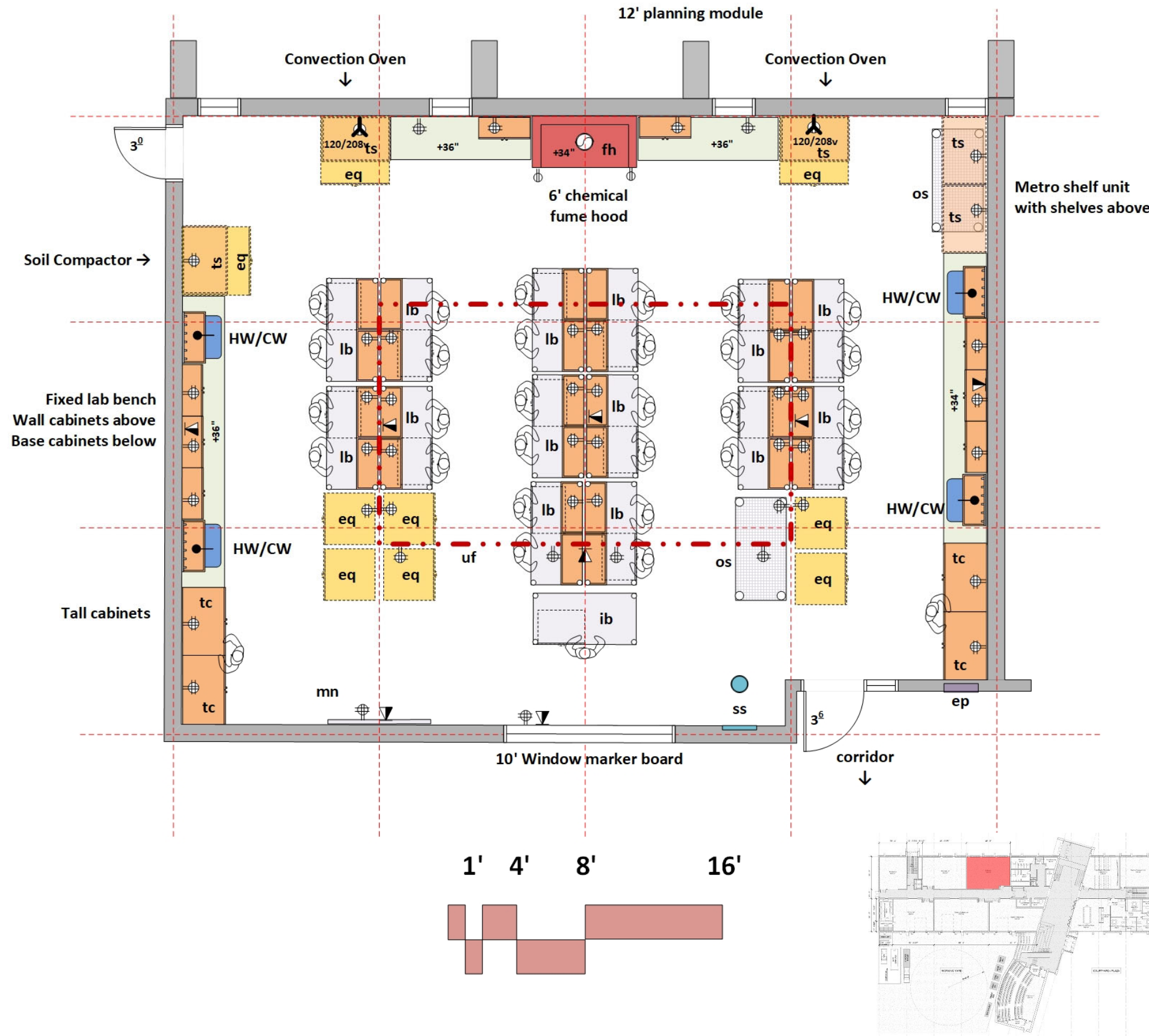
115v20a1ph outlets at walls
 208v power at equipment spaces
 Hardwire and wireless data (WAP)
 Lighting: direct/indirect LED at 500 LUX.

CONTRACTOR FURNISHED EQUIPMENT

Casework, sinks
 Equipment space shelving
 Unistrut frame at ceiling
 Open shelf units
 Chemical fume hood
 Marker board
 Monitor
 Safety shower/eyewash

MTSU FURNISHED EQUIPMENT

Analysis equipment
 Benchttop equipment
 Noisy, dirty, vibration equipment in Equipment Room
 ~20 linear feet equipment space required per equipment spreadsheet
 ~67 linear feet equipment space provided in design
 626 square feet shelf storage space provide at tall cabinets, base cabinets, wall cabinets, metro shelf units, and equipment space shelves



SOILS LABORATORY

Equipment Schedule

Equip. Tag	Identification			Tracking and Location				Dimensions / Mounting				Electrical/Communications							House Services			Local Services		Environmental Control		Remarks				
	Equipment Description	Manufacturer	Model No.	Furnish & Install	Existing	New	Existing Building Location	Room	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Mounting Location	Number of Outlets	Dedicated Circuits	Hard Wire / Plug	Volt	Emergency	UPS	Disconnect Box	Data	Alarm	Cold Water	Process Water	Drain		Comp. Air	Other Gases	Exhaust Direct	Exhaust Indirect
Soils and Concrete Lab																														
EQ3-01	Digital Scales (6)	A&D Weighing	Myers FG-150KBM 300 lbs digital scale	OFOI		1	VET	Lab 2,3 & 4	12	15	4	10	F		plug	115											N/A			
EQ3-02	Cement Autoclave	Humboldt	HM-252 Cement Autoclave	OFOI		1	N/A	Lab 3	48 Dia.		36		B	1	plug	110											N/A			
EQ3-03	Vicatronic Automatic Vicat Machine	Humboldt	H-3052 Vicat Machine	OFOI		1	N/A	Lab 3					B	1	plug	110											N/A			
EQ3-04	Cement Bleed Rate Apparatus	Humboldt	H-3600 Bleeding Rate Apparatus	OFOI		1	N/A	Lab 3	12	12	24		UC	1	N/A	110											N/A			Tall / Benchtap / Cabinetry Storage
EQ3-05	ToniPerm Electronic Air Permeability Tester	Toni Technik	6565 ToniPERM Tester	OFOI		1	N/A	Lab 3	24	24				1	plug	110						1					N/A			Computer dependent / Bench Top Usage / Cabinetry Storage
EQ3-06	Digital Cement Calorimeter	Humboldt	H-3161 Digital Cement Calorimeter	OFOI		1	N/A	Lab 3	18	18			B	1	plug	110											N/A			Benchtap / Cabinetry Storage
EQ3-07	Convection Oven	Humboldt	BO-343A	OFCI	2	1		Lab 2,3,7	42	42	48		B	1	2 HW	220											N/A			volt with disconnect / 2 in stock, need 3rd / price reflects cost of 1 oven. Each on its own stand
EQ3-08	Electrical Density Gauge	Humboldt	H-4114SD.3F	OFOI		1	N/A	Lab 3	18	36			UC	1	plug	110											N/A			Large Toolbox style case
EQ3-09	Dial Static Cone Penetrometer	Humboldt	H-4210A	OFOI		1	N/A	Lab 3					B	1	N/A												N/A			Hand Held T-Bar style probe / Long and narrow
EQ3-10	Field CBR Test	Humboldt	H-4152F	OFOI		1	N/A	Lab 3	up to 8' span				B	1	plug	110											N/A			Large / Heavy / 8' span when assembled
EQ3-11	Automatic Soil Compactor	Humboldt	H-4169	OFCI		1	N/A	Lab 3	36	36	66		F		1 plug	110											N/A			Loud maybe needs sound closet / heavy / floor mount
EQ3-12	Triaxial Test Chamber	Humboldt	3400	OFOI		1	N/A	Lab 3	24	24			B	1	plug	110											N/A			Benchtap usage / cabinetry storage / Already have the 10K lb load frame
EQ3-13	Glassware & PlasticWare		Model GW and WB	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC/B	0	N/A												N/A			Cabinetry Storage / Wall Mounted Shelving
EQ3-14	Pans and Containers		Model SC and HM	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC	0	N/A												N/A			Cabinetry Storage / Wall Mounted Shelving
EQ3-15	Safety Equipment		Lab Coats, Goggles, Tongs, Gloves, signs	OFOI	1	1	VET	All labs	36	36	60		UC	0	N/A												N/A			Need a safety cabinet in each lab
EQ3-16	Plywood Rack	Global Industrial	Adjustable Floor Sheet Rack, Steel w/ Plywood Deck	OFOI		1	N/A	Lab 2,3,4,6,7	24	48	60		F	0	N/A												N/A			
EQ3-17	Large Tool Box	Ridgid	Jobox Style	OFOI	2		VET	Lab 2&3	48	24	28		F	0	N/A												N/A			Open top steel
EQ3-18	Acme Penetrometer	Humboldt	H-4133	OFOI	1		VET	Lab 3	12	12	33		B	0	N/A	110											N/A			Counter space storage / bench top usage / very tall
EQ3-19	Flow table	Humboldt	H-3620	OFOI	1		VET	Lab 2 & 3	10 diam				UC	0	N/A												N/A			Cabinet Storage
EQ3-20	Bench top scale	Shinko Denshi	AJ-6200NT	OFOI	1		VET	Lab 2 & 3	12	12			B0	1	Plug	110											N/A			Cabinetry
EQ3-21	Hot Plate	Humboldt	H-4949	OFOI	4		VET	Lab 2 & 3	12	12			UC	1	Plug	110											N/A			Cabinet Storage
Asphalt Equipment																														
EQ-A1	Marshall Hammer								36	36	66		F																	
EQ-A2	Marshall Molds (6)								5	5	7		B																	
EQ-A3	Marshall Mold Sample Ejector								10	10	24		B																	
EQ-A4	water bath								18	23	14		B																	
EQ-A5	Pine Press								27	15	32		F																	
EQ-A6	Breaking Head/Compression Ring								6	6	3		B																	
ES-A7	Breaking Head/Compression Ring								6	6	3		B																	
EQ-A8	Autorice								12	9	4		B																	
EQ-A9	Pumpsaver								11	8	8		B																	
EQ-A10	Digital Manometer																													
EQ-A11	NCAT Ignition Oven								26	22	37		F																	
EQ-A12	NCAT oven start up kit																													
EQ-A13	Hobart Mixer								22	22	34		F																	

MIXING LABORATORY

Program Requirements

ARCHITECTURAL

Function: Teaching laboratory for concrete design, mixing, and testing
 Centerline dimensions: 36'x60'
 Program minimum clear floor area: 2000 asf, not including walls, columns, recessed doors
 Occupancy: B
 Number of students: 18-24
 Floor: sealed concrete
 Walls: concrete masonry
 Ceiling: open to structure- high bay
 Doors: 3'-0x8'-0" pair with view window
 12' roll up door at exterior
 Sound attenuation: NC 45 or less- sound attenuation at walls
 Security: digital access
 Adjacency: Student Projects Laboratory

STRUCTURAL

Slab on grade- capacity for fork lift operation

MECHANICAL

Temperature: 68-72 deg F +/- 2 deg F
 Humidity: Ambient
 Dust Collection system
 Equipment heat gain: 25 btuh/sf

PLUMBING

Hot/Cold water at sink
 Cold water at hose bibs
 Domestic tepid water at safety shower with floor drain

ELECTRICAL

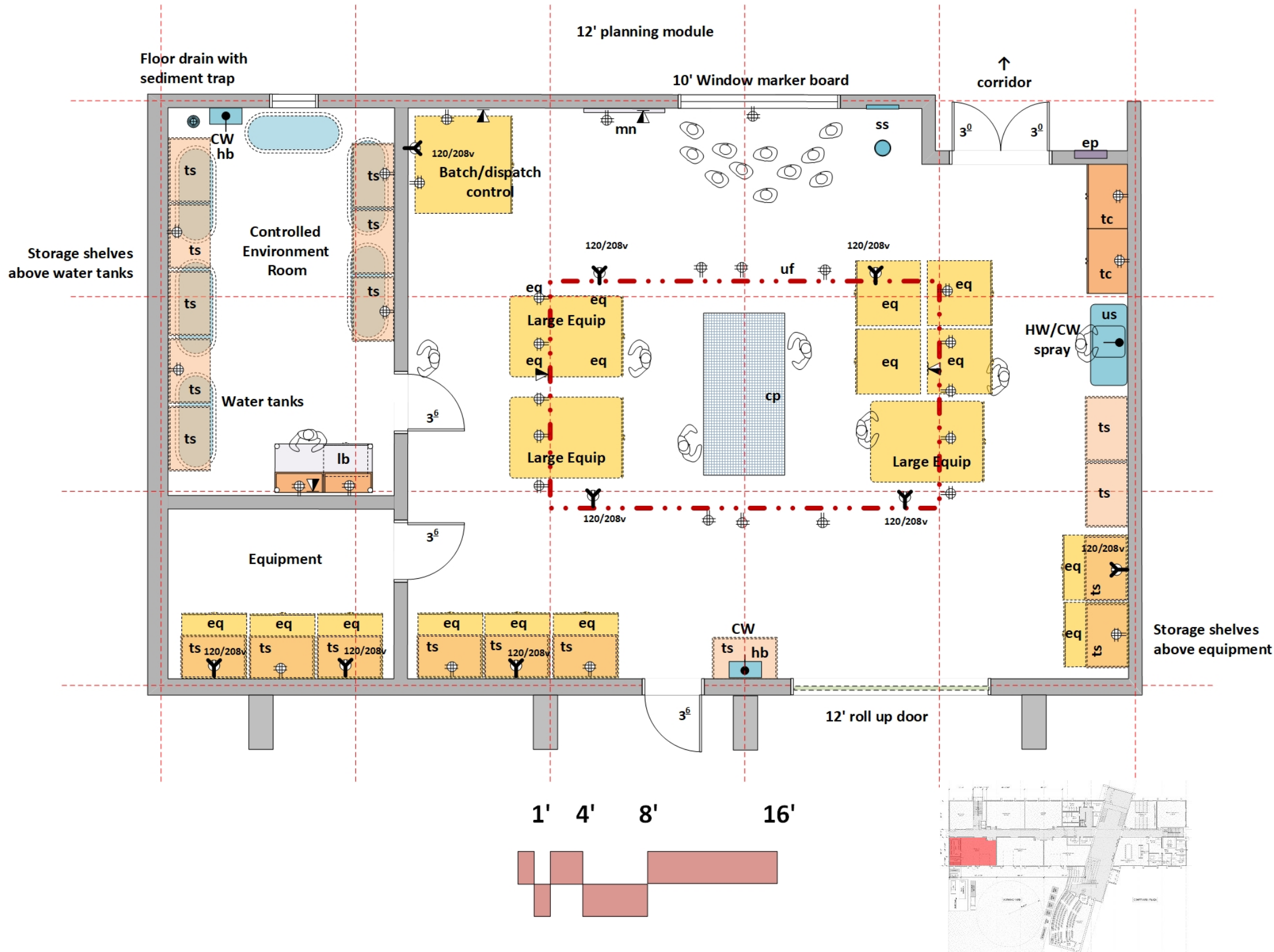
115v20a1ph outlets at walls
 208v power at equipment spaces
 Hardwire and wireless data (WAP)
 Lighting: direct/indirect LED at 500 LUX.

CONTRACTOR FURNISHED EQUIPMENT

Caswork
 Utility sink
 Unistrut frame at ceiling
 Open shelf units
 Tall shelf units at walls
 Window marker board
 Monitor
 Safety shower/eyewash

MTSU FURNISHED EQUIPMENT

Construction equipment, tools
 Concrete molds; Equipment bins
 Wheelbarrows; Concrete mixers
 ~60 linear feet equipment space required per equipment spreadsheet
 ~76 linear feet equipment space provided in design
 448 square feet shelf storage space provide at tall cabinets and equipment spaces



MIXING LABORATORY

Equipment Schedule 1/2

Identification				Tracking and Location				Dimensions / Mounting				Electrical/ Communications							House Services				Local Services	Environmental Control		Remarks										
Equip. Tag	Equipment Description	Manufacturer	Model No.	Furnish & Install	Existing	New	Existing Building Location	Room	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Mounting Location	Number of Outlets	Dedicated Circuits	Hard Wire / Plug	Volt	Emergency	UPS	Disconnect Box	Data	Alarm	Cold Water	Process Water	Drain		Comp. Air	Other Gases	Exhaust Direct	Exhaust Indirect						
Mixing Lab				Lab 2																																
EQ2-01	Digital Scales (6)	A&D Weighing	Myers FG-150KBM 300 lbs digital scale	OFOI		1	VET	Lab 2,3&4	12	15	4	10	F	1		plug	115																			
EQ2-02	Not Used																																			
EQ2-03	soil scale	Precisia	XB 120A	OFOI	1		VET	Lab 2, 3	12	12			B	1		Plug	110																		Cabinetry	
EQ2-04	soil sample ejector	Humboldt	H-1353A	OFOI	1		VET	Lab 2, 3	10	10	24		B	0		N/A																			Counter top storage	
EQ2-05	Vebe Test Machine	Vibco		OFCI	1		VET	Lab 2	14	16			F	1		Plug	110																		Bolted to floor / very loud / very dusty	
EQ2-06	Specific Gravity station	Gilson	HP-60K	OFCI	1		VET	Lab 2	25	32	65		F	1		Plug	110						1		1										Needs water and drainage	
EQ2-07	9 ft3 mixer	MultiQuip	9 ft³	OFOI	1		VET	Lab 2	82	50	65		F	1		Plug	110 or 220						1	1	1										Needs water and drainage pit / loud / very dusty	
EQ2-08	Hobart Mixer	Hobart		OFOI	1		VET	Lab 2	30	24			F	1		Plug	110																		On a stand	
EQ2-09	lap grinder	Covington Engineering	16 inch lap	OFOI	1		VET	Lab 2	21	22	47		F	1		Plug	110						1	1	1										Needs water and drainage / very dirty	
EQ2-10	cylinder tank	TSC-supplier	galvanized cattle trough style	OFOI	1		VET	Lab 2	24	70			F	1		Plug	110						1	1											Close to water and drainage	
EQ2-11	drill press	Porter Cable	PCB660DP	OFCI	1		VET	Lab 2	26	16	66		F	1		Plug	110																		Bolted to floor	
EQ2-12	trailer		Covered horse trailer	OFOI	1		Outside	Lab 2	84	240			F	0		N/A																			storage for lumber and concrete finishing tools	
EQ2-13	Coneco Batch Plant	Coneco		OFCI	1		Outside	Lab 2	48	192	216		F			?	220 / 110					1		1	1	1									Not currently functioning/requires forklift to move	
EQ2-15	Convection Oven	Humboldt	BO-343A	OFCI	2	1		Lab 2,3,7	42	42	48		B	1	2	HW	220					1													volt with disconnect / 2 in stock, need 3rd / price reflects cost of 1 oven. Each on its own stand	
EQ2-16	Micro Deval Apparatus	Humboldt	H-3875	OFOI		1	N/A	Lab 2	24	24			F	1		plug	110																		Heavy / Floor mount / Very Loud	
EQ2-17	LA Abrasion Machine	Humboldt	42-5305/02 LA Abrasion Machine	OFCI	1	1	VET	Lab 2	24	36			F	1		plug	110																		Heavy / Floor Mount / Very Loud / We have one, but the counter no longer works & can't be fixed.	
EQ2-18	Large Aggregate Washer	Karol Warner	9075 Large Aggregate Washer	OFOI		1	N/A	Lab 2	24	24			F	1		plug	110						1	1	1										Water / washout required	
EQ2-19	Aggregate Mini Crusher	Gilson	LC-8	OFOI		1	N/A	Lab 2	36	36			F	1		plug	220																		Free Standing & fed by a 2'x2' belt / Noisy / Dusty	
EQ2-20	Vibrating Table	Humboldt	H-3756.2F	OFOI	1	1	VET	Lab 2	24	24			B	1		plug	110																		Ours is worn & needs to be replaced / on a cart for mobility	
EQ2-21	Asphalt Bucket Mixer	M-60	M-60	OFOI		1	N/A	Lab 2	24	24			F	1		plug	110																		5 gallon style mixer / on a floor stand	
EQ2-22	Benkleman Beam	Humboldt	HM-574	OFOI		1	N/A	Lab 2	12	78			UC	0		N/A																			Long & Narrow/ Take to field type apparatus/ Closet storage	
EQ2-23	Glassware & PlasticWare		Model GW and WB	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC/B	0		N/A																			Cabinetry Storage / Wall Mounted Shelving	
EQ2-24	Pans and Containers		Model SC and HM	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC	0		N/A																			Cabinetry Storage / Wall Mounted Shelving	
EQ2-25	Safety Equipment		Lab Coats, Goggles, Tongs, Gloves, signs	OFOI	1	1	VET	All labs	36	36	60		UC	0		N/A																			Need a safety cabinet in each lab	
EQ2-26	Plywood Rack	Global Industrial	Adjustable Floor Sheet Rack, Steel w/Plywood Deck	OFOI		1	N/A	Lab 2,3,4,6,7	24	48	60		F	0		N/A																				
EQ2-27	Skid Steer	Caterpillar	Caterpillar 277D Skid Steel Loader	CFCI	1	1	N/A	Laydown					F	0		N/A																			Covered Area at laydown yard possibly	
EQ2-28	Forklift with Dump Bucket	Northern Tool Toyota	Toyota 2 stage 4000 lbs capacity forklift	OFOI		1		Laydown					F																						Accessible to labs 2,3,4,6,7,&8. Covered area of laydown yard	
EQ2-29	Wesco Pallet Jack	Wesco Drum Truck	Model #272744 Northern Tool	OFOI		1	N/A	Lab 2	48	27			F	0		N/A																			Pallet Jack	
EQ2-30	Not Used																																			

MIXING LABORATORY

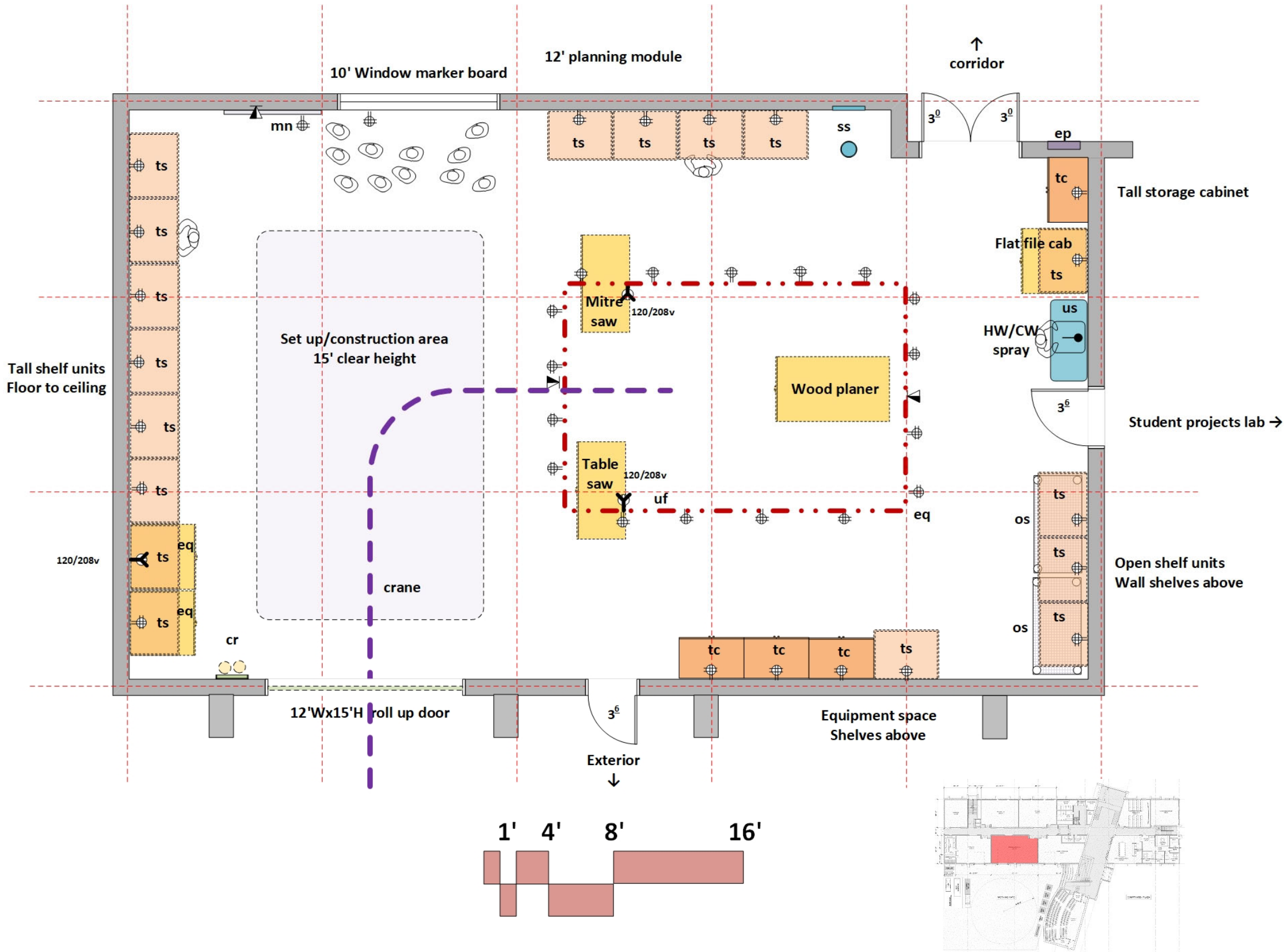
Equipment Schedule 2/2

Identification				Tracking and Location					Dimensions / Mounting					Electrical/ Communications							House Services				Local Services		Environmental Control		Remarks			
Equip. Tag	Equipment Description	Manufacturer	Model No.	Furnish & Install	Existing	New	Existing Building Location	Room	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Mounting Location	Number of Outlets	Dedicated Circuits	Hard Wire / Plug	Volt	Emergency	UPS	Disconnect Box	Data	Alarm	Cold Water	Process Water	Drain	Comp. Air	Other Gases	Exhaust Direct		Exhaust Indirect		
EQ2-31	Aggregate Storage Bins	Stephens Mfg.	custom built	OFCI		1	N/A	laydown	96	96			F	0		N/A																Drive in & out w/ skid loader / dump truck accessible
EQ2-32	Small cement silo		Material silo Process Tower mixer loader mixing cement hopper	OFCI		1	N/A	Lab 2/laydown	40	40	138		F	2		?	110/220									1		N/A				
EQ2-33	Drum Caddy	Wesco	Model #24003	OFOI		1	N/A	Lab 2	24" diam				F	0		N/A																Dolly style caddy movable from lab to lab
EQ2-34	Cylinder End Grinder	Forney	LA-0165	OFOI		1	N/A	Laydown	26	35	54		F	1		Plug	110						1		1							Item Cost: \$16,350
EQ2-35	Large Tool Box	Ridgid	Jobox style	OFOI	2		VET	Lab 2&3	48	24	28		F	0		N/A																Open top steel
EQ2-36	flow table	Humboldt	H-3620	OFOI	1		VET	Lab 2 & 3	10 diam				UC	0		N/A																Cabinet Storage
EQ2-37	bench top scale	Shinko Denshi	AJ-6200NT	OFOI	1		VET	Lab 2 & 3	12	12			F	1		Plug	110															Cabinetry
EQ2-38	hot plate	Humboldt	H-4949	OFOI	4		VET	Lab 2 & 3	12	12			UC	1		Plug	110															Cabinet Storage
EQ2-39	soil pan	Humboldt	Multiple models and sizes	OFOI	20		VET	Lab 2	25	25			UC	0		N/A																Often stored on the floor or in a cabinet
EQ2-40	coarse agg sieve shaker	Gilson	TS-1	OFCI	1		VET	Lab 2	30	24	34		F	1		Plug	110															Bolted to floor / very loud / very dusty
EQ2-41	fine agg sieve shaker	Humboldt	HA-4325	OFCI	4		VET	Lab 2	14	12	43		F	1		Plug	110															Bolted to floor / very loud / very dusty
EQ2-42	wet saw	Core Cut	?	OFCI	1		VET	Lab 2	24	60	66		F	2		Plug	110 / 220						1	1								Water pan on unit/drains into 5 gallon bucket

EQ2-39	soil pan	Humboldt	Multiple models and sizes	OFOI	20		VET	Lab 2	25	25			UC	0		N/A																Often stored on the floor or in a cabinet
--------	----------	----------	---------------------------	------	----	--	-----	-------	----	----	--	--	----	---	--	-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---

BUILDING SYSTEMS LABORATORY

Program Requirements



ARCHITECTURAL

Function: Teaching laboratory for building systems technology
 Centerline dimensions: 36'x60'
 Program minimum clear floor area: 2000 asf, not including walls, columns, recessed doors
 Occupancy: B
 Number of students: 18-24
 Floor: sealed concrete
 Walls: concrete masonry
 Ceiling: open to structure- high bay
 Doors: 3'-0x8'-0" pair with view window
 12' roll up door at exterior
 Sound attenuation: NC 45 or less- sound attenuation at walls
 Security: digital access
 Adjacency: Student Projects Laboratory

STRUCTURAL

Concrete columns to be incorporated into design
 Consider construction motif patterns in concrete surface
 Slab on grade- capacity for fork lift operation

MECHANICAL

Temperature: 68-72 deg F +/- 2 deg F
 Humidity: Ambient
 Dust Collection system
 Equipment heat gain: 25 btuh/sf

PLUMBING

Hot/Cold water at sinks
 Specialty gases (inert) at cylinder restraints
 Domestic tepid water at safety shower with floor drain

ELECTRICAL

115v20a1ph outlets at walls
 208v power at equipment space
 Hardwire and wireless data (WAP)
 Lighting: direct/indirect LED at 500 LUX.

CONTRACTOR FURNISHED EQUIPMENT

Casework
 Mobile lab bench work station
 Utility sink
 Cylinder restraint
 Unistrut frame at ceiling
 Open shelf units
 Crane- 2000 lb capacity
 Window Marker board
 Monitors
 Safety shower/eyewash

MTSU FURNISHED EQUIPMENT

Construction equipment, tools
 Benchttop equipment
 ~52 linear feet equipment space required per equipment spreadsheet
 ~68 linear feet equipment space provided in design
 604 square feet shelf storage space provide at tall cabinets and equipment spaces

BUILDING SYSTEMS LABORATORY

Equipment Schedule

Identification				Tracking and Location					Dimensions / Mounting						Electrical/Communications										House Services				Local Services		Environmental Control		Remarks				
Equip. Tag	Equipment Description	Manufacturer	Model No.	Furnish & Install	Existing	New	Existing Building Location	Room	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Mounting Location	Number of Outlets	Dedicated Circuits	Hard Wire / Plug	Volt	Amp	Emergency	UPS	Disconnect Box	Data	Alarm	Cold Water	Process Water	Drain	Comp. Air	Other Gases	Exhaust Direct	Exhaust Indirect							
Building Systems				Lab 6																																	
EQ-80	Safety Equipment		Lab Coats, Goggles, Tongs, Gloves, signs	OFOI	1	1	VET	All labs	36	36	60		UC	0		N/A																		Need a safety cabinet in each lab			
EQ-81	Blueprint Filing System	AdirOffice	Blueprint Vertical Storage Cabinet for 18"	OFCI		1	N/A	Lab 6&7	Multiple size prints				W/F	0		N/A																		Print storage needed in both labs			
EQ-82	Plywood Rack	Global Industrial	Adjustable Floor Sheet Rack, Steel w/Plywood Deck	OFOI		1	N/A	Lab 6	24	48	60		F	0		N/A																					
EQ-83	Plywood Rack	Global Industrial	Adjustable Floor Sheet Rack, Steel w/Plywood Deck	OFOI		1	N/A	Lab 2,3,4,6,7	24	48	60		F	0		N/A																					
EQ-84	Band Saw	Studio Pro	Studio Pro Precision 2000 Wet/Dry Bandsaw with	OFOI		4	N/A	Lab 6	24	24			F/B	1		plug	110																	Vaccum capabilities would be nice for this unit			
EQ-85	Wood Compact Router		RT0701C 1-1/4 HP Compact Router	OFOI		1	N/A	Lab 6	24	60			B	1		plug	110																	Vaccum capabilities would be nice for this unit			
EQ-86	Wood Planer		DW734 -12-1/2-Inch Planer	OFCI		1	N/A	Lab 6	180	180			B	1		plug	110	15																May need a large area for this unit and vaccum capabilities would be nice			
EQ-87	Surveying Total Stations	Nikon	NPL-322 (5") Reflectorless Total Station	CFCI		1	N/A	Lab 6 & 8					UC	4		plug	110																	Need space for tripods and other surveying equipments. Possibly multiple cabinets.			
EQ-88	Gantry Crane- 2000 lb capacity	Vestil Steel Gantry Crane	Model FHS-2-15	OFOI		1	N/A	Lab 6	48	180	144		F	0		N/A																		On wheels			
EQ-89	Table Saw	Rigid	Rigid	OFOI	1		VET	Lab 6	62	32			F	1		Plug	110																	On wheels			
EQ-90	Miter Saw	Dewalt	Dewalt style on a stand	OFOI	1		VET	Lab 6	29	70			F	1		Plug	110																	On a stand			
EQ-91	Large Tool Box	Craftsman	Style large box	OFOI	1		VET	Lab 6	29	42	60		F	0		N/A																		On wheels			

STUDENT PROJECTS LABORATORY

Program Requirements

ARCHITECTURAL

Function: Laboratory for student construction projects
 Centerline dimensions: 36'x48'
 Program minimum clear floor area: 1600 asf, not including walls, columns, recessed doors
 Occupancy: B
 Number of students: 12-18
 Floor: sealed concrete
 Walls: concrete masonry
 Ceiling: open to structure- high bay
 Doors: 3'-0x8'-0" pair with view window
 12' roll up door at exterior
 Sound attenuation: NC 45 or less- sound attenuation at walls
 Security: digital access
 Adjacency: Building Systems Laboratory

STRUCTURAL

Concrete columns to be incorporated into design
 Consider construction motif patterns in concrete surface
 Slab on grade

MECHANICAL

Temperature: 68-72 deg F +/- 2 deg F
 Humidity: Ambient
 Dust Collection system
 Equipment heat gain: 25 btuh/sf

PLUMBING

Hot/Cold water at sink
 Specialty gases (inert) at cylinder restraints
 Domestic tepid water at safety shower with floor drain

ELECTRICAL

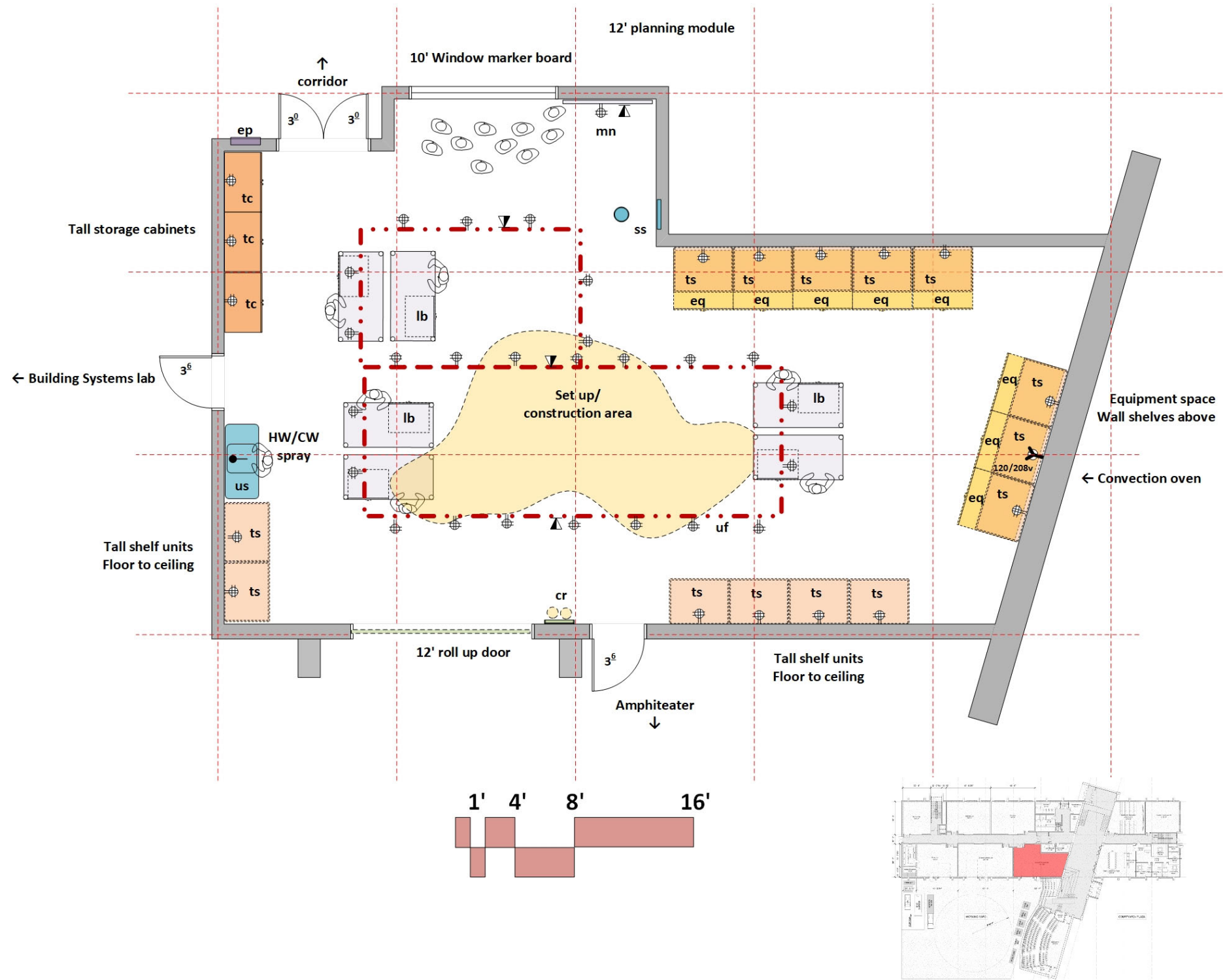
115v20a1ph outlets at walls
 208v power at equipment space
 Hardwire and wireless data (WAP)
 Lighting: direct/indirect LED at 500 LUX.

CONTRACTOR FURNISHED EQUIPMENT

Caswork
 Mobile lab bench work station
 Utility sink
 Equipment space shelving
 Cylinder restraint
 Unistrut frame at ceiling
 Open shelf units
 Marker board
 Monitor
 Safety shower/eyewash

MTSU FURNISHED EQUIPMENT

Construction equipment, tools
 Benchttop equipment
 ~20 linear feet equipment space required per equipment spreadsheet
 ~28 linear feet equipment space provided in design
 414 square feet shelf storage space provide at tall cabinets and equipment spaces



STUDENT PROJECTS LABORATORY

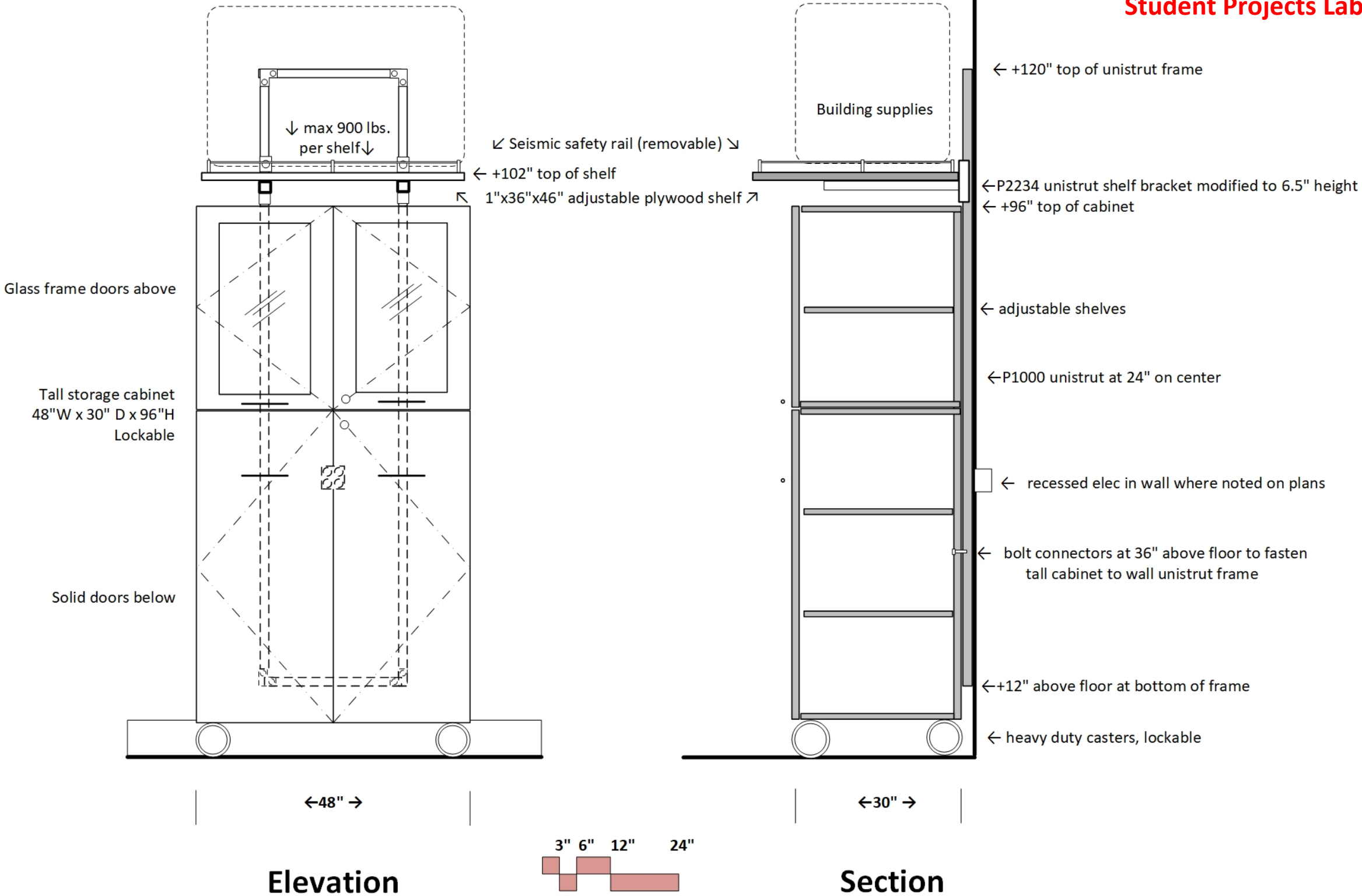
Equipment Schedule

Identification				Tracking and Location				Dimensions / Mounting				Electrical/Communications								House Services				Local Services	Environmental Control		Remarks						
Equip. Tag	Equipment Description	Manufacturer	Model No.	Furnish & Install	Existing	New	Existing Building Location	Room	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Mounting Location	Number of Outlets	Dedicated Circuits	Hard Wire / Plug	Volt	Emergency	UPS	Disconnect Box	Data	Alarm	Cold Water	Process Water	Drain	Comp. Air		Other Gases	Exhaust Direct	Exhaust Indirect			
Student Projects				Lab 7																													
EQ7-1	Convection Oven	Humboldt	BO-343A	OFCI	2	1		Lab 2,3,7	42	42	48		B	1	2	HW	220			1										N/A		volt with disconnect / 2 in stock, need 3rd / price reflects cost of 1 oven. Each on its own stand	
EQ7-2	Glassware & PlasticWare		Model GW and WB	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC/B	0		N/A														N/A		Cabinetry Storage / Wall Mounted Shelving	
EQ7-3	Pans and Containers		Model SC and HM	OFOI	1	1	VET	Lab 2,3,4,7	60	36			UC	0		N/A														N/A		Cabinetry Storage / Wall Mounted Shelving	
EQ7-4	Safety Equipment		Lab Coats, Goggles, Tongs, Gloves, signs	OFOI	1	1	VET	All labs	36	36	60		UC	0		N/A														N/A		Need a safety cabinet in each lab	
EQ7-5	Blueprint Filing System	AdirOffice	Blueprint Vertical Storage Cabinet for 18"	OFCI		1	N/A	Lab 6&7	Multiple size prints			W/F	0		N/A															N/A		Print storage needed in both labs	
EQ7-6	Plywood Rack	Global Industrial	Adjustable Floor Sheet Rack, Steel w/Plywood Deck	OFOI		1	N/A	Lab 2,3,4,6,7	24	48	60		F	0		N/A														N/A			
EQ7-7	Wesco Pallet Jack	Wesco Drum Truck	Model #272744 Northern Tool	OFOI		1	N/A	Lab 7	48	27			F	0		N/A														N/A		Pallet Jack	

SECTION DETAILS

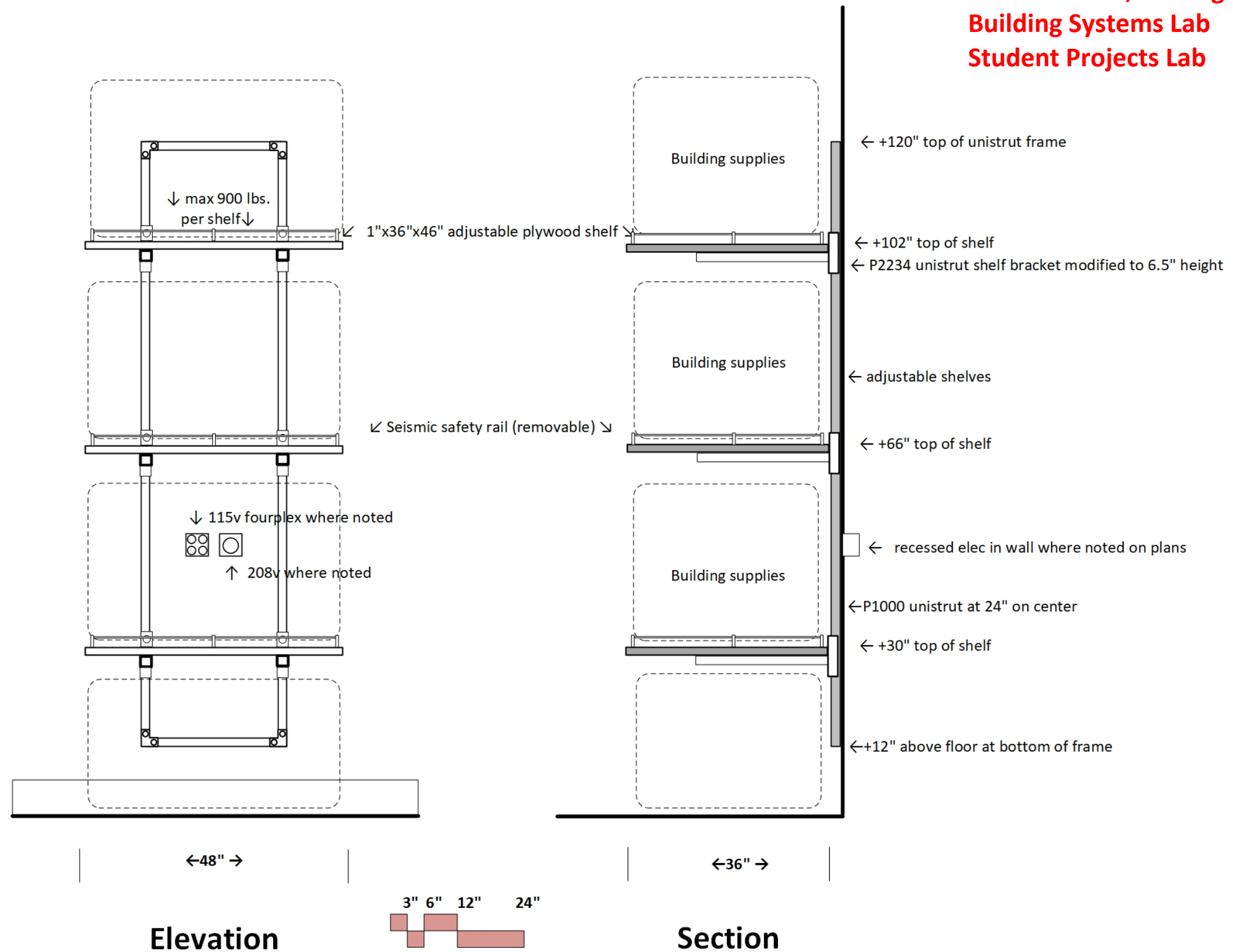
PROTEAN CABINET SECTION DETAIL

Materials Lab; Soils Lab; Mixing Lab
 Building Systems Lab
 Student Projects Lab



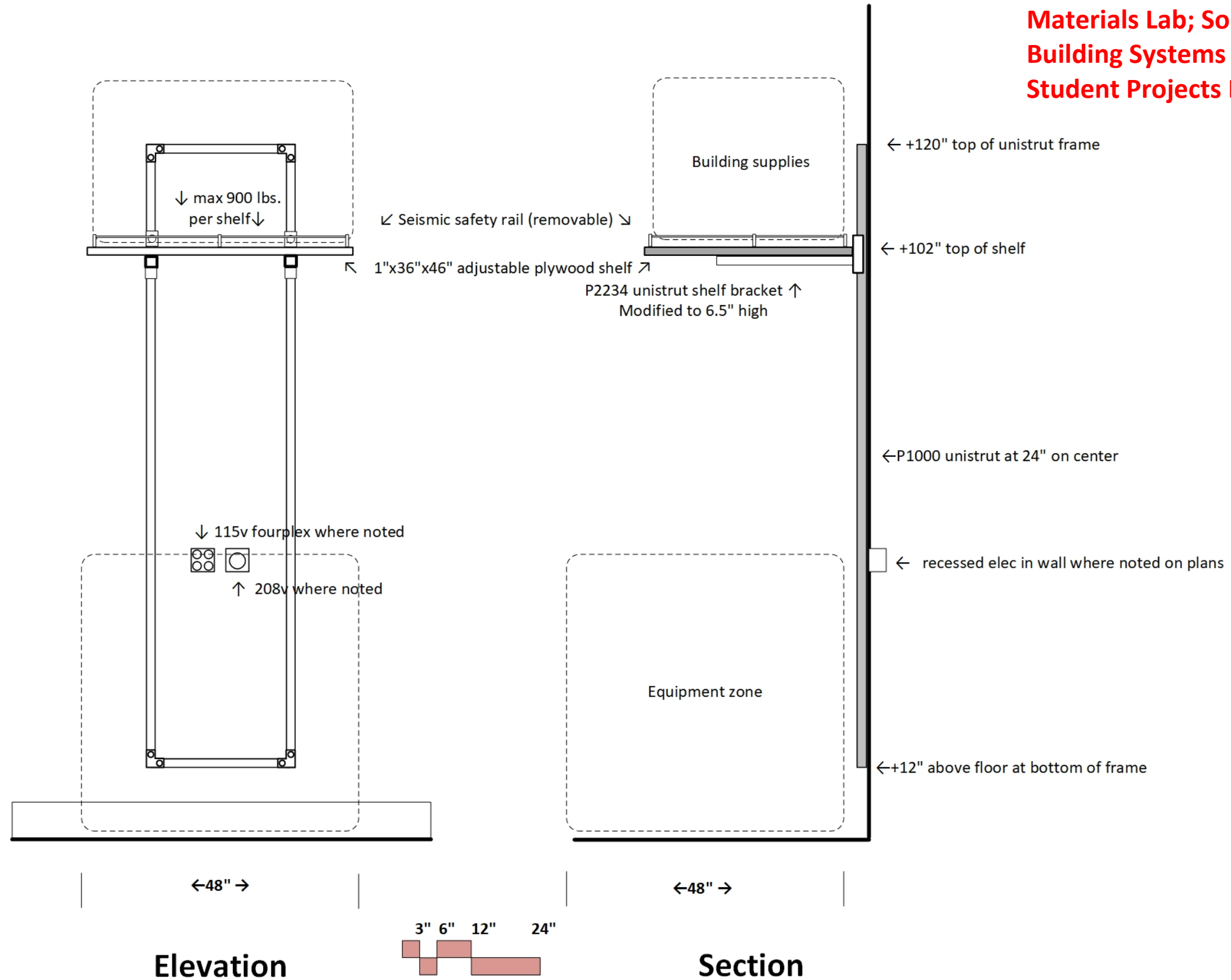
PROTEAN SHELF SECTION DETAIL

Materials Lab; Mixing Lab
 Building Systems Lab
 Student Projects Lab



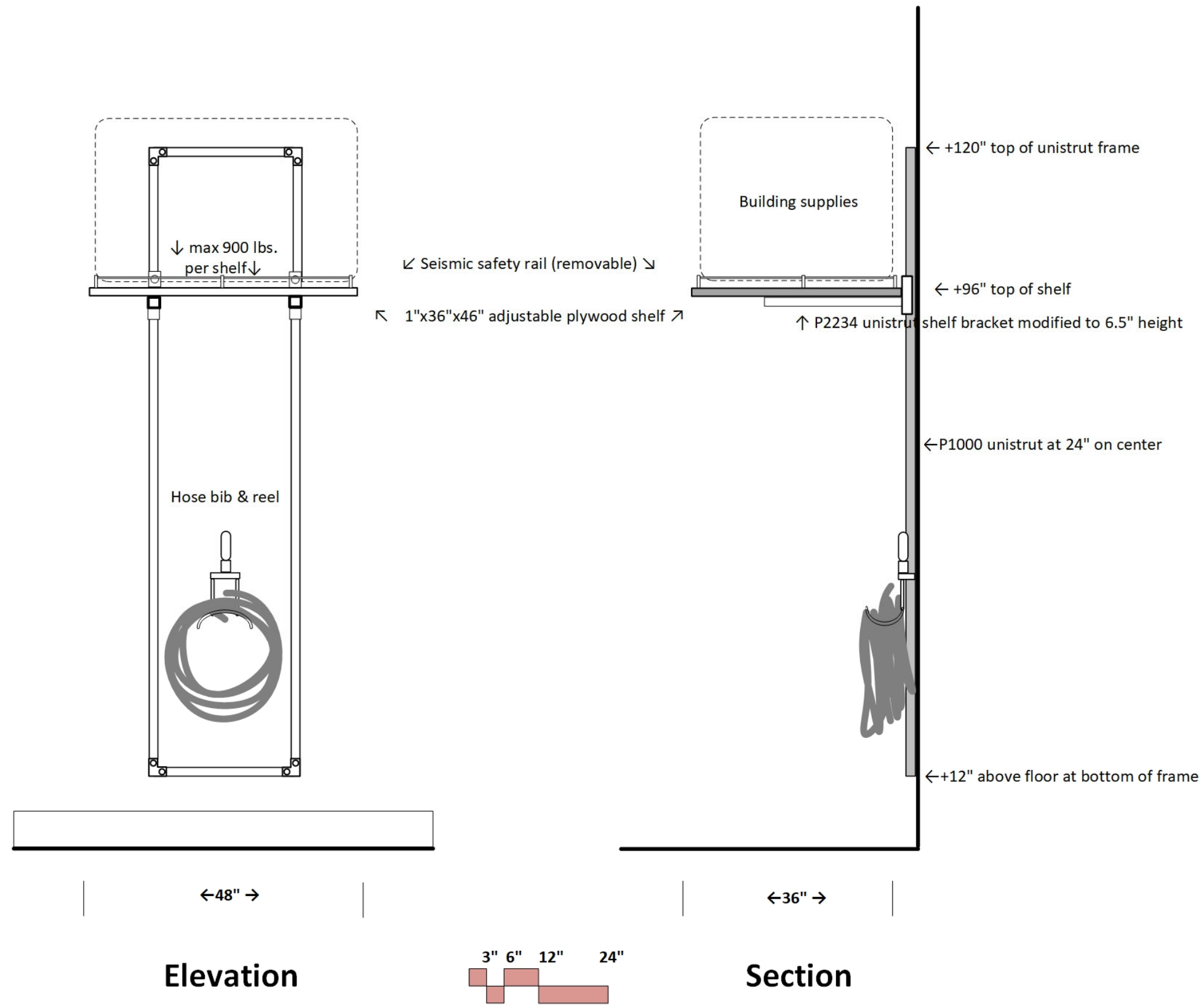
SHELF/EQUIPMENT SECTION DETAIL

Materials Lab; Soils Lab; Mixing Lab
 Building Systems Lab
 Student Projects Lab



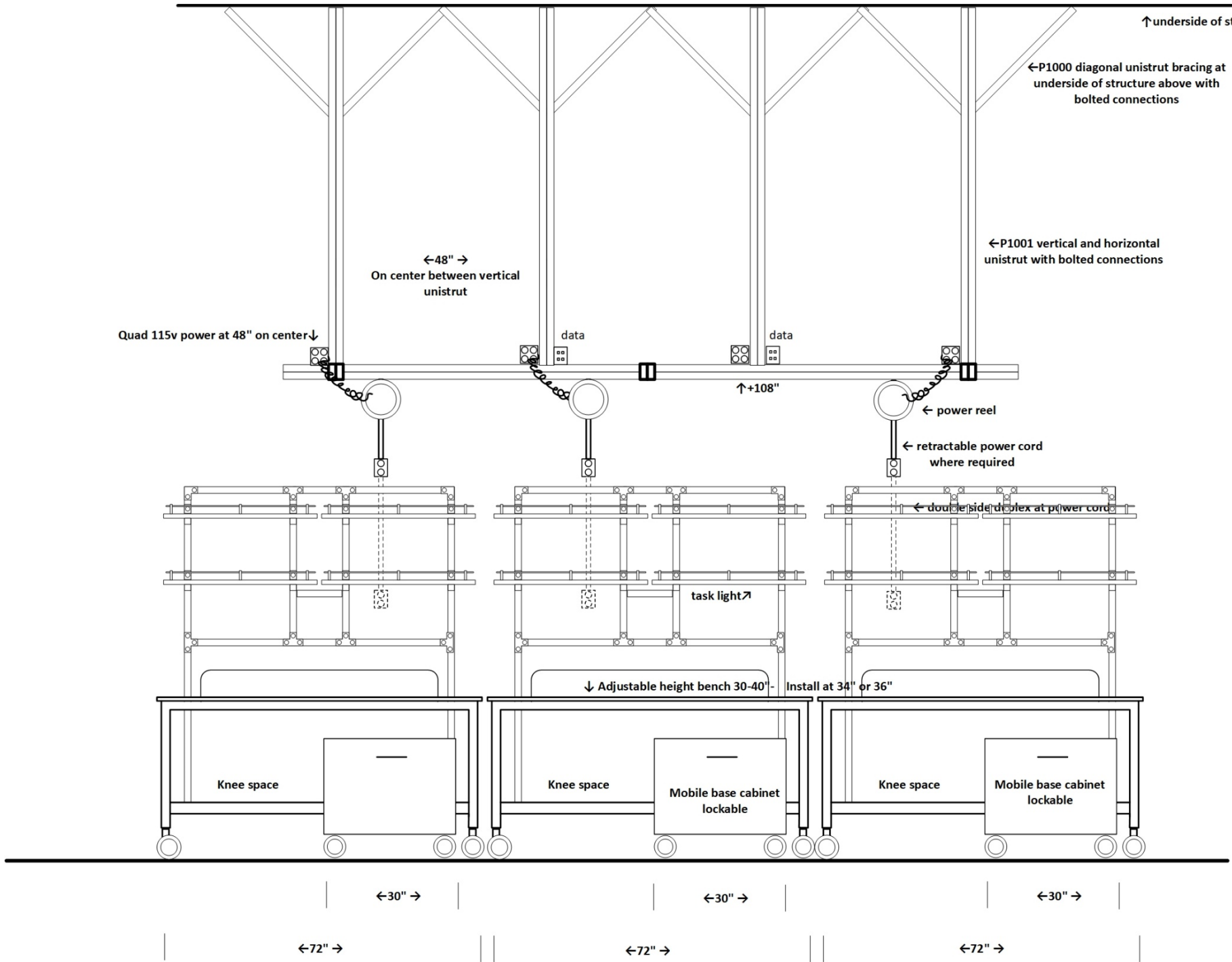
PROTEAN SHELF/HOSE BIB SECTION DETAIL

Materials Lab; Mixing Lab

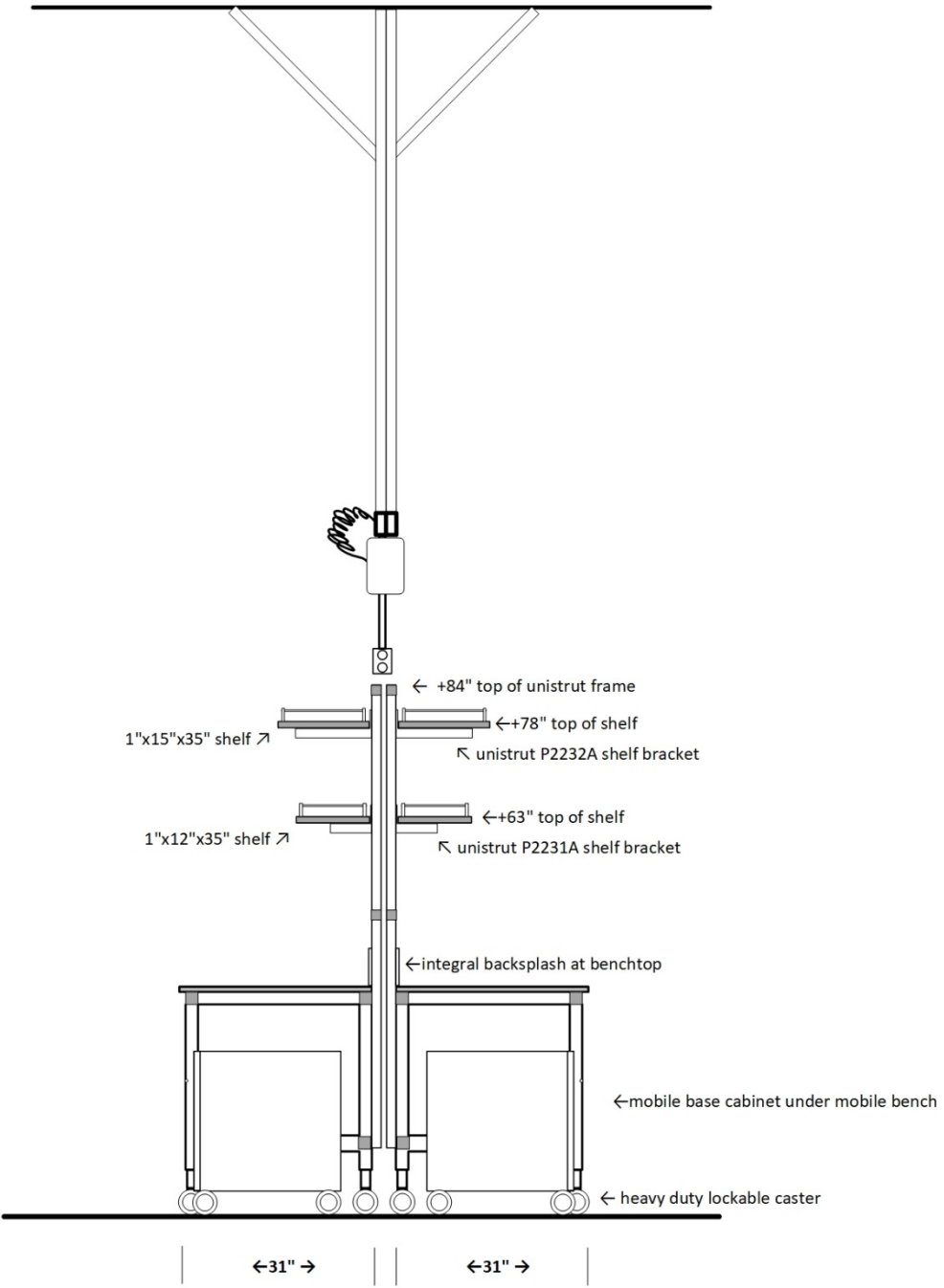


PROTEAN ISLAND BENCH SECTION DETAIL

Materials Lab



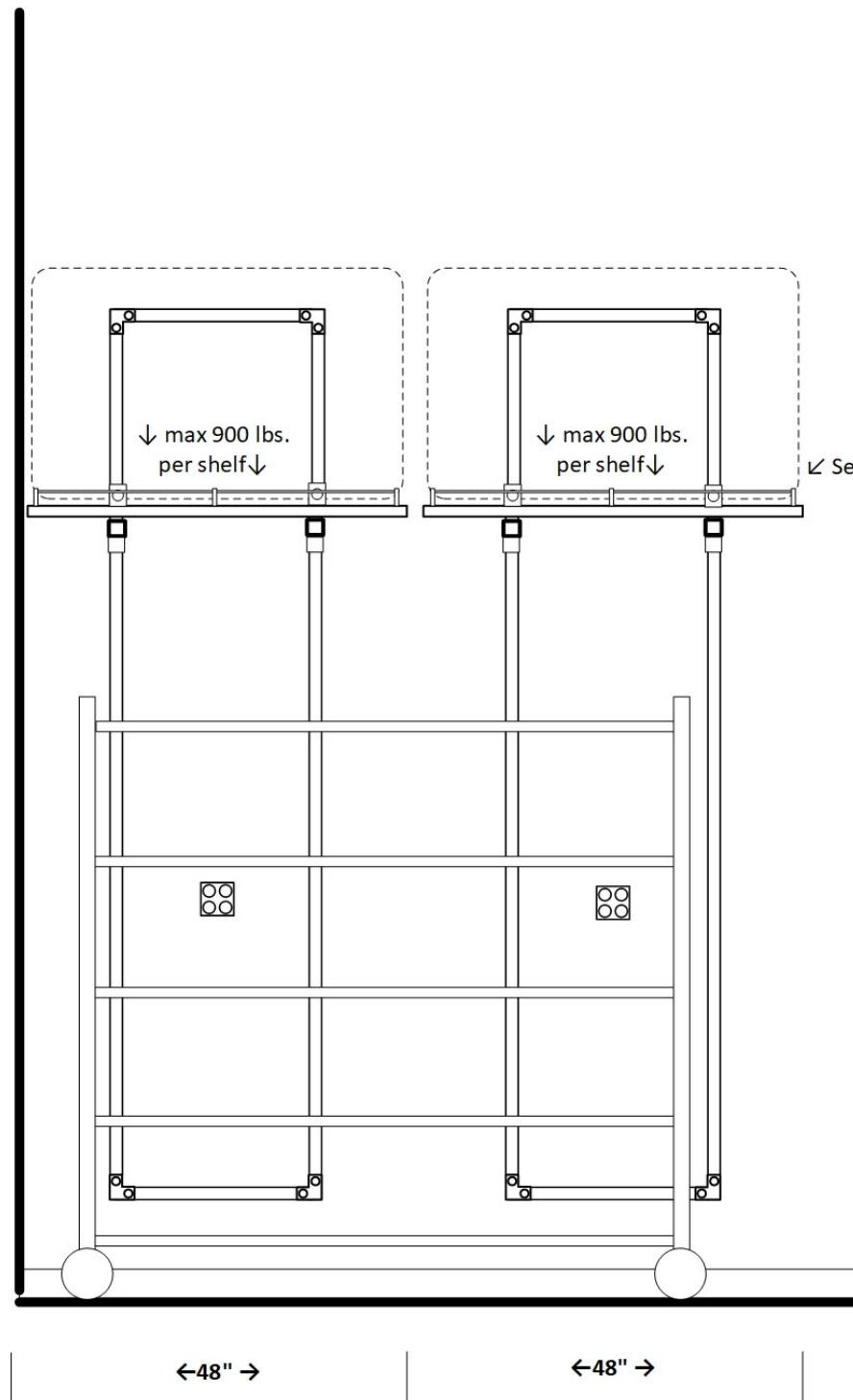
Elevation



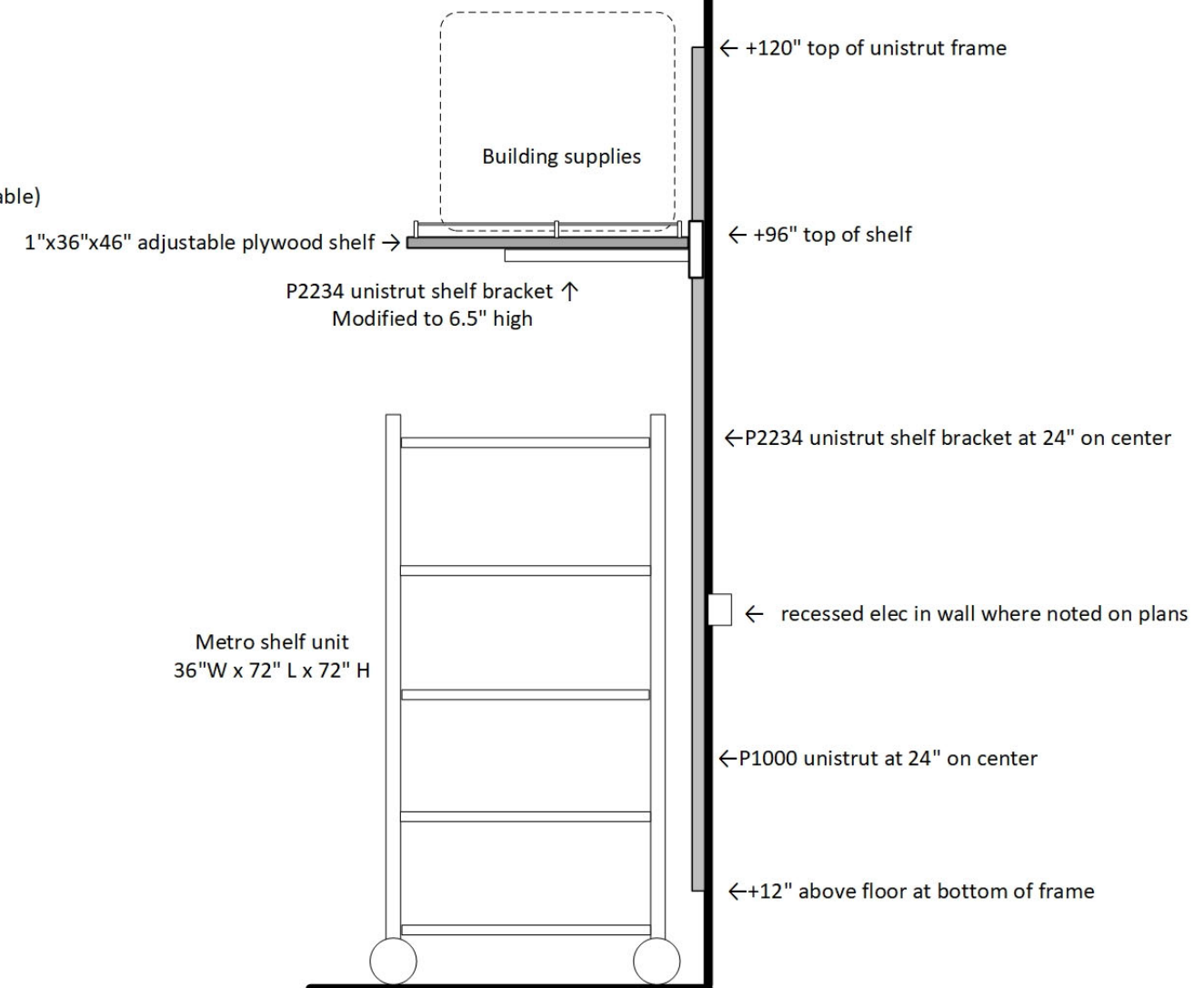
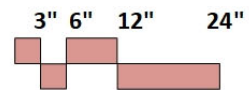
Section

PROTEAN OPEN SHELF UNIT SECTION DETAIL

Soils Lab; Building Systems Lab



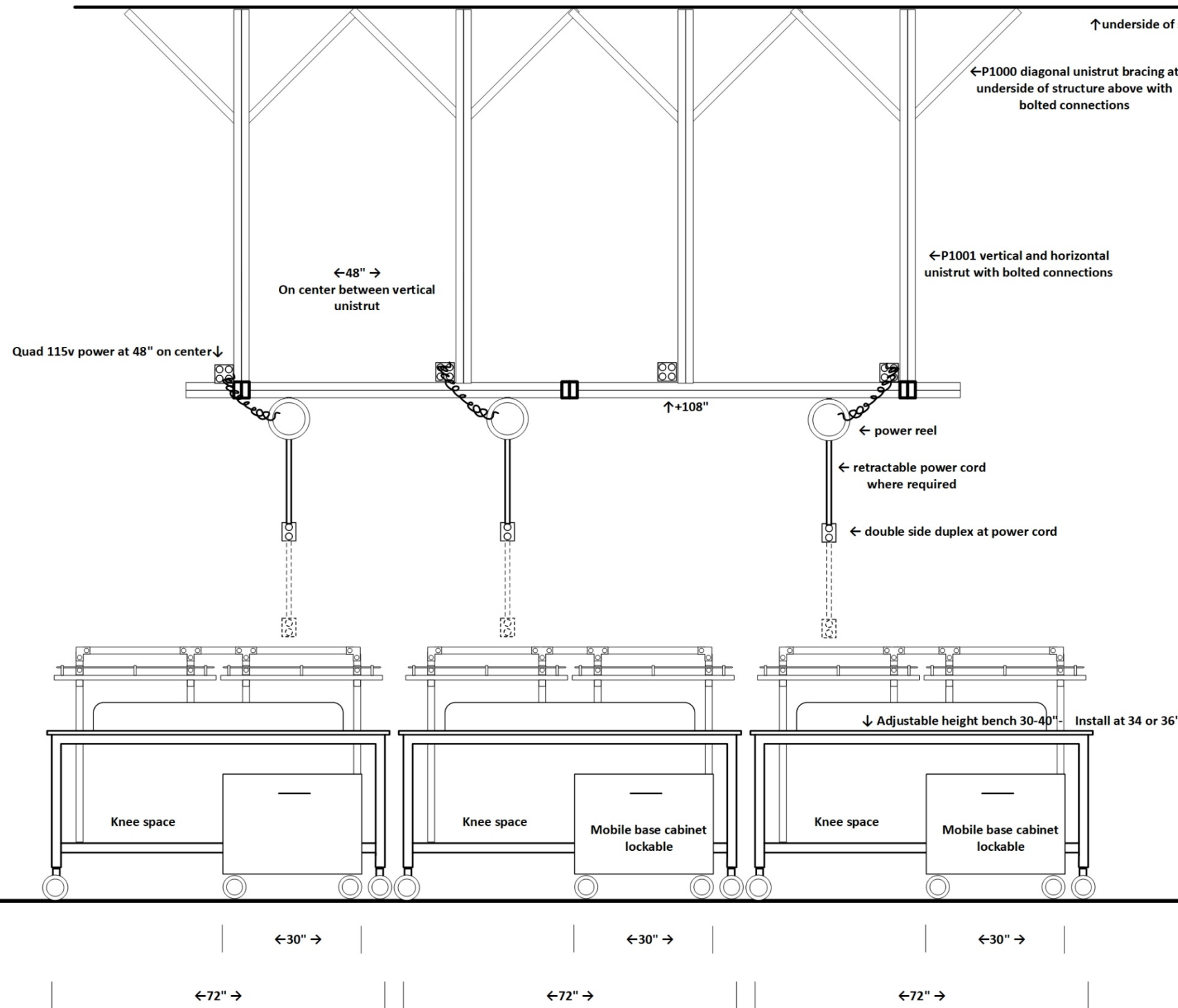
Elevation



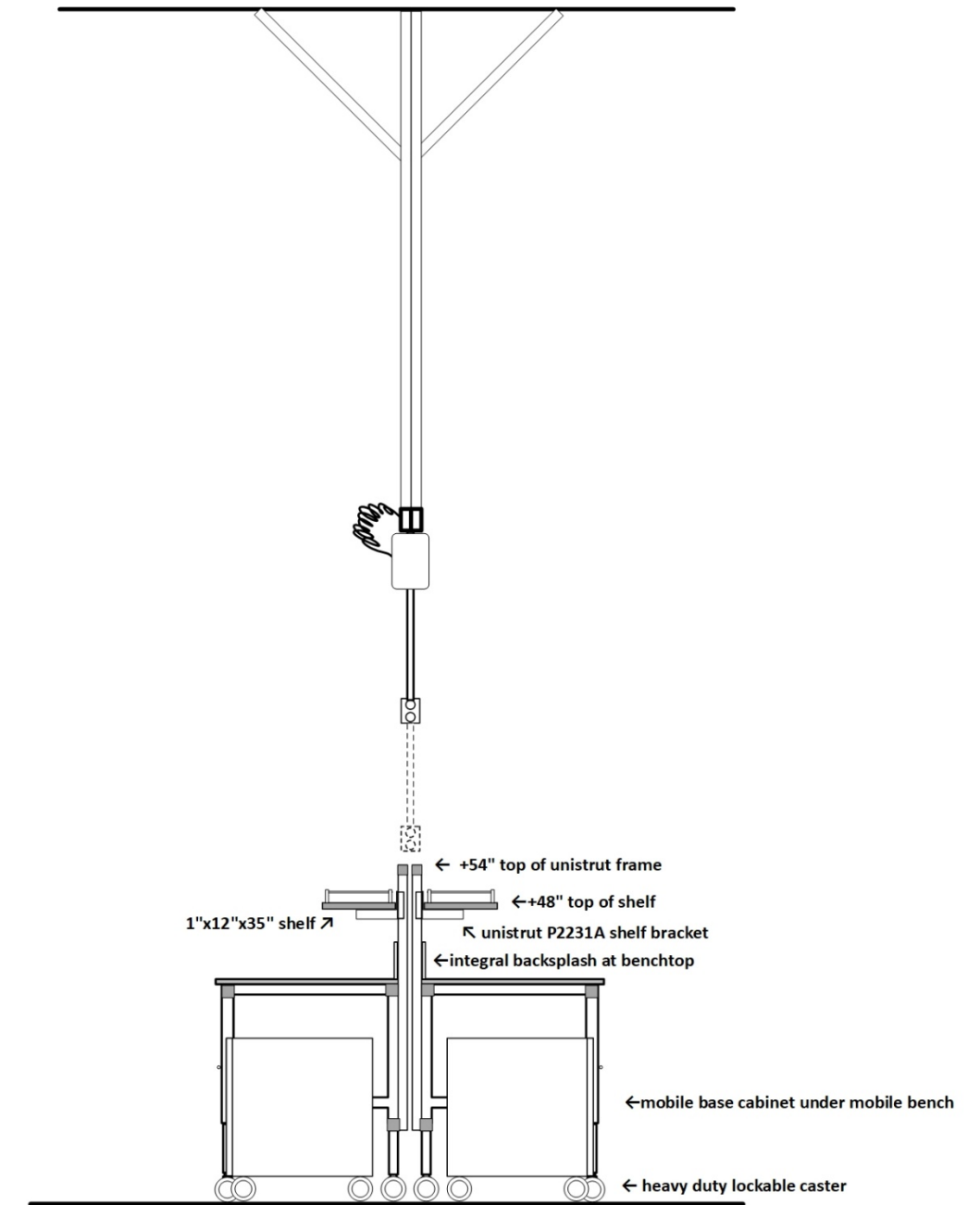
Section

PROTEAN STUDENT ISLAND BENCH SECTION DETAIL

Soils Laboratory



Elevation

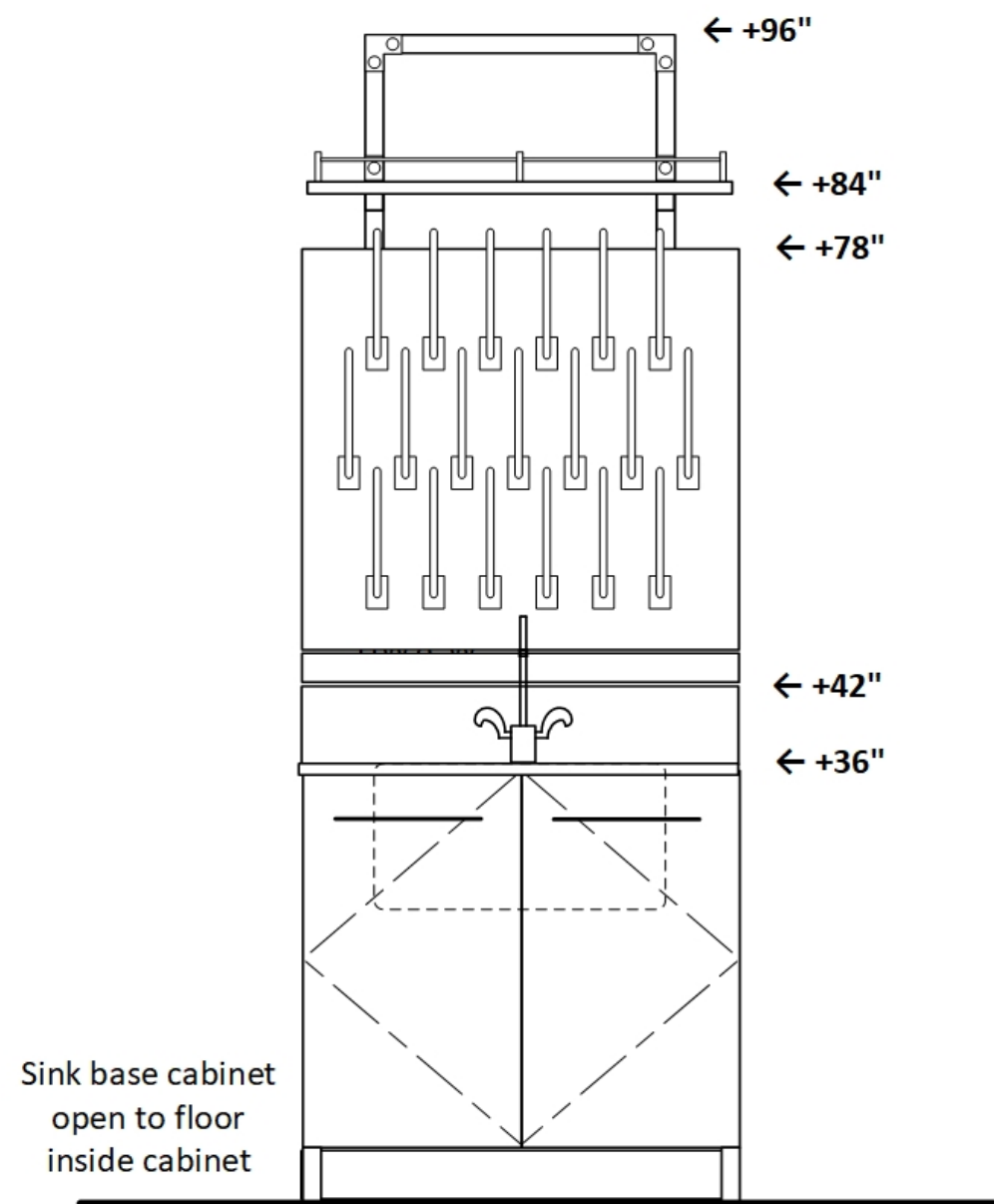


Section

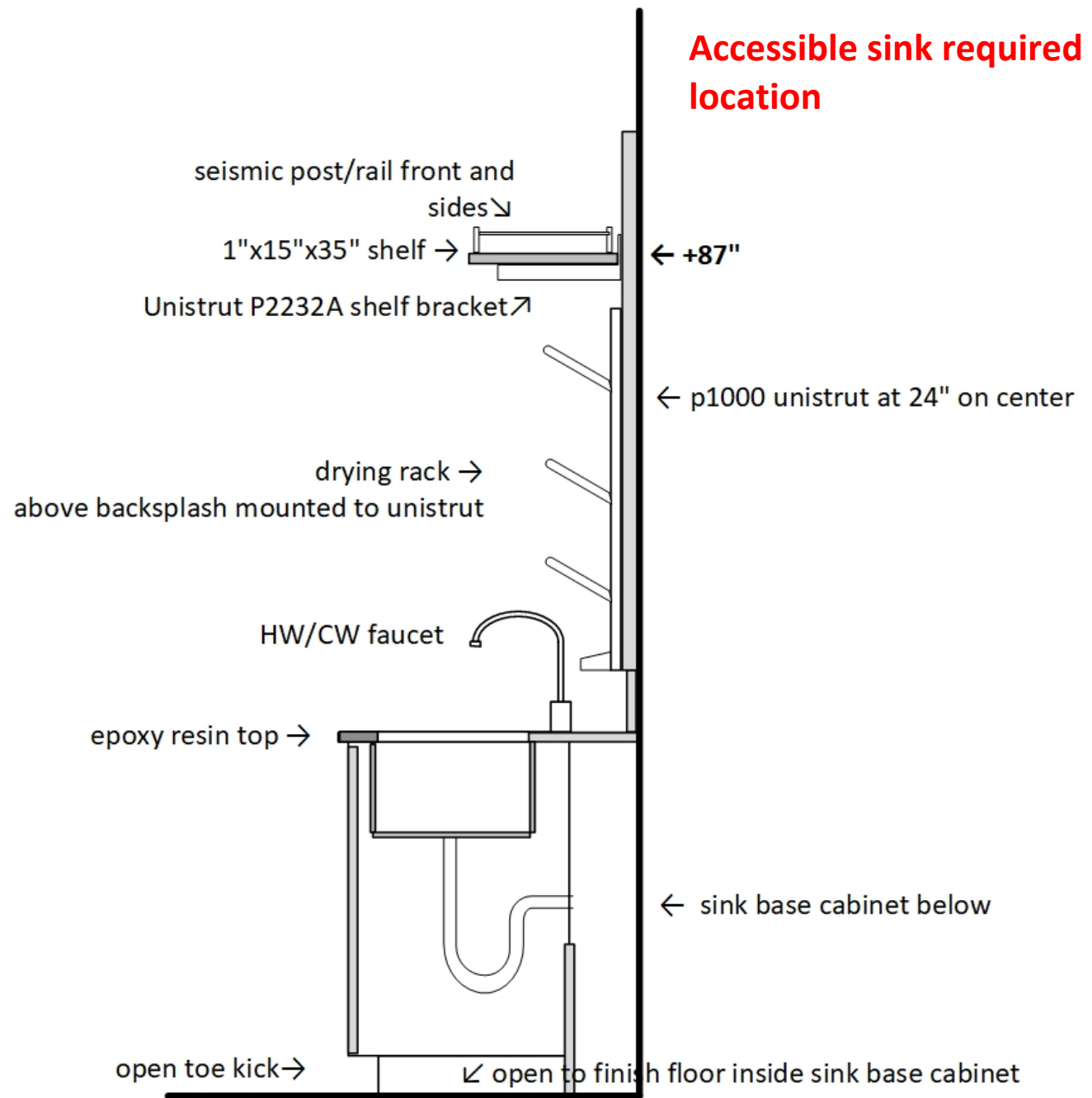
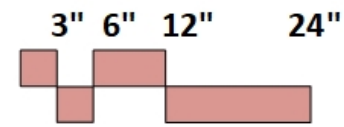
SINK STATION BENCH SECTION DETAIL

Soils Laboratory

Accessible sink required at one location



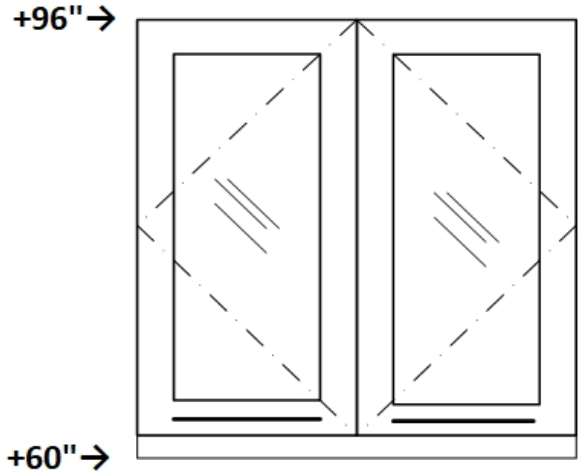
Elevation



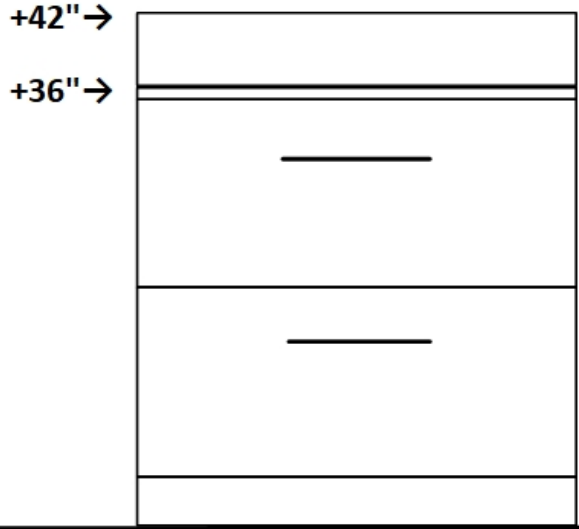
Section

FIXED PERIMETER BENCH SECTION DETAIL

Materials Laboratory
Soils Laboratory



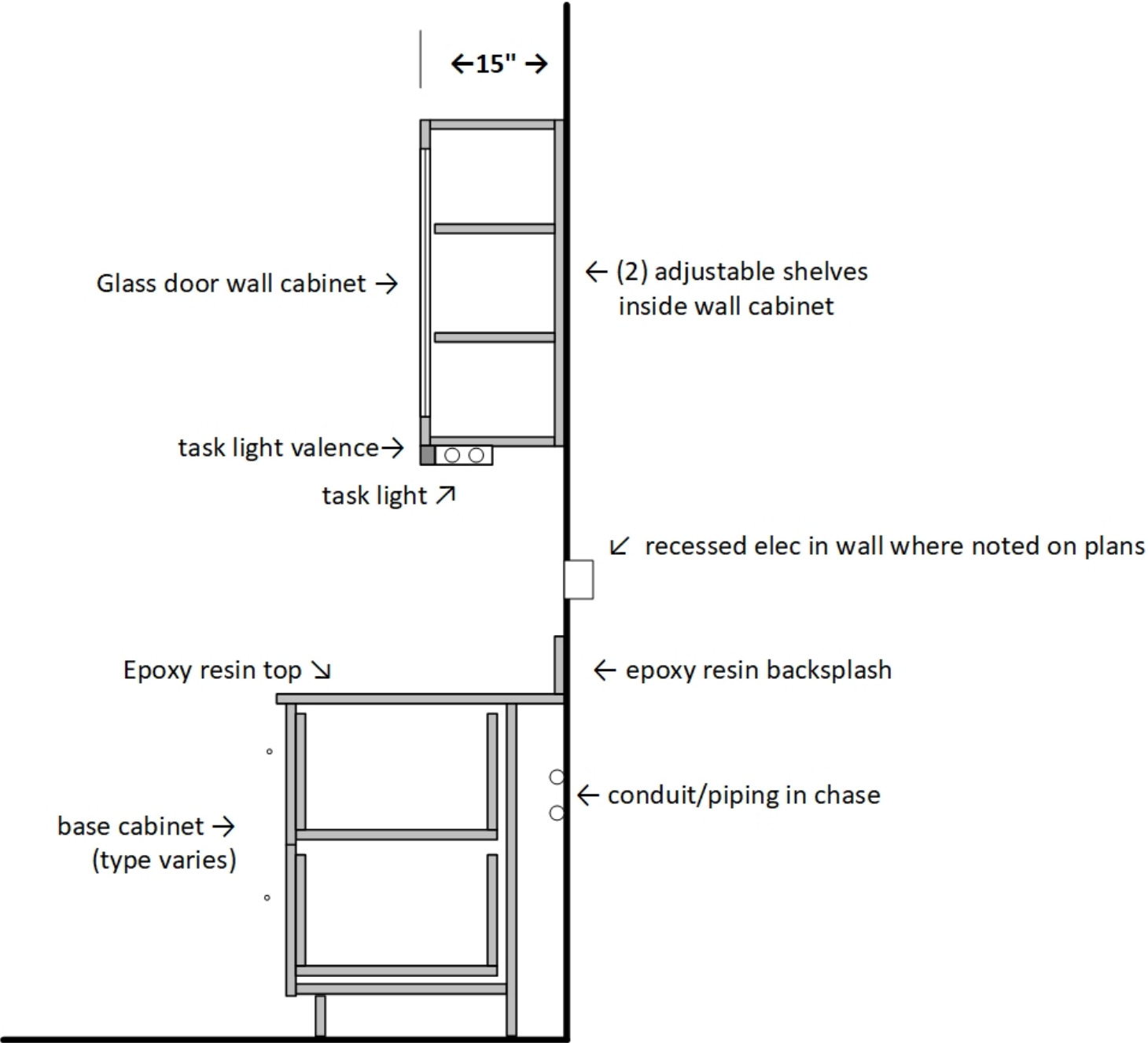
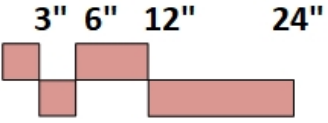
← +48" (with a 2x2 grid of circles symbol)



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

←36"→

Elevation

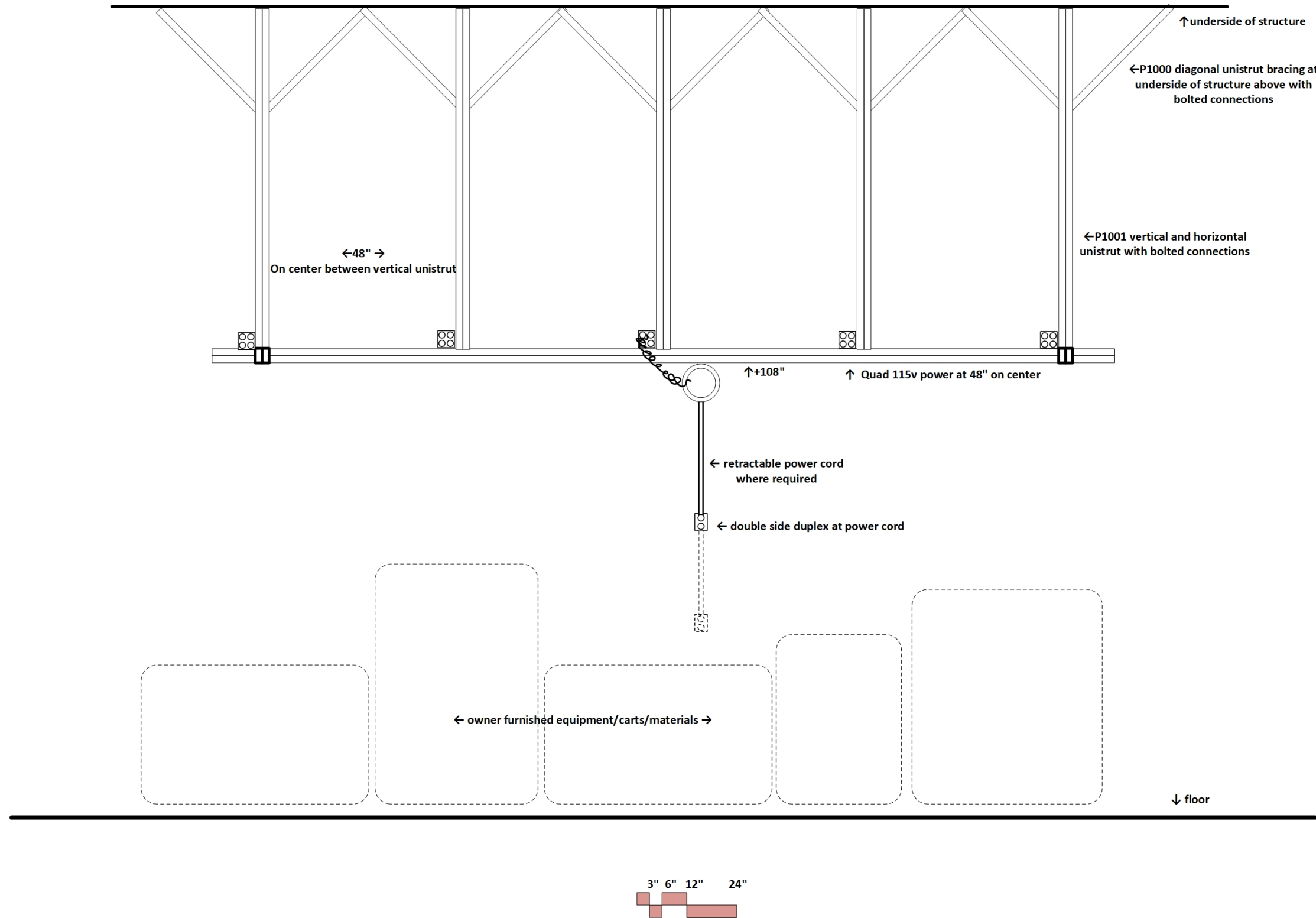


←30"→

Section

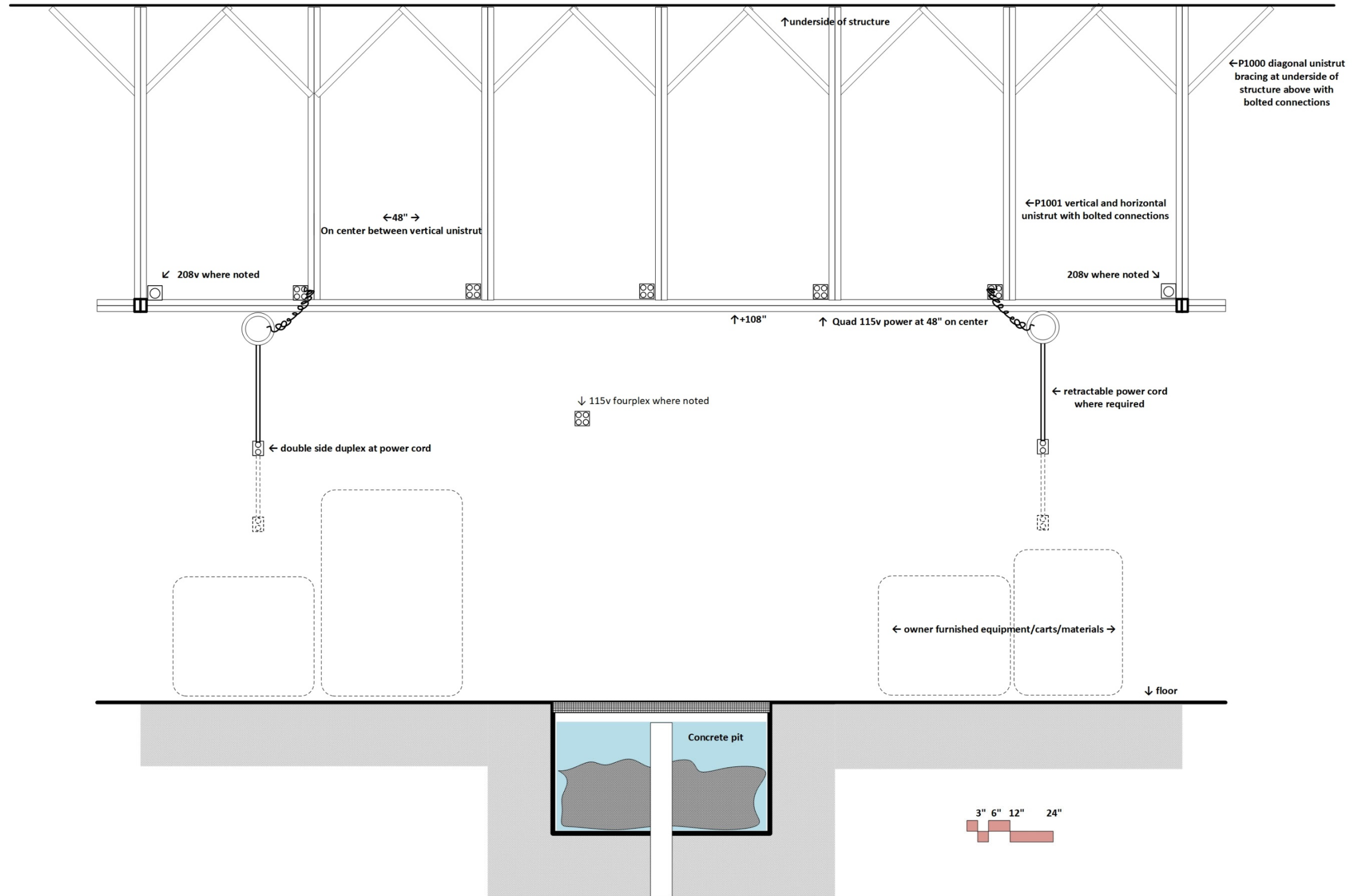
MIXING LABORATORY

Equipment/Unistrut Section Detail



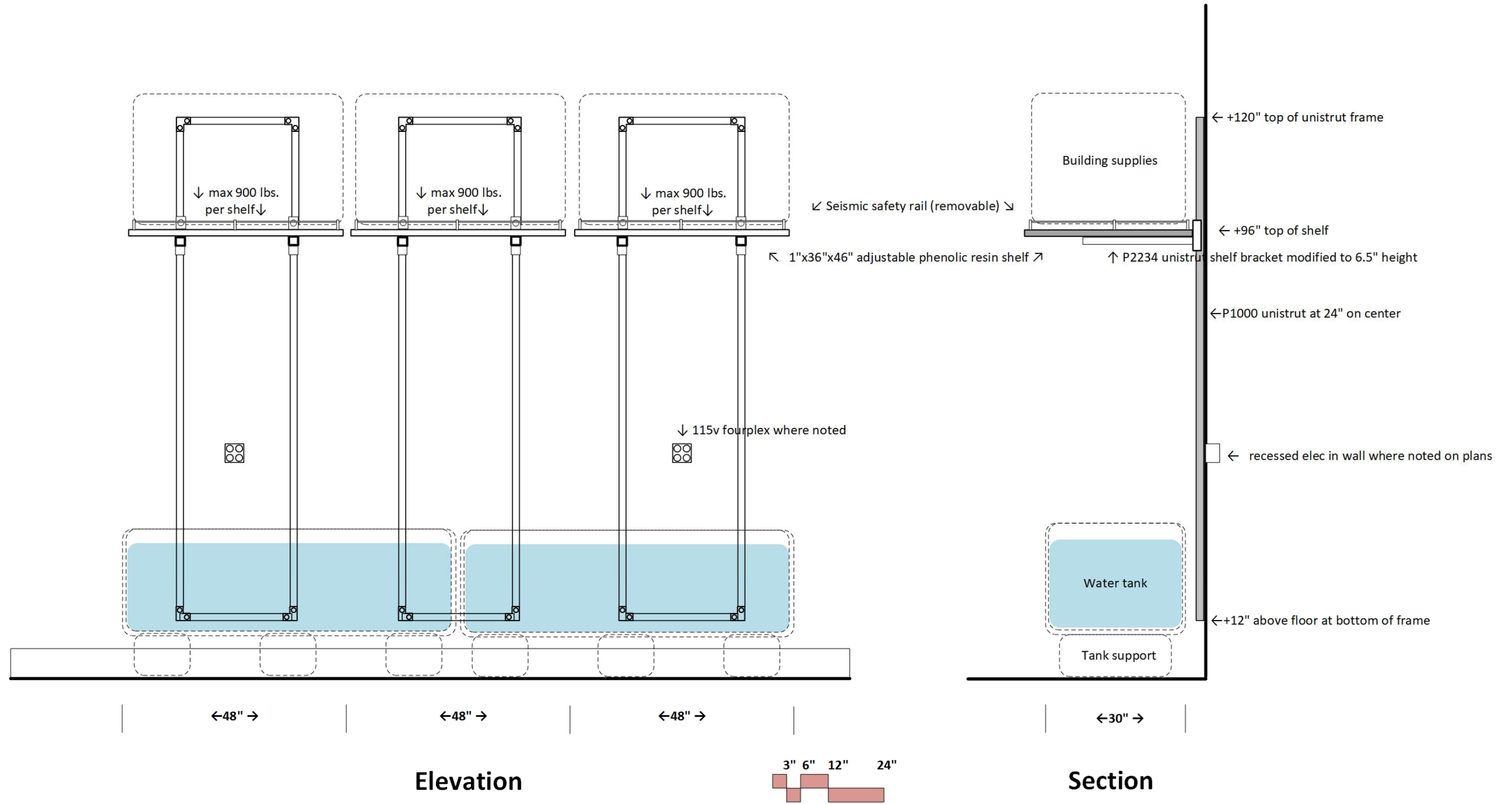
MIXING LABORATORY

Equipment/Concrete Pit Section Detail

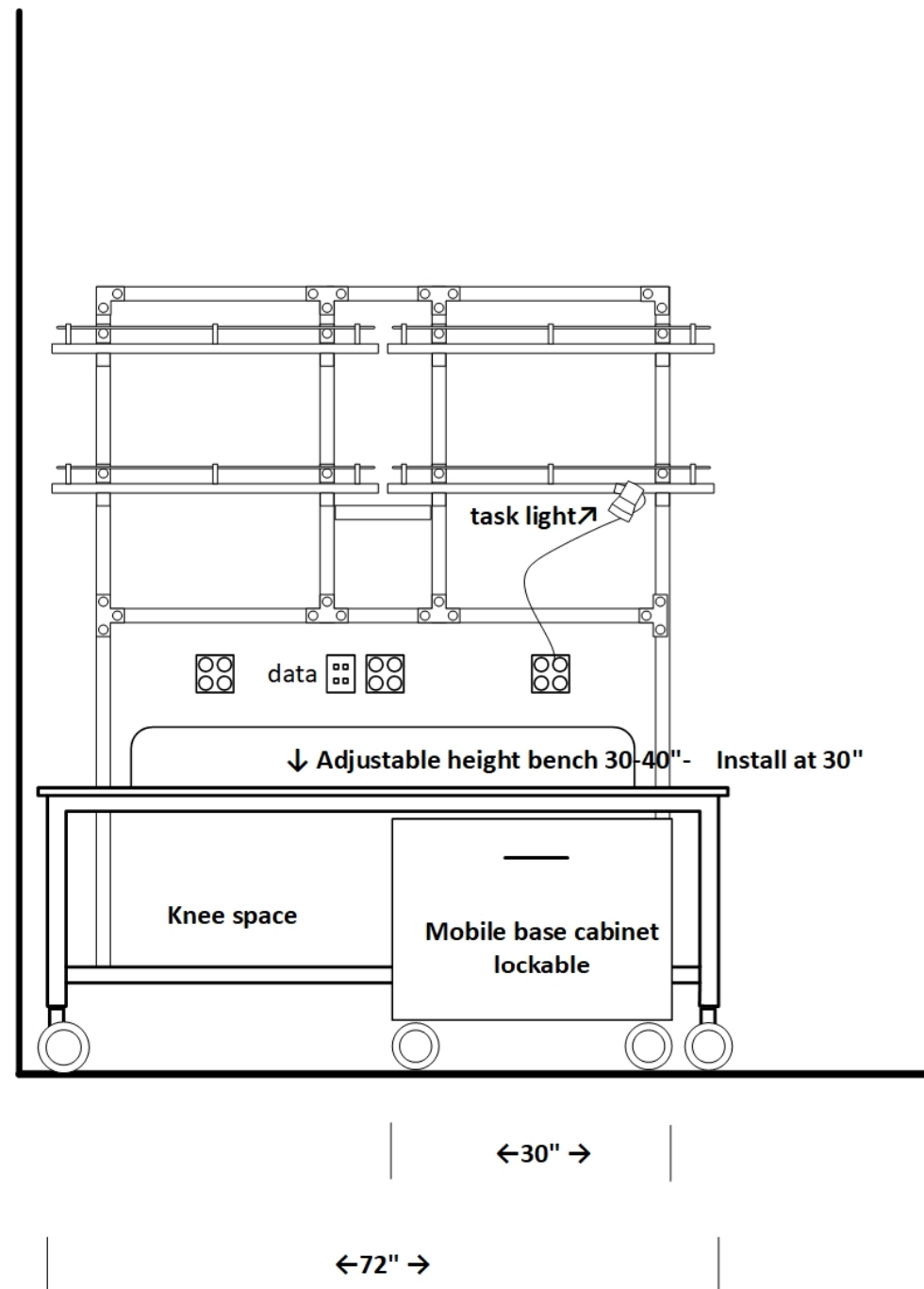


MIXING LABORATORY

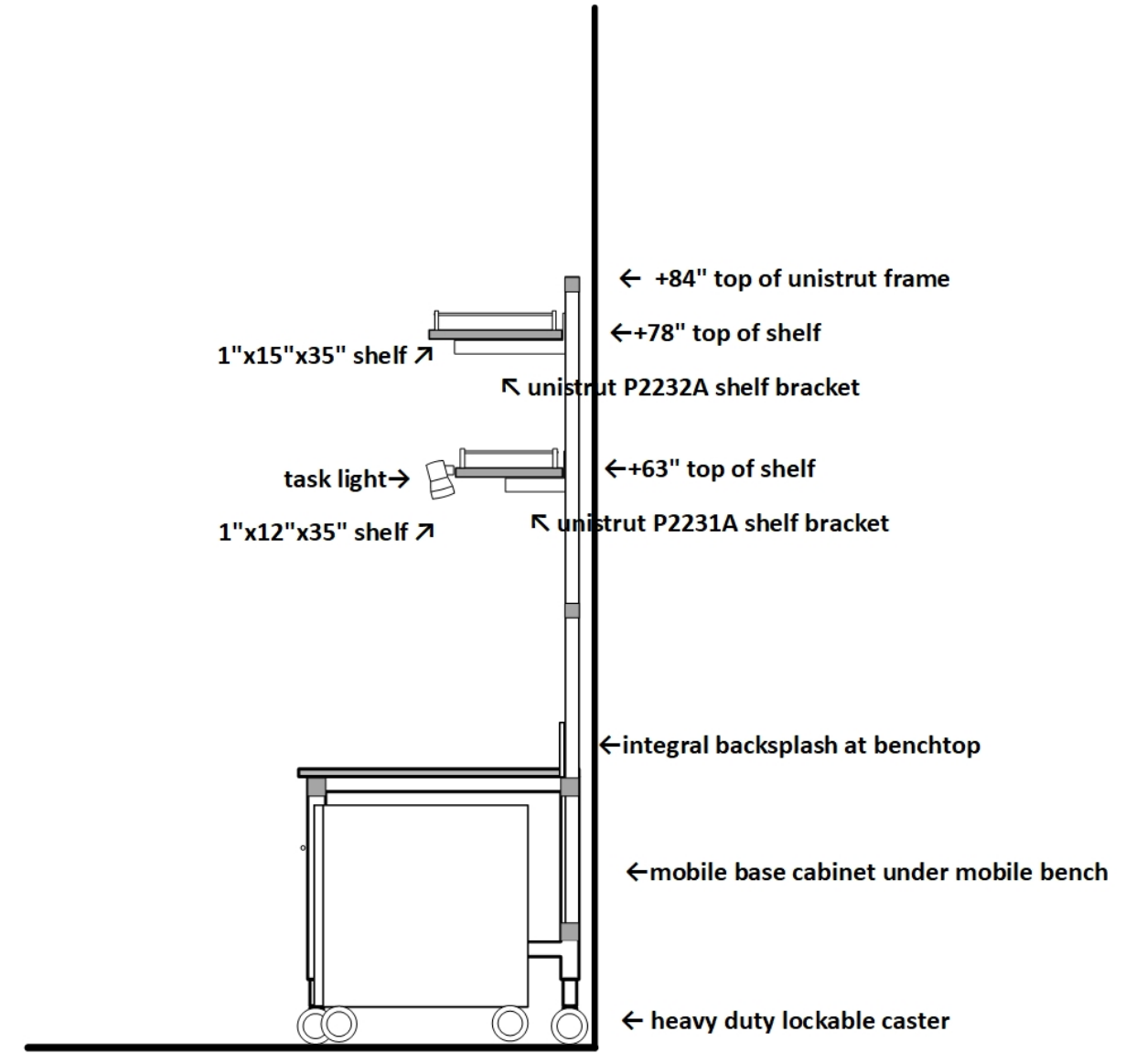
Protean Shelf/Tank Section Detail



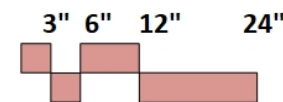
MIXING LABORATORY
Protean Lab Bench Section Detail



Elevation

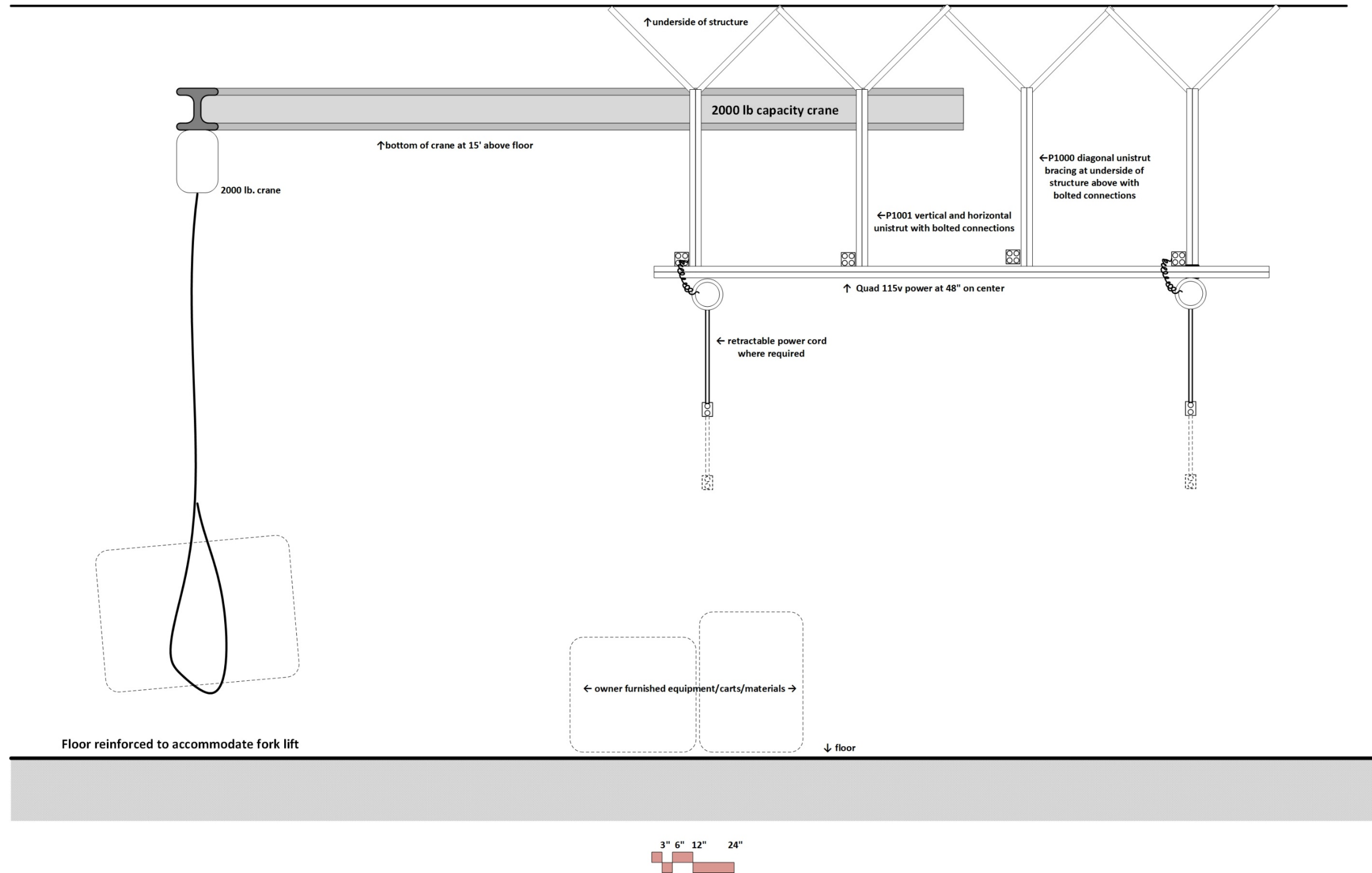


Section



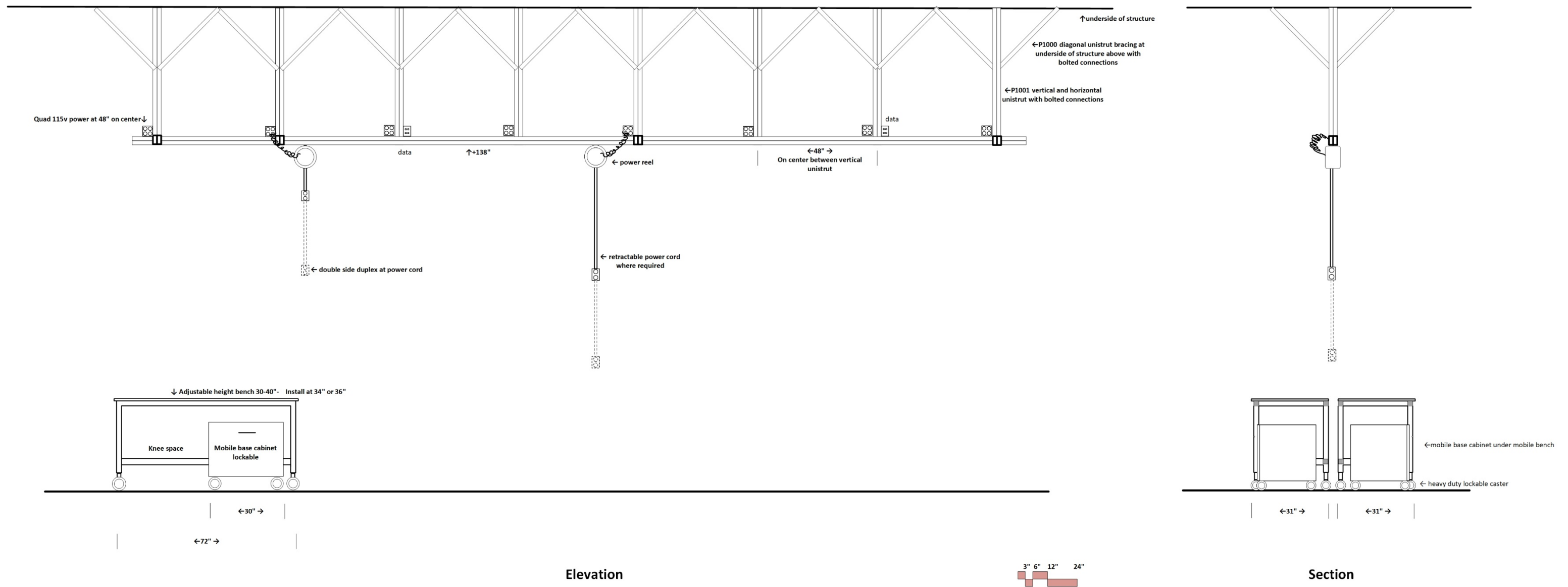
BUILDING SYSTEMS LABORATORY

Equipment/Unistrut Section Detail



STUDENT PROJECTS LABORATORY

Protean Bench/Unistrut Section Detail



EQUIPMENT CUT SHEETS

Contractor Furnished Equipment

6' Protector ClassMate Laboratory Hood



FUME HOOD CUT SHEET Soils Laboratory Room 201

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.

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

Fume hood will be specified with combination sash.

Fume hood requires 800 cfm per division 23.

Fume hood to be specified with on/off switch control.

Catalog Number: 160605102

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

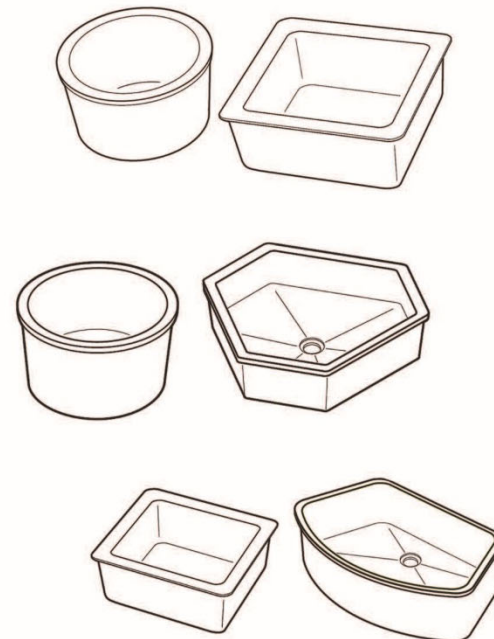
PRODUCT DIMENSIONS - EPOXY RESIN SINKS [IMPERIAL]

Dropln® Sinks

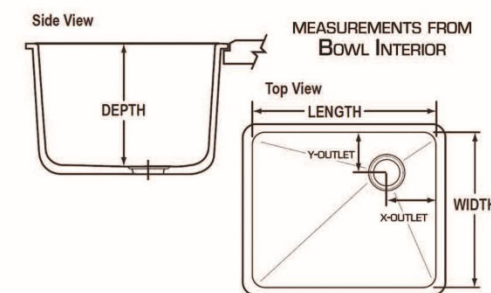
MODEL Number	OUTLET Placement	WEIGHT [lbs]	LENGTH [inches]	WIDTH [inches]	DEPTH [inches]	X-OUTLET [inches]	Y-OUTLET [inches]	ADA Compliant
D01C	Center	9	9	6	5.8	4.5	3	
D03C	Center	16	12	8	5.8	6	4	
A05	Corner	18	14	10	5	3.5	3.5	♿
D05	Corner	24	14	10	6.25	3.5	3.5	
D05C	Center	24	14	10	6.25	7	5	
D06C	Center	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	8	
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.

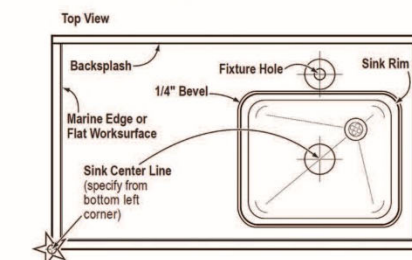
DROPLN® SINK STYLES



DIMENSIONS KEY



INSTALLATION DETAIL

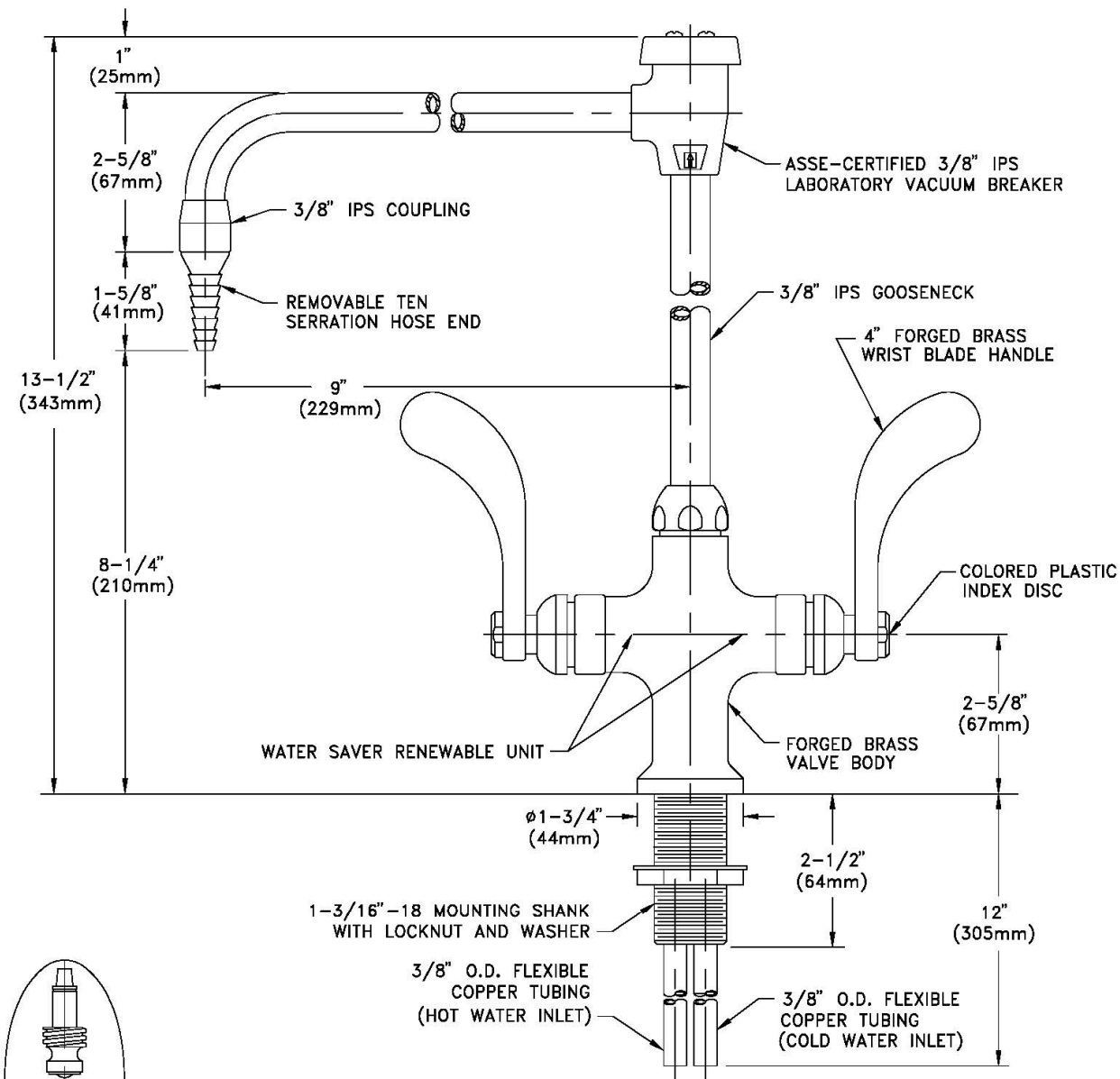


ADA Lab sink: A56
25" long x 15" wide x 5/11" deep
With sediment trap

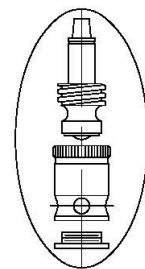
Standard Lab sink: D59
28" long x 15" wide x 11.75" deep
With sediment trap

Laboratory Service Fixtures by
WaterSaver Faucet Co.

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



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



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



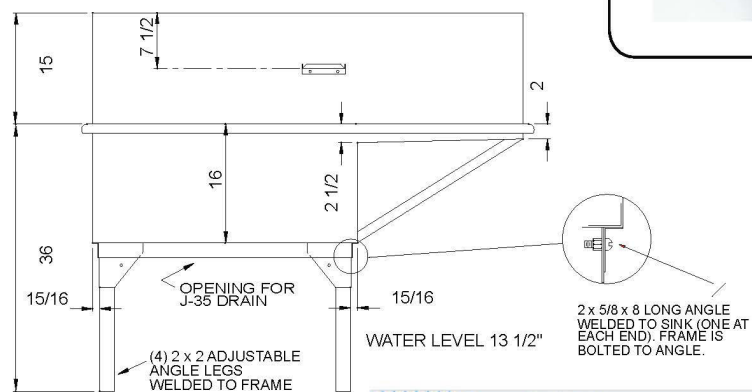
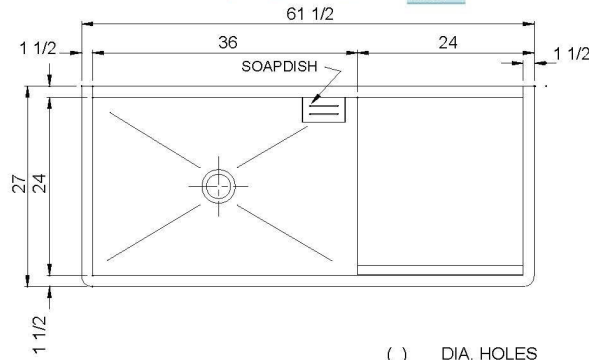
COMMERCIAL GROUP



MN-62L

ONE COMPARTMENT - LEFT
ONE DRAINBOARD - RIGHT
GOVERNMENT-TYPE SCULLERY
IN ACCORDANCE with WWW-P-541b

SUBMITTAL DATA



42.0 Gallon Capacity
Capacity Matters
Max ID sizing with straight sided bowl configuration (non tapered sides). Tight corner radius design.

■ Faucet hole punching:
(1) Hole Centered
(2) Holes on 8" centers
(3) Holes on 4" centers
Alternate Punching:
Faucet Model:
Punching required:

SPECIFICATION

Constructed of 14 gauge type 304, 18-8 stainless steel. Front and rear horizontal radius inside compartment 11/16". Vertical corners of compartment are square. Bottoms pitched to drain. Interior surfaces polished with a non-porous Hand-Blended Just Finish. Exposed exterior surfaces to have a brush finish. Supported on (4) 2" x 2" x 14 ga. stainless steel angle legs with angle frame and leveling bolts. In accordance with Federal Specification WW-P-541B, dated August 1, 1980. Drain punch #35 centered for Just J-35 unless otherwise specified.

FUNCTIONAL DESIGN, QUALITY, AND SPECIFICATIONS LISTED DESCRIBE THE JUST STANDARD OF QUALITY WHEN MAKING COMPARISONS WITH OTHER OFFERINGS. INSIST ON THE JUST QUALITY OF CONSTRUCTION. FOR ADDITIONAL INFORMATION REGARDING THE COMPLETE LINE OF JUST SINKS, FAUCETS AND DRAINS, VISIT OUR WEB SITE AT www.justmfg.com

Job Name _____
Customer _____
Architect/Engineer _____

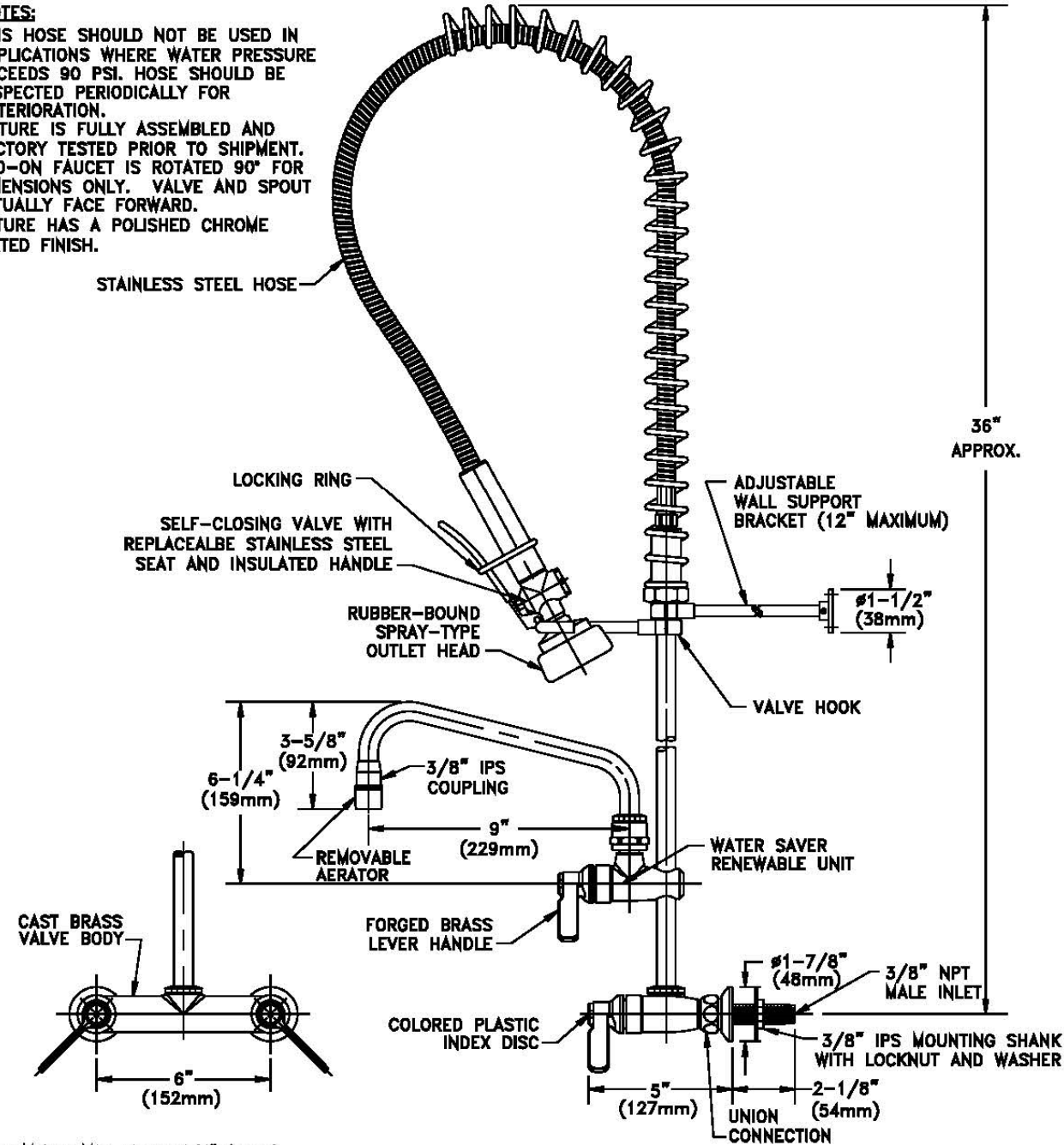
APPROVED FOR MANUFACTURING
MODEL NO. MN-62L QTY. _____
COMPANY _____
TITLE _____ DATE _____
SIGNATURE _____

JUST MANUFACTURING COMPANY 9233 KING STREET . FRANKLIN PARK . ILLINOIS . 60131-2111
PH: 847-678-5150 . FAX: 847-678-6817 . E-MAIL: custserv@justmfg.com . www.justmfg.com

PR1711AOF-LE-WSA
PRE-RINSE UNIT, HOT AND COLD WATER, PANEL MOUNTED, ADD-ON FAUCET, 9" SWING SPOUT,
LEVER HANDLES

NOTES:

1. THIS HOSE SHOULD NOT BE USED IN APPLICATIONS WHERE WATER PRESSURE EXCEEDS 90 PSI. HOSE SHOULD BE INSPECTED PERIODICALLY FOR DETERIORATION.
2. FIXTURE IS FULLY ASSEMBLED AND FACTORY TESTED PRIOR TO SHIPMENT.
3. ADD-ON FAUCET IS ROTATED 90° FOR DIMENSIONS ONLY. VALVE AND SPOUT ACTUALLY FACE FORWARD.
4. FIXTURE HAS A POLISHED CHROME PLATED FINISH.



MEASUREMENTS MAY VARY $\pm 1/4"$ (6mm) CHECK VALVE

Drawing Number: _____

Revision Number: **021113-TEC**

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



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

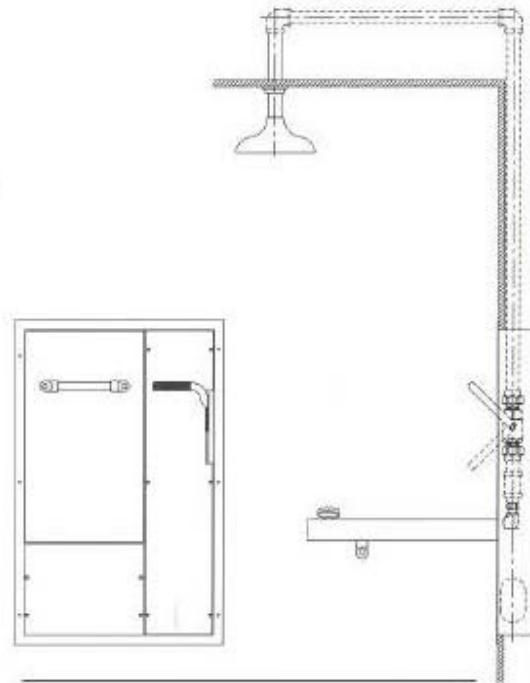
Available Options:

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.

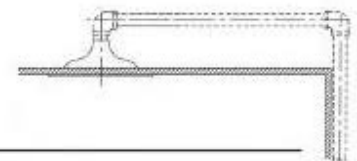
CTSSBF2150

Recessed Safety Station with Drain Pan



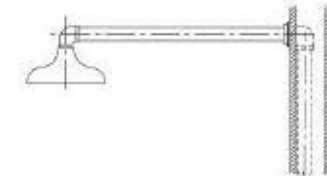
CTSSBF2160

Same as above except with recess mounted shower head.



CTSSBF2170

Same as above except with wall mounted shower head.



73

WaterSaver Faucet Co. 312.666.5500 Voice 312.666.8597 Fax wsflab.com

SAFETY SHOWER/EYEWASH CUT SHEET

All labs where noted

Unit 2170 will be specified with wall brace.

Requires drain inside wall cavity for eyewash per Division 22.

Provide drain at floor for shower if acceptable to MTSU. Floor drain, if provided, should have removable cover to prevent floor drain from being blocked by dust/debris.

M-120 Wall-Mounted Hose Station

The Strahman M-120 Wall-Mounted Hose Station is made of stainless steel. This strong and compact hose station includes a hose rack, mounting hardware and On/Off valve. The hose station comes with (2) 1/4" stainless steel wall mounting bolts and zinc plated steel anchors for strength and durability.

Specifications

- Maximum operating temperature 200° F/93° C
- Ball valve and bracket are rated at a maximum working pressure 1,000 psi
- With Strahman Hose Assembly and Nozzle, maximum working pressure 150 psi
- 3/4" full port 316 stainless steel ball valve, PTFE packing
- Stainless steel hose rack for 50 feet of hose
- 1/4" Stainless steel wall mounting bolts
- Stainless steel 1/4 turn On/Off valve for ease of operation
- Zinc plated steel anchors

NOTE: Intended for cold or hot water use only.

Please see reverse side for parts listing.



Shown: M-120 Wall-Mounted Hose Station; shown with premium hose assembly and S-70 Series nozzle.



USA Headquarters

2801 Baglyos Circle • Bethlehem, PA 18020

Phone: (484) 893-5080 • Fax: (484) 893-5099 • Toll Free: (877) STRAHMAN

www.strahmanvalves.com

France

Savoie Hexapole, F-73420 Mery, France

Tel: 33 (0) 4 79 35 78 00

Fax: 33 (0) 4 79 35 78 20

Germany

Kirchstrasse 16, D-77855, Achern, Germany

Tel: 49 (0) 7841-6846530

Fax: 49 (0) 7841-6846531



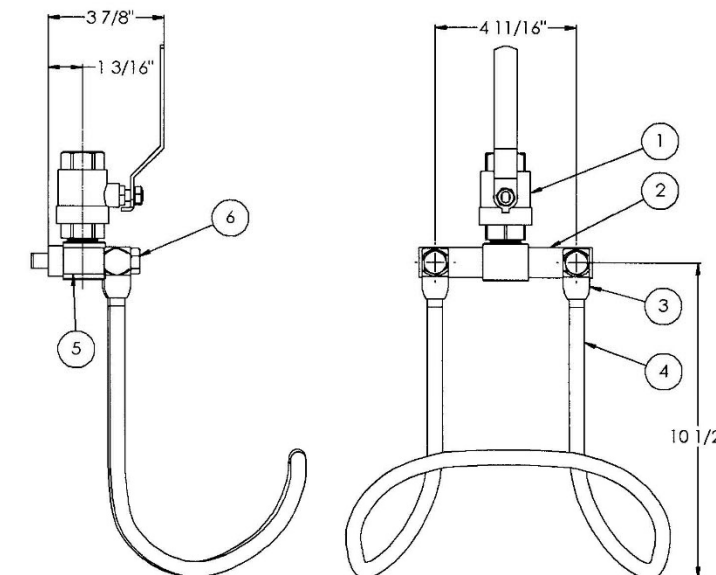
Last Updated: July, 2012

HOSE BIB & REEL CUT SHEET

Materials Laboratory 200
Mixing Laboratory 205

To be specified with cold water supply

M-120 Wall-Mounted Hose Station



PARTS		
PART NO.	PART	MATERIAL
1	BALL VALVE	316 SST
2	BRACKET	304L SST
3	HOSE RACK CONNECTOR	303 SST
4	HOSE RACK	302 SST
5	HOSE RACK SPACER	303 SST
6	1/2" BOLT	18-8 SST



Item # _____

Job _____

SUPER ADJUSTABLE 2" SUPER ERECTA SHELF® WIRE SHELVING

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

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

Super Adjustable 2" Advantage . . .

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



Dry Storage — Chrome or Super Erecta Brite™



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



Mobile Stem Caster Cart



Mobile Dolly Truck



Corner Release System

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



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



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

10.01A

METRO SHELF UNIT CUT SHEET

Soils Laboratory 201
Building Systems Laboratory 207

Metro shelf unit to be spec'd at 36" wide x 72" long x 72" high, with heavy duty lockable casters and adjustable shelves.

Solid shelves, non-corrosion to be specified.



KH Industries
The Permanent Name in Temporary Lighting
khindustries.com
(716) 312-0088

POWER REEL CUT SHEET
Materials Laboratory 200
Soils Laboratory 201
Mixing Laboratory 205
Building Systems Laboratory 207
Student Projects Laboratory 208



This power reel is suggestion only.
MTSU may have specific preference.

Retractable Cord Reel, RTB Series

Model #: RTBB3L-WGB520-J12F

ATTRIBUTES:

Cord Length:	25'
Gauge:	12 AWG
Conductor:	3
Max Amps:	20 Amp
Standard:	NEMA 2
Cord Type:	SJOW-Black
Volts:	125 VAC
Feeder End:	5-20P
Payout End:	Yellow O/B 20A Duplex/Duplex
Reel Color:	Yellow
Series:	RTB

FEATURES:

- NEMA 2 rated for indoor use
- Prewired rubber yellow outlet box with (2) N5-20R
- All steel construction, including mounting base
- 12 position adjustable guide arm
- Adjustable ratchet can be engaged (positive lock) or disengaged (constant tension) as needed
- Adjustable ball stop included
- 6' feeder cord included with molded 5-20P and in-line GFCI for easy plug and play operation
- Yellow powder-coat finish
- Made in USA

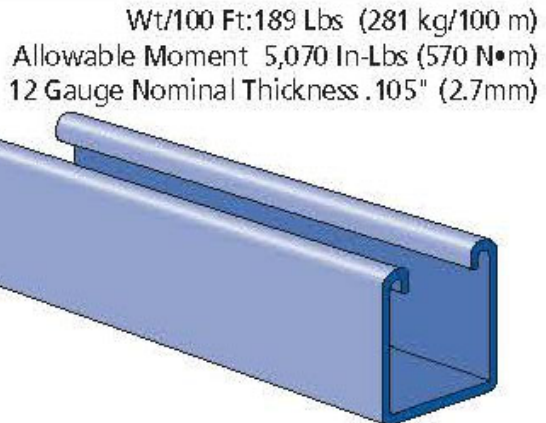
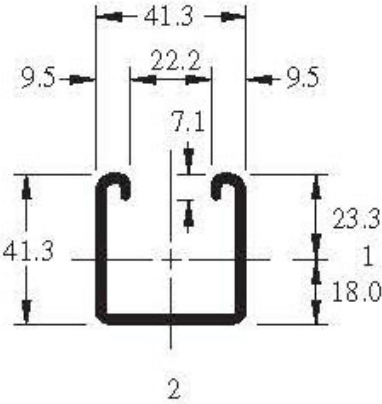
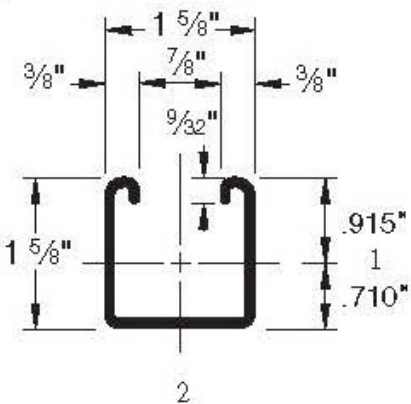
UNISTRUT P1000/1001 CUT SHEET

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

P1000® & P1001 Channels

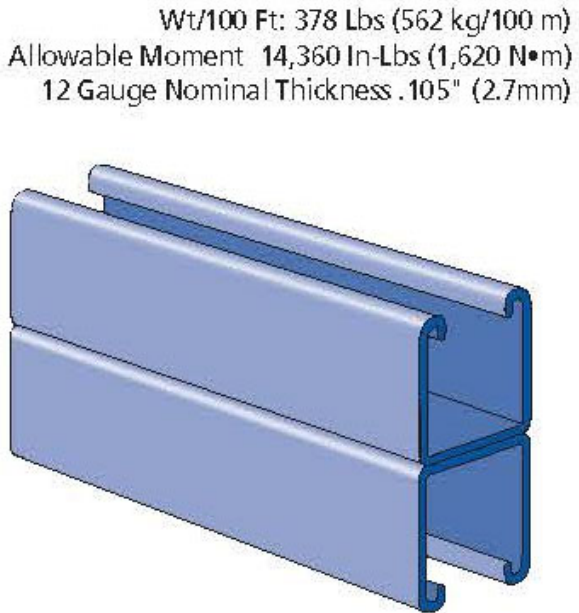
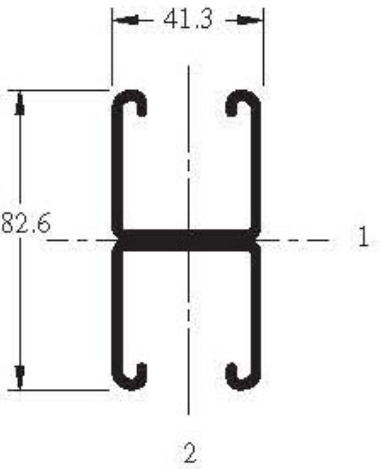
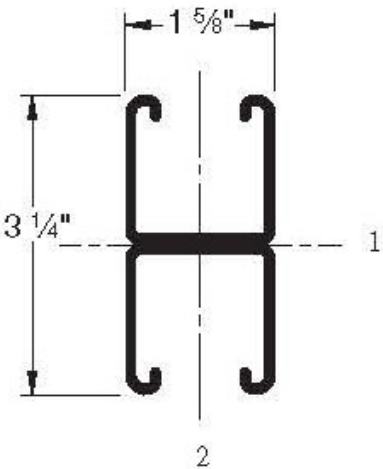


P1000®



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)

1 5/8" Channel
 Telestrut System
 Nuts & Hardware
 General Fittings
 Pipe/Conduit Supports
 Electrical Fittings

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.

The total load on a single shelf unit at wall will be significant. A multishelf unit noted in lab design, with 3 shelves, will have design load capacity of 2700 lbs (3 shelves with 900 lbs each).

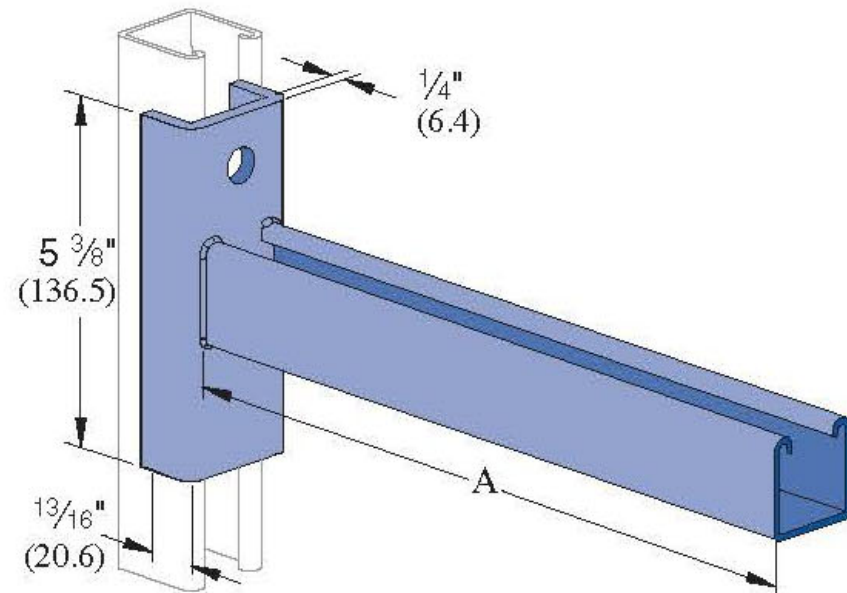
Shelf units are adjustable/removable/relocatable. All shelf units can be moved to other shelf unit/storage cabinet locations.

P1001 members are used at horizontal and vertical frames that hang from structure. Power conduit and fourplex power boxes attach to Unistrut frame. Power reels attach to Unistrut frame, and are moveable. Power reels plug into the power outlets on the Unistrut frame.

UNISTRUT P2234A CUT SHEET

Used for Unistrut shelf bracket for tall storage shelf units in all labs where noted

P2233, P2234



Part Number	"A" In (mm)	Wt/100 pcs Lbs (kg)	Vertical Channel		Uniform Design Load Lbs (kg)
			Part No.	Gauge	
P2233	18 457.2	436 197.8	P1000	12	600 272.2
			P1100	14	450 204.1
			P2000	16	300 136.1
P2234	24 609.6	536 243.1	P1000	12	450 204.1
			P1100	14	330 149.7
			P2000	16	220 99.8

Safety Factor - 2½

P2234 shelf bracket is attached to P1000 wall frame with recessed alan head bolt connectors and spring channel nuts.

Two shelf brackets support one 1" thick x 36" deep x 46" wide plywood shelf. Plywood shelf will be attached to shelf bracket with heavy duty alan head Unistrut bolt fasteners and spring loaded nuts. Each shelf can support 900 lbs.

P2234 bracket is modified to be 6.5" in height to accommodate bolt connector above plywood shelf.

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