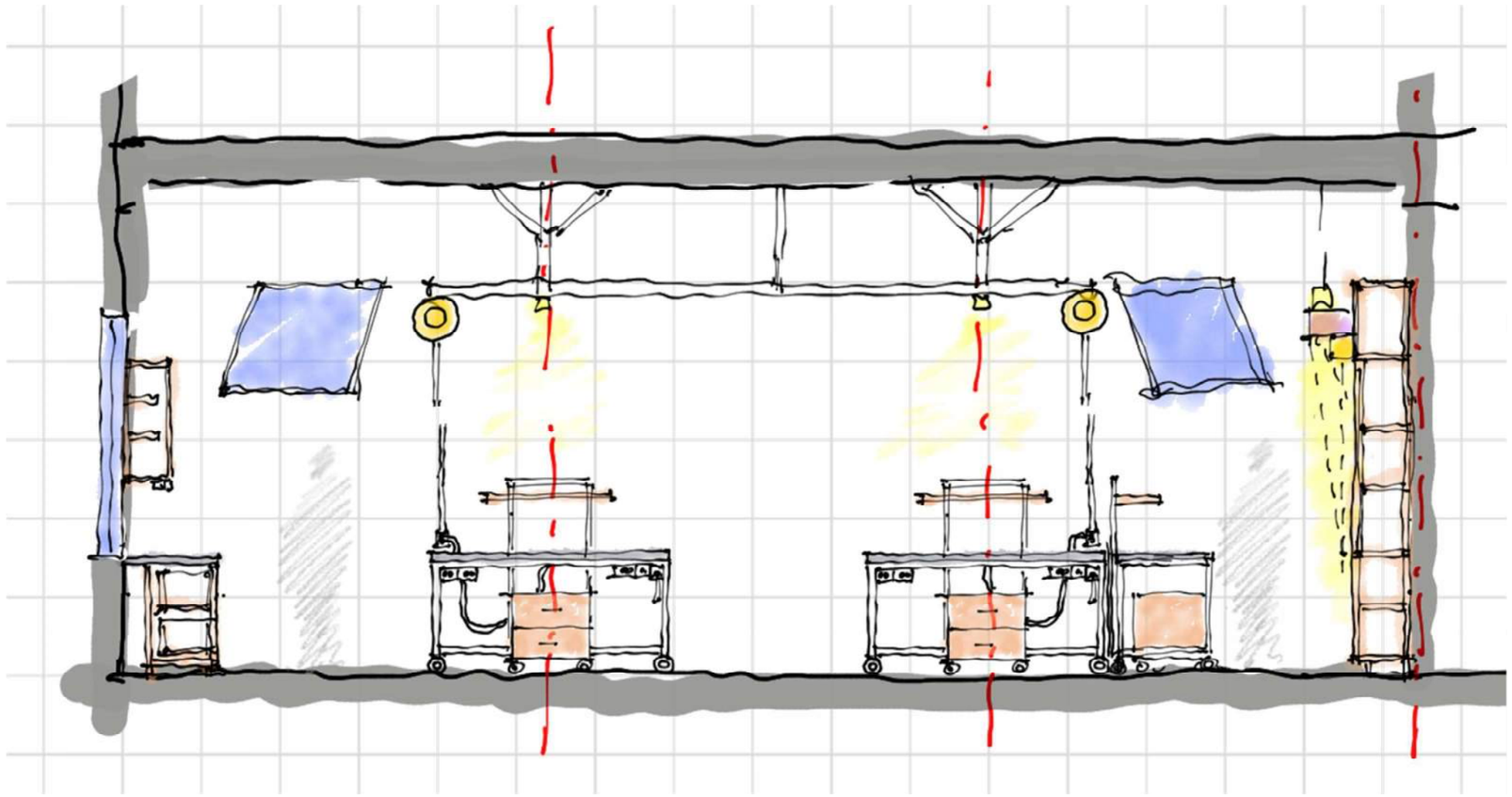
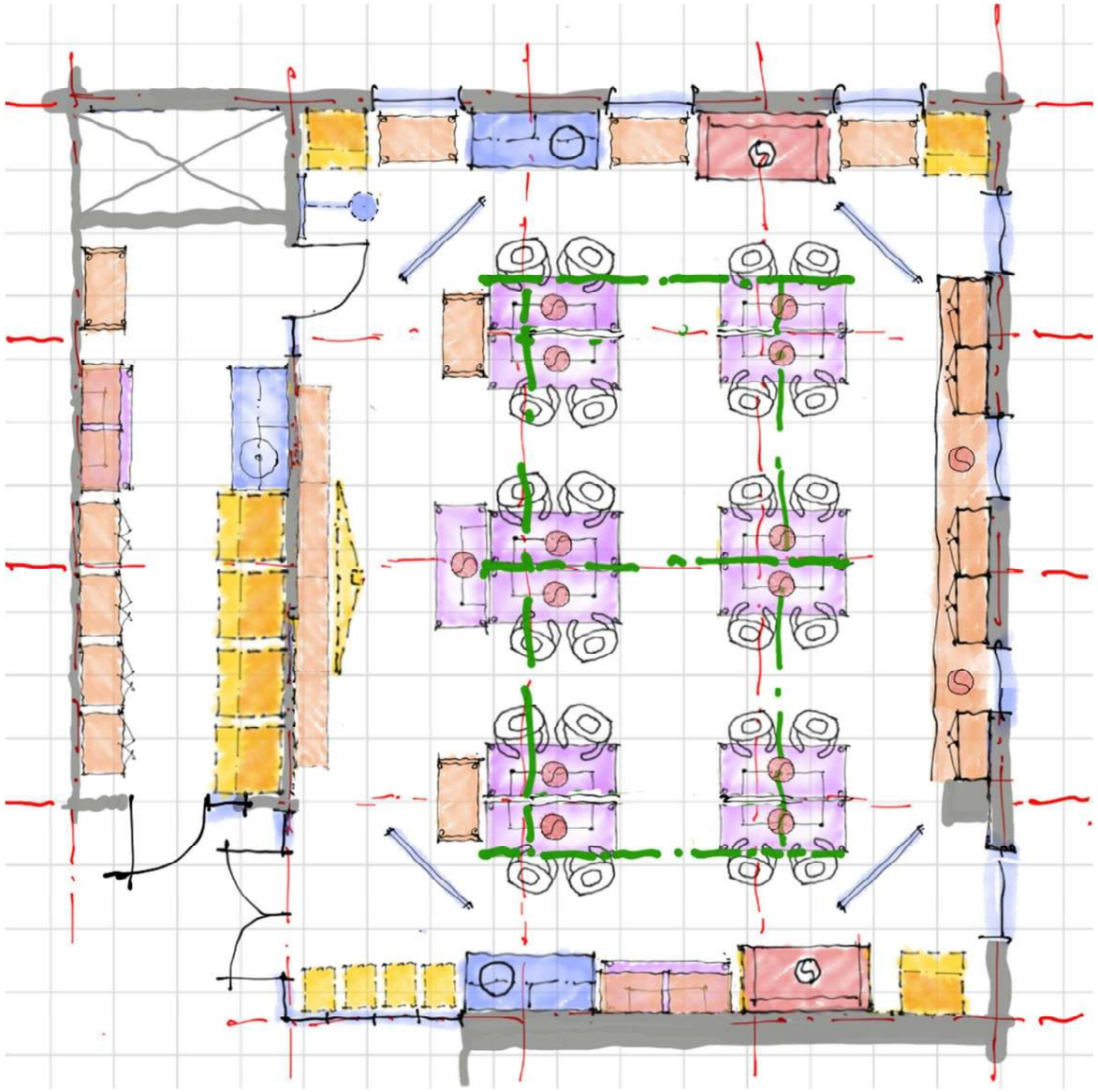


Laboratory Design Criteria

STEM Building

University of San Diego

2025 May 27



Contents

The design process is iterative. Design takes into account SCHEDULE, QUALITY, and BUDGET, as decisions are made and the design is refined.

Summary

This is the third draft of the lab design criteria for the new STEM Building at University of San Diego. Draft #1 was issued 2025 Apr 21. Draft #2 was issued 2025 May 12.

This draft includes individual room data sheets for each lab, and cut sheets for Contractor Furnished (CFCI) Lab Equipment.

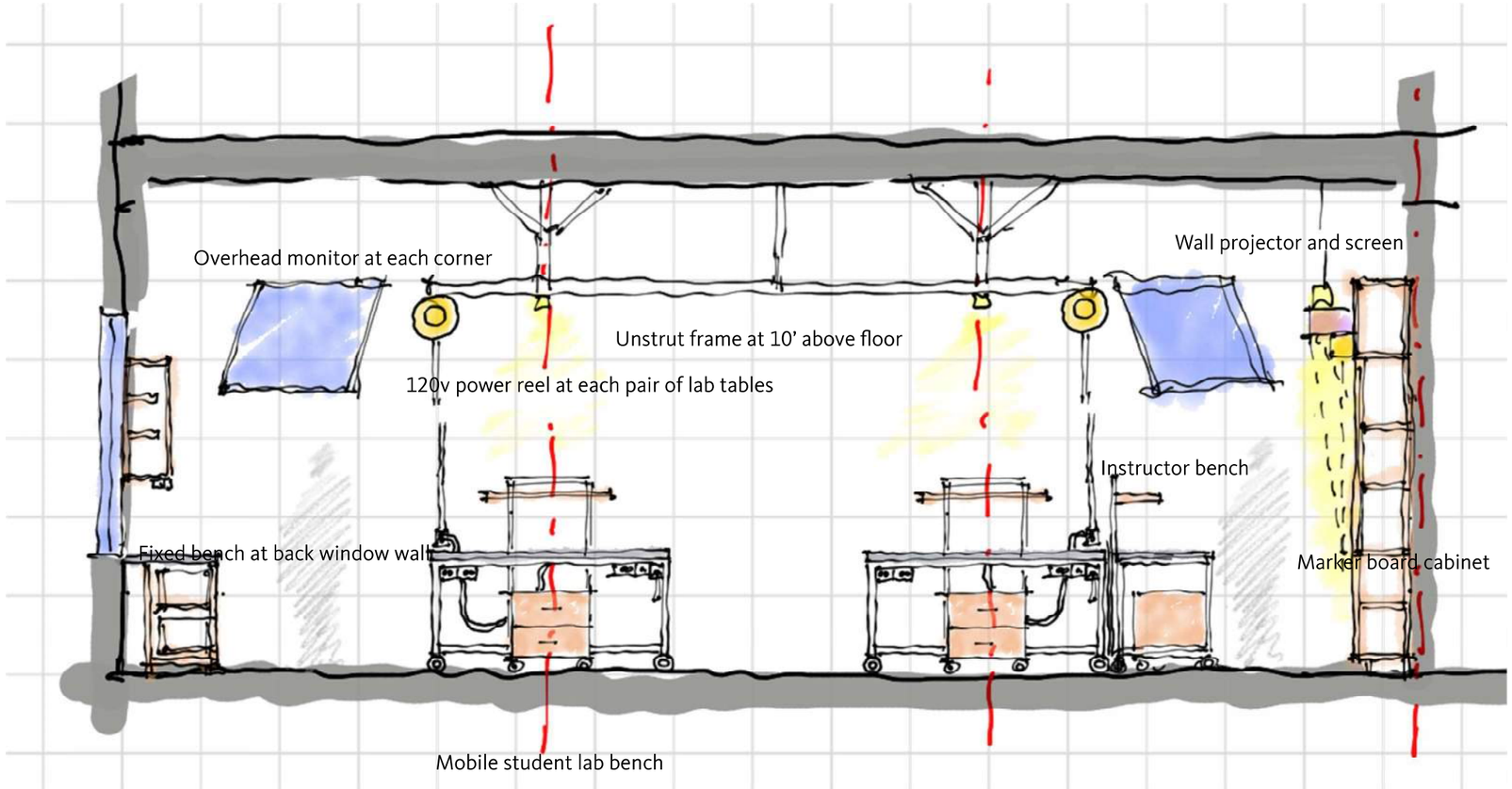
Labs are distinguished between **containment labs** with 100% exhaust, and 6 air changes per hour, and **non-containment labs**. Containment labs may have chemical fume hoods, and/or snorkel exhaust units, and/or chemical storage cabinets. Containment labs run 24/7/365 with night setback to 3 air changes per hour during unoccupied hours.

Non-containment labs have office/classroom type HVAC with recirculated air. Non-containment labs do not have chemical fume hoods, nor chemical storage. They may have snorkel exhaust units and/or on demand exhaust air to remove smoke/heat/fumes when needed.

The primary objective of the lab design criteria is to establish a pattern language for the lab design that provides a long term flexible lab design which can adapt and change over time. Fixed lab furnishings are limited to sink stations, chemical fume hoods, and fixed lab bench at select lab exterior wall locations. All other lab furnishings are intentionally mobile and flexible, such as lab benches, instructor benches, storage cabinets, and equipment space. One important feature of the flexible lab design is the equipment shelf that occurs above all equipment and/or lab bench locations at perimeter walls in the labs. These equipment shelf units provide an additional ~980 square feet of single shelf storage (164 shelves x 6 square feet per shelf).

This lab criteria document will be updated as needed for the design development phase. As the design progresses, the sketch elements of the labs will be developed in Revit.

Glen Berry, FAIA
Lab Planner, Gensler



Lab Section Concept

The typical 24 student teaching lab consists of the following elements:

1. **Six groups of four students. Two students share a single 30"x72" lab bench, which is mobile, and adjustable in height from sitting to standing position. Each student bench may have one adjustable, removeable shelf above the work surface, or no shelf. Each lab bench has integral power, with two 120v duplex plugs per student, or four duplex per bench. The bench can plug into an adjacent lab bench, or into a power reel that is located above on the overhead unistrut frame. Two lab benches are located directly adjacent to each other, to form a four student group. Mobile base cabinets are located below each lab bench. A mobile instructor bench is located near the marker board wall at the end of a student island. Lab benches can be reconfigured in a variety of patterns. A few possible patterns are indicated on page 5.**

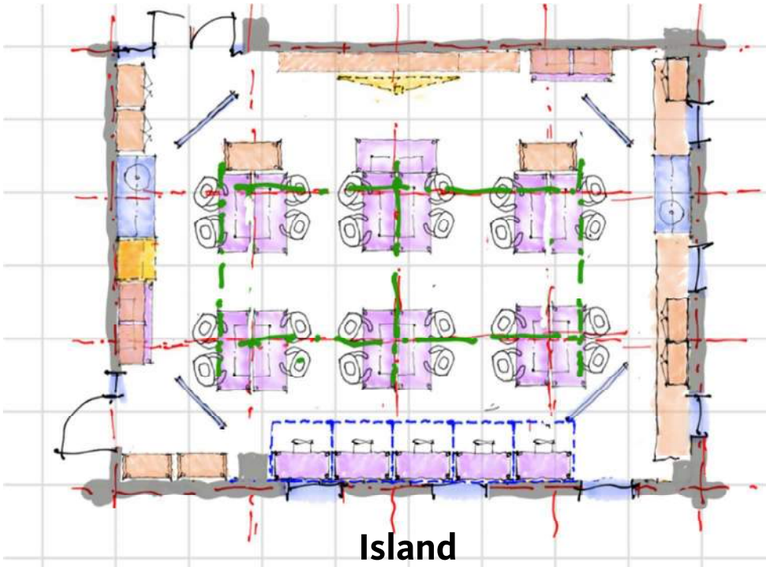
2. **Front wall marker board cabinet. The front wall of a typical lab teaching lab has a 1.5' deep x 18' long marker board cabinet, with four 4' horizontal sliding marker boards. Behind the marker boards are open, adjustable shelves for lab supplies and instruments (not chemical storage). Below the marker boards are cabinets with doors. Above the marker boards is an automated projection screen and wall mount projector.**

3. **Back wall fixed lab bench. The back wall of a typical lab has a fixed wall bench along the exterior window wall. The wall bench work surface is at standing (36") height, with wall cabinets above between windows, and base cabinets below. At window locations, there is a ~50/50 mix of fixed base cabinets and mobile base cabinets and knee space. The fixed base cabinet at a window has a deck mount 120v fourplex. The knee space has 120v fourplex outlet below, with a 3" grommet in the work surface. Horizontal power raceway is located below the wall cabinets.**

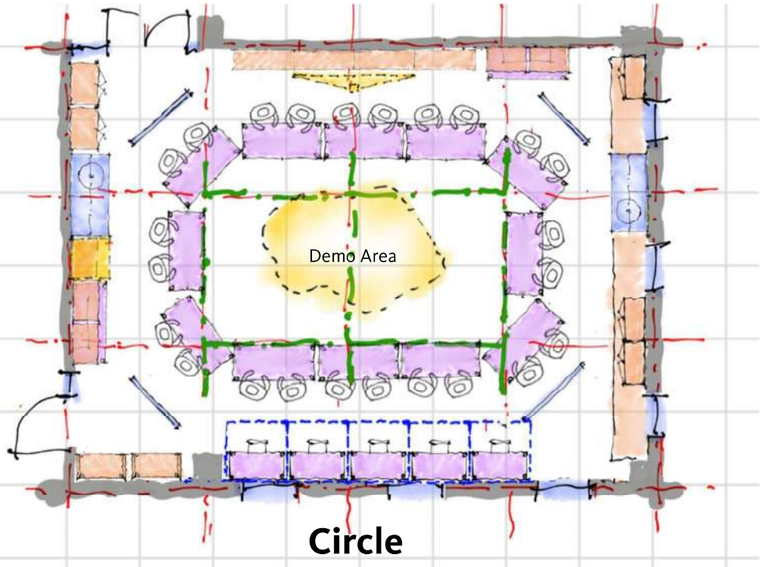
4. **The ceiling is open to the structure above. There is no drop ceiling in the labs. The overhead unistrut frame is located at 10' above the floor. The power reels attached at the bottom of the unistrut frame. LED room lighting is at the bottom of the unistrut frame.**

5. **Perimeter overhead monitors are located in each corner of the open lab area. The bottom of the monitors is at 7' above the floor. The monitors are approximately 5' in diagonal dimension.**

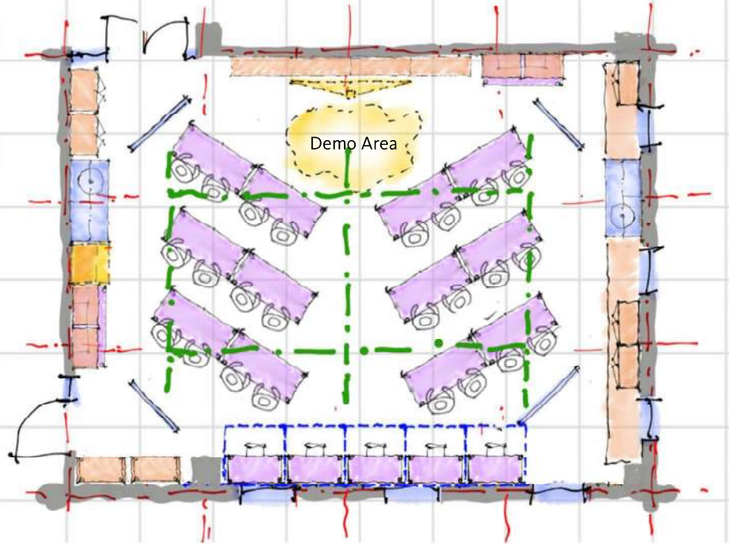
Flexible Lab Concept



Island



Circle



Chevron

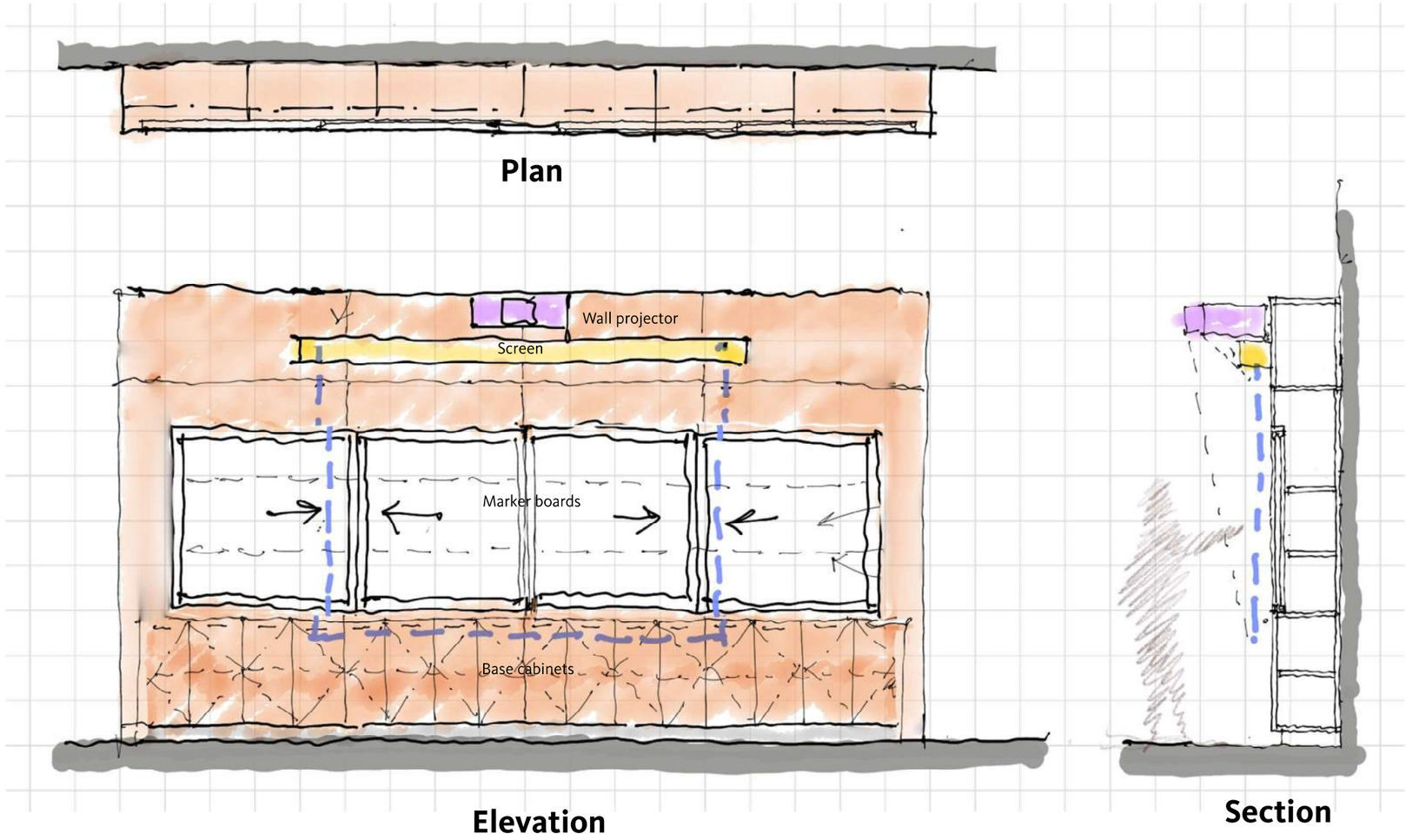
Orthogonal

Variations of lab layouts. Any 24 student lab with mobile lab benches can be reconfigured as shown here for the Human Cognition/Neurophysiology Lab.

Student lab benches are moveable and adjustable in height from sitting height to standing height.

At the overhead unistrut frame, located at 10' above the floor, is a 120v20 amp dedicated circuit fourplex (per Div 26) for each lab bench, and instructor bench, for a total of 13 dedicated circuits above the open lab bench area. At each pair of lab benches there is a power reel (per Div 11) which plugs into an adjacent fourplex. The extra power outlets provide additional flexibility for long term lab use.

Marker Board Cabinet Concept



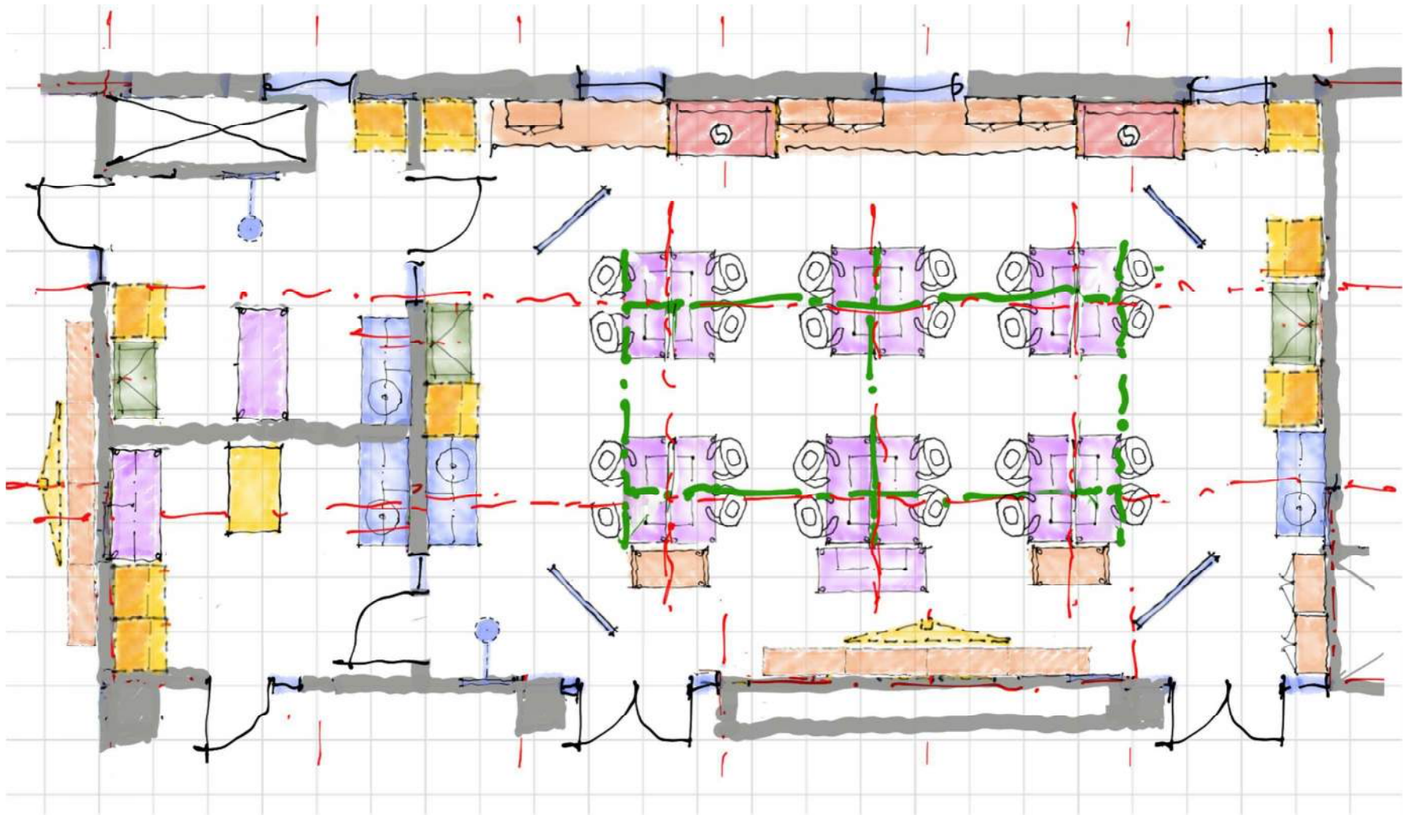
The marker board cabinet is located at the front wall of each typical 24 student teaching lab. There are a few labs that do not have the marker board cabinet.

The cabinet is per Div 11. It has a four section horizontal sliding board marker board, with four 4' sliding marker boards. Behind the marker boards is open, adjustable shelving for lab supplies and instruments. Chemical storage is not intended for this location.

Below the marker boards are base cabinets with doors.

Above the marker boards is an automated screen, centered on the marker boards, and a wall mount projector. The screen should be located as close to the marker board surface as possible, so as to above sight interference on the viewing of the side panel marker boards.

There will be integral power and data located at the side panels of the cabinet, not shown in the sketch illustration.



Mechanical Design Criteria (Div 23)

There are three HVAC systems types in the lab design.

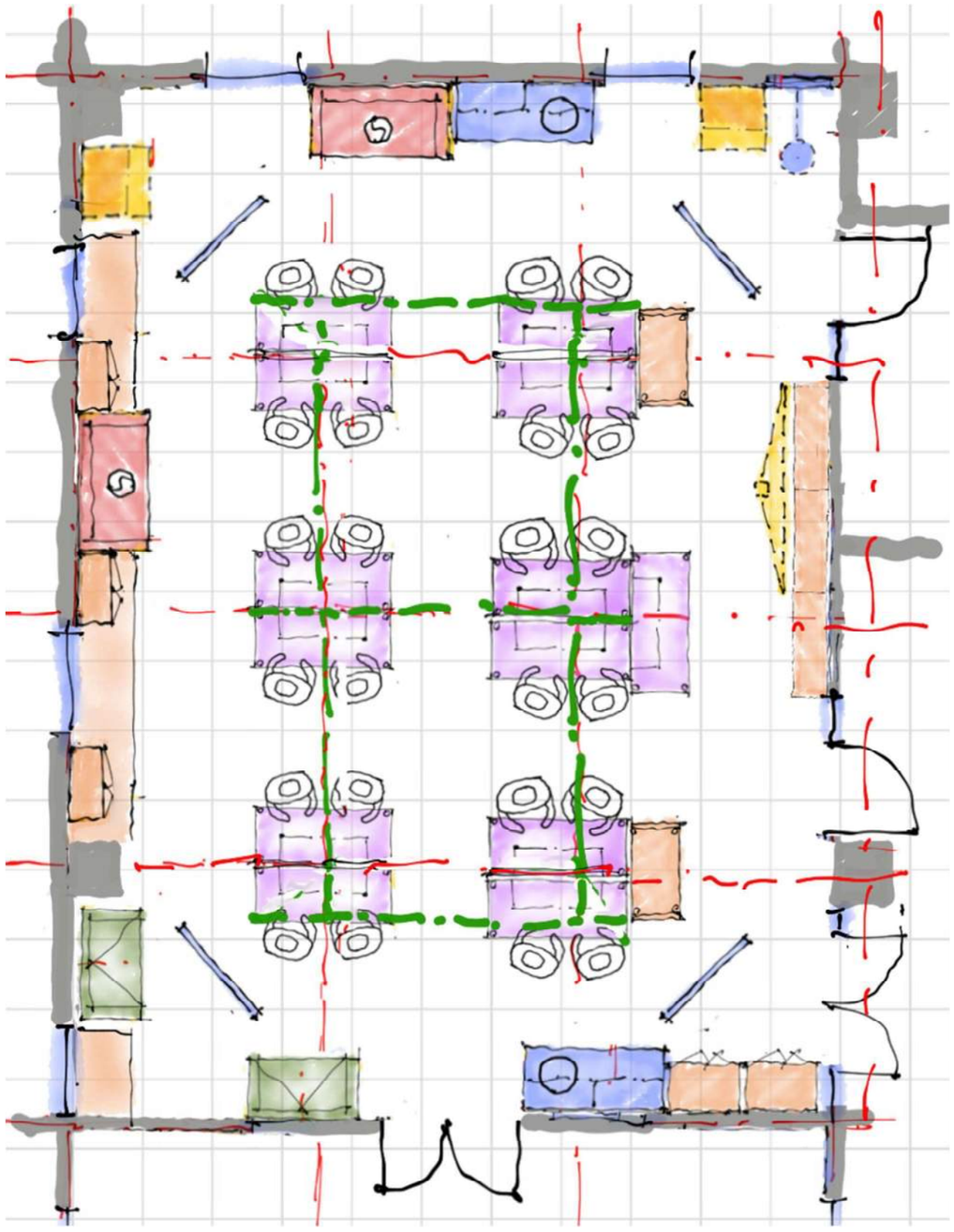
Type 1 is the Containment Lab HVAC system, which is for labs with chemical storage. Type 1 is a 100% exhaust (no recirculation of air) with 1 cfm/sf general lab room exhaust (not including exhaust from snorkels or chemical fume hoods) that runs 24/7365. Night set back to 0.5 cfm/sf is appropriate. Chemical fume hood exhaust should be separated from lab general room exhaust and snorkel exhaust. Chemical fume hood exhaust is to be provided with emergency power. The Type 1 Containment Labs are:

1. **Medical Device Lab, L3- West side**
2. **Biomedical Engineering Lab, L3- Northwest corner**
3. **Cell-Mol Biology/Neurobiology Lab, L3- North side**
4. **Materials Science Lab, L2- Northeast corner**
5. **Environmental Lab, L1- Southeast corner**

Type 2 is the recirculated air HVAC system, for labs that do not have chemical storage. These are noted as non-containment labs. These labs have typical HVAC system as is commonly found in offices, classrooms, meetings rooms, etc. The majority of the lab are Type 2 HVAC. These labs can have natural ventilation if appropriate and feasible. Some Type 2 non-containment labs may have snorkel exhaust units.

Type 3 is a hybrid HVAC system for labs with Type 2 room HVAC, but which also have on demand lab room exhaust for use when there are unwanted odors, or smoke, or heat in the lab which needs to be exhausted from the lab room as needed. This would be controlled by an on/off switch by the lab instructor, located near the front wall marker board cabinet, or on the marker board cabinet. Type 3 hybrid HVAC labs may also have snorkel exhaust units. Type 3 HVAC labs are:

1. **Food Science Lab, L3- Northeast corner**
2. **Viz/Image Anatomy/Physiology Lab, L3- Southwest corner**
3. **Shop, L1, West side- has shop equipment dust removal system**



Plumbing Design Criteria (Div 22)

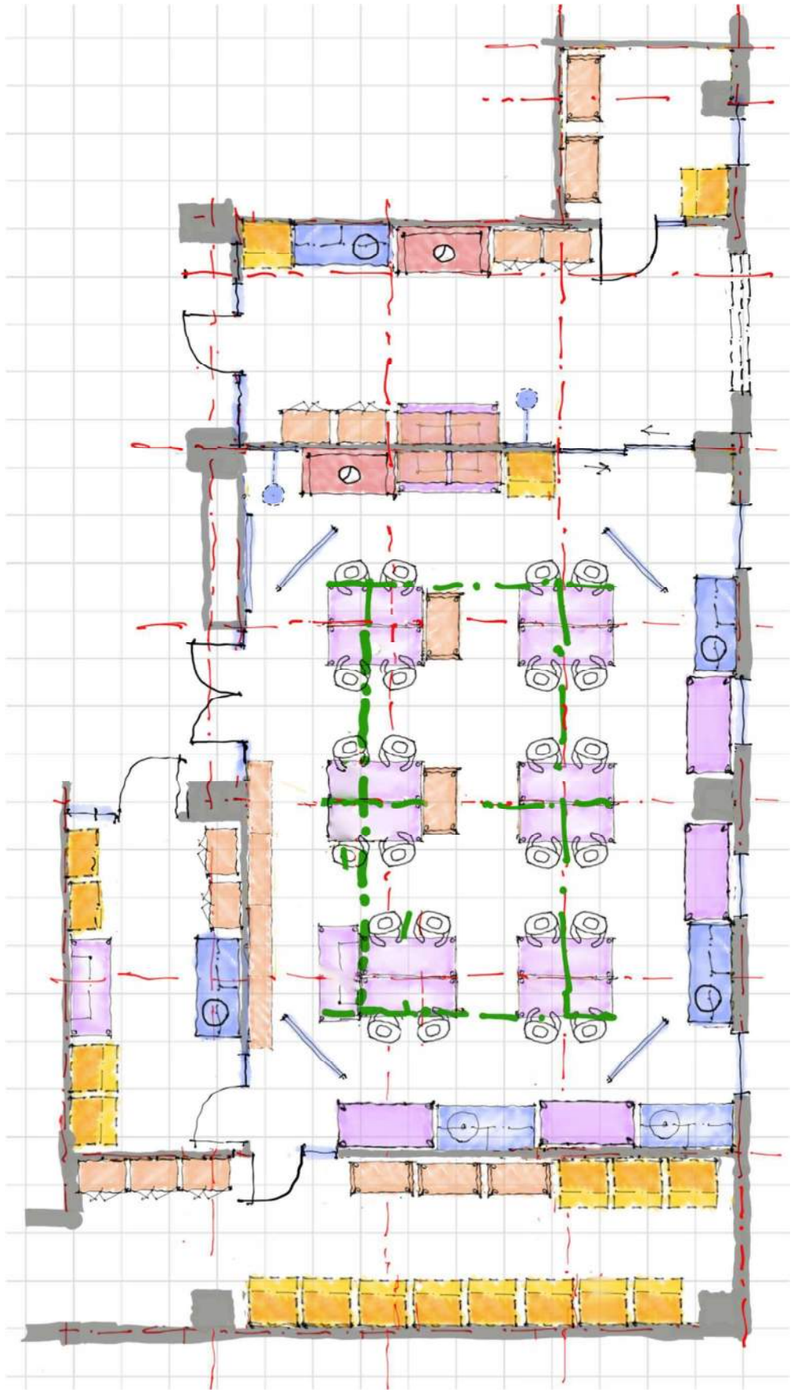
Centrally piped plumbing systems consist of:

1. **Hot/Cold Water, domestic. There is no industrial water loop for the building. Containment lab sink faucets will be specified with vacuum breakers.**
2. **Air- compressed, dry, oil-free, instrument grade air. Air supply is to labs where indicated, and may consist of supply to overhead air reels, and/or air valves at select locations. Air supply to be provided at 120 psi for main system, with step down to 30 psi in each lab.**
3. **Vacuum- Central vacuum system to provide vacuum at labs where indicated. Provide vacuum at 15 inHG at the valve.**

Pure Water:
There is no centrally piped pure water system in the building. Pure water will be provided by local point-of-use water polishers at select sink locations in the containment labs. Some non-containment labs may also have pure water. At designated lab sinks, Div 26 will provide a duplex 120v dedicated circuit below, inside the lab sink base cabinet. Div 22 will provide a stub-out domestic cold water valve for connection to the pure water polisher unit. The pure water polisher and storage tank will sit inside the sink unit base cabinet, adjacent to the sink cabinet. An RO prefilter unit may be required, and will be provided as part of the pure water polisher system. The pure water polisher system will be specified per Div. 11.

Natural Gas:
Natural gas is not planned as a centrally piped service for the building. Flame burner in labs, where required, will be by portable electrical burner units.

Cylinder Gases:
Cylinder gas will be OFOI, and provided in select labs as determined by USD. Provision will be made in the lab design for the seismic restraint of inert cylinder gases and nitrogen dewars.



Electrical Design Criteria

Lab electrical service consists of the following:

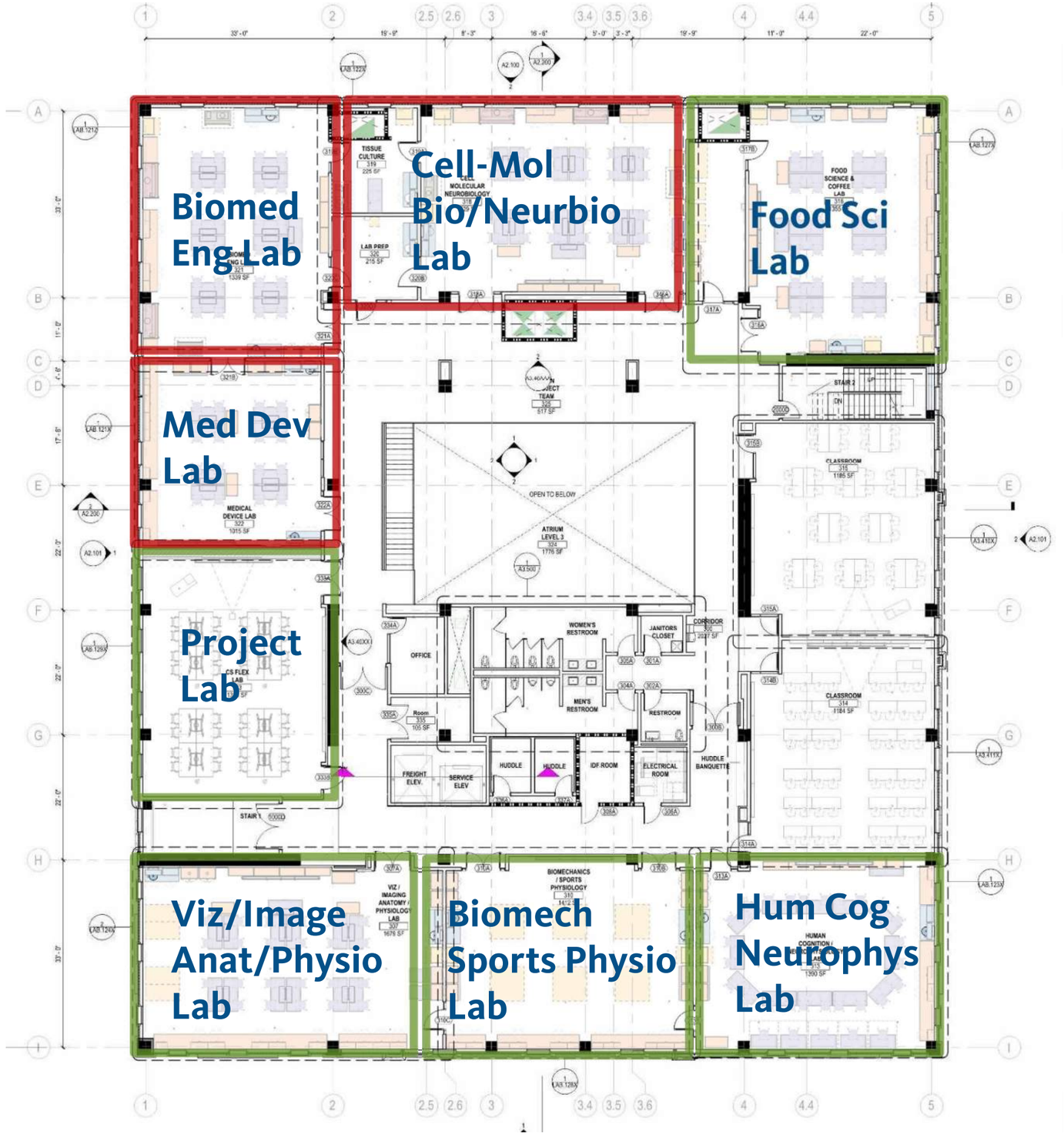
1. **Overhead power reels above lab student benches. Power reels will be specified per Div 11. Power reels plug into 120v20 amp dedicated fourplex outlet boxes mounted on the unistrut frame. Fourplex boxes at unistrut frame are per Div 26. There is one fourplex per single 30”x72” lab bench. There is one power reel per two 30”x72” lab bench. There may be a need to provide 120v30amp circuits in some labs. See Food Science Lab.**
2. **Perimeter power will be 120v 20amp circuits, with horizontal raceway at fixed window wall bench, with a maximum of 8 plugs (four duplex) per circuit. Perimeter power at mobile lab benches and equipment space will be dedicated 120v20amp circuit at each lab equipment shelf unit, with two duplex per circuit. The aluminum AL3300 raceway at perimeter is per Div 26.**
3. **208v30amp3ph power: In each lab, provide extra spare circuit for 208v30amp3ph power supply. Location to be determined.**
4. **480v power may be required for the washer unit in the Prep Room adjacent to the Food Science Lab, and/or at the Autoclave in the Prep Room adjacent to the Cell/Mol Biology Neurobiology Lab. Wall mount shut-off should be provided at each 480v power supply.**

Emergency power:
Emergency power is required for the lab fume hood exhaust system, per CBC.

Standby power:
Standby power may be required for refrigerators and freezers in designated labs, as required.

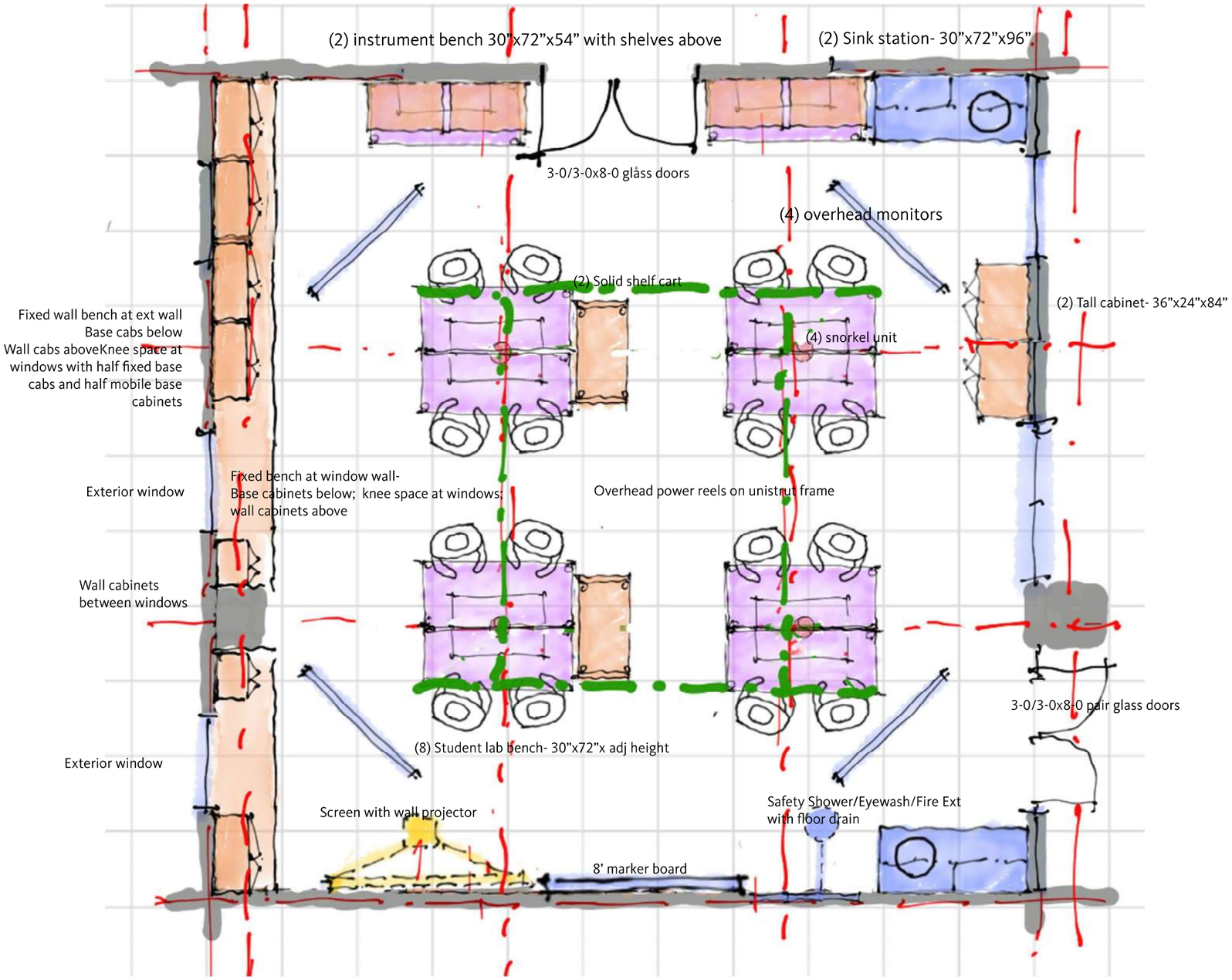
UPS power:
There is no central UPS system required for the building. UPS power will be provided via OFOI battery units at select locations, where needed.

Data:
Data consists of a pull down data reel at the instructor bench in the open lab area of each lab. Additional data will be provide at the perimeter walls of each lab. Data should also be provided at each overhead monitor, at the marker board wall cabinet, and other select locations to be determined.



Level 3 Labs

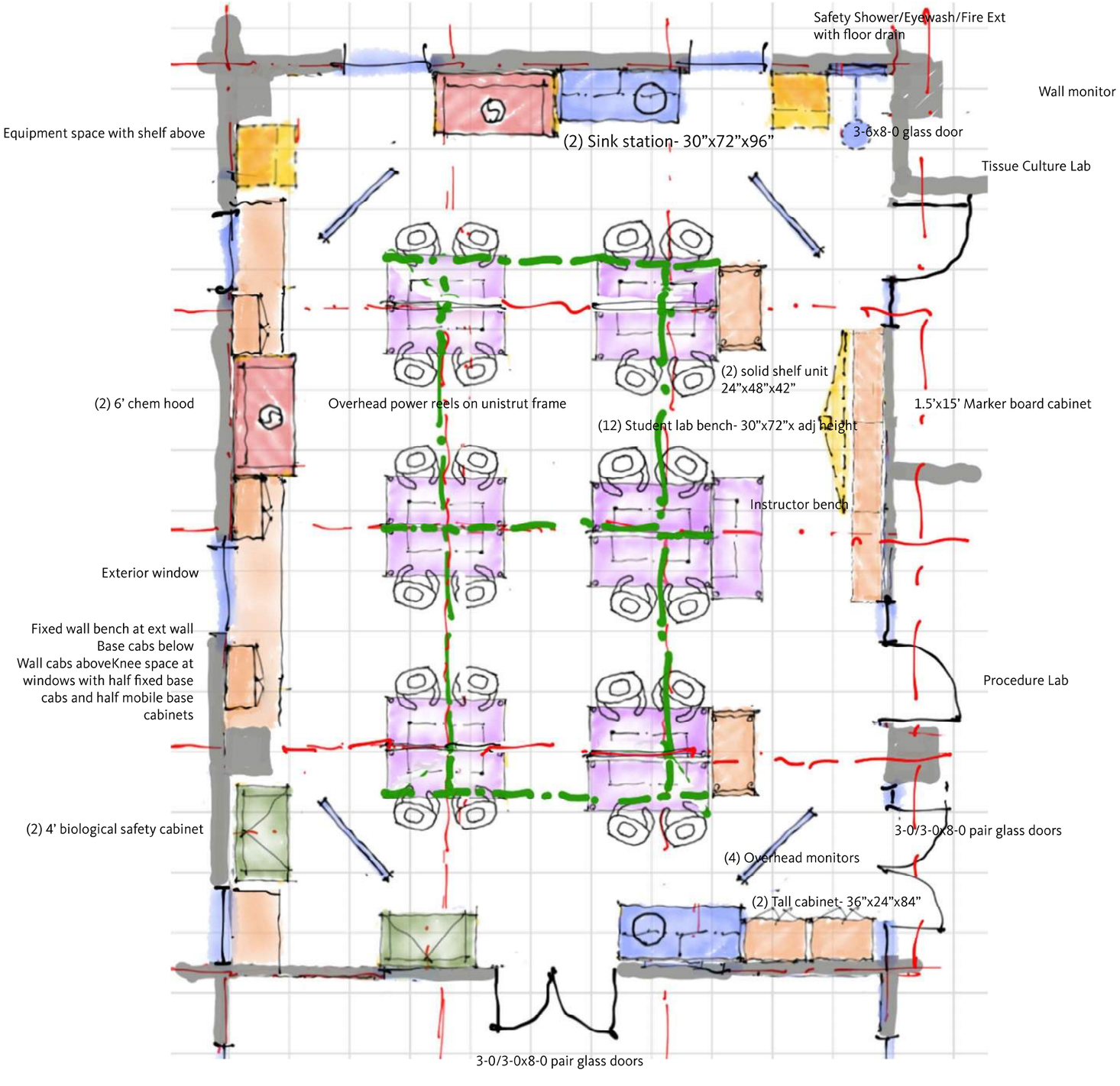
Starting at Medical Device Lab at east side, and proceeding clockwise:



Medical Device Lab

Containment

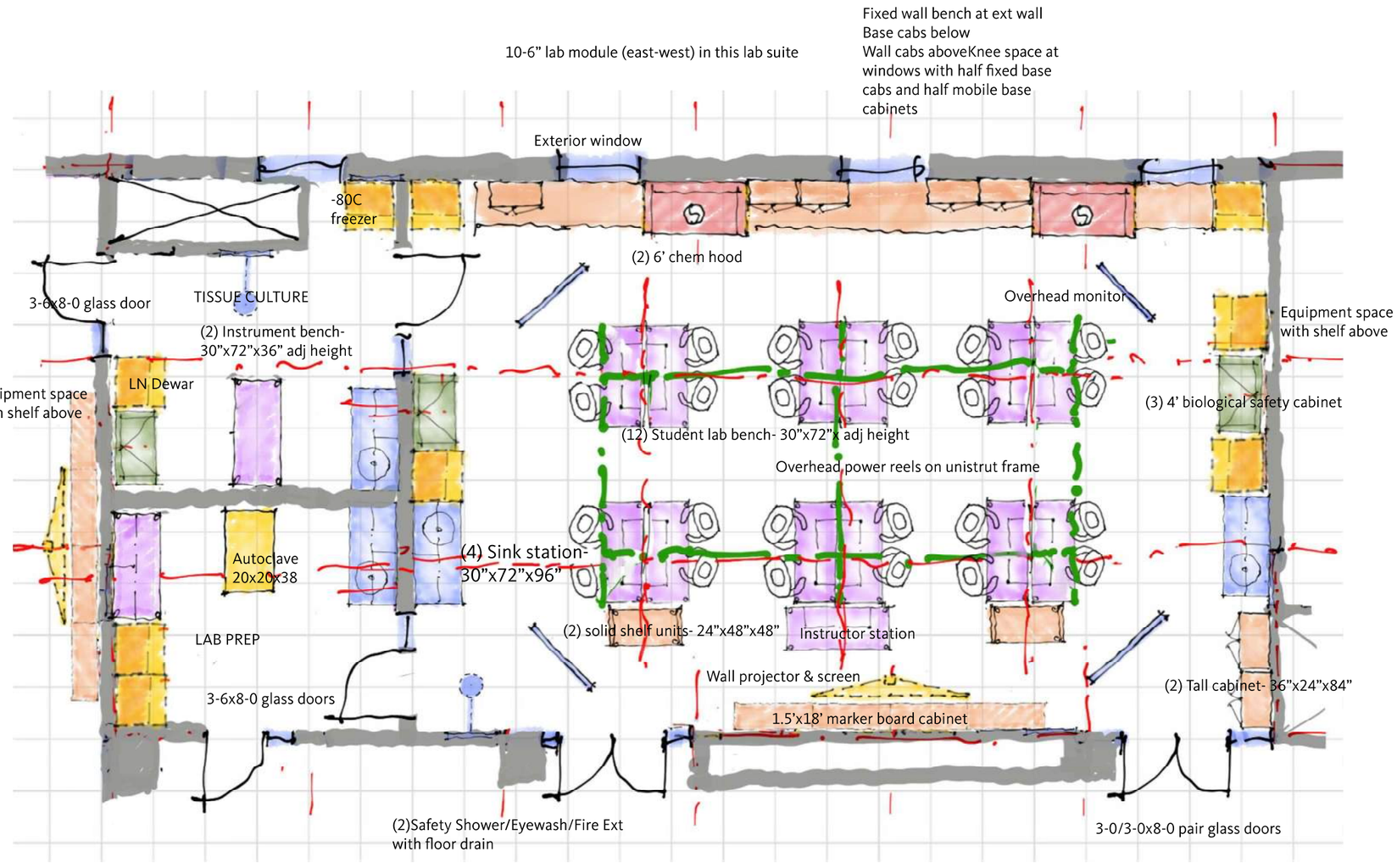
GENERAL	
Function	Instruction in Fabrication of Medical Devices
Occupancy	B
Biosafety Level	BSL2
Area	~1,000 ASF- 33'x33' centerline
Hours of Operation	24/7/365
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or 1 meter rubber tile (3mm)
Walls	6" metal stud with gypsum board; Epoxy paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry and adjacent lab
Glazing	At corridor wall
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	100% exhaust, no recirculation
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Negative to corridor
Exhaust	1 cfm/sf VAV
Heat Gain	20 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	At safety shower/eyewash/fire ext unit
Hot/Cold Water	At lab sinks with vacuum breaker
Pure Water	At select sink locations with point-of-use water polishers
Floor Drain	Below safety shower
Central Piped Service	Dry Oil Free Air- 120 PSI distribution/30 PSI at valve; Vacuum 15 inHG
Local Cylinder Service	Inert gases: Argon, Helium, Nitrogen, CO_2 as needed by Owner
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v3ph30amp circuit
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Wall projector and screen; monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system; pull out boards at fixed wall bench; sinks, tops, fittings, snorkels; storage units, safety showers; monitors; marker board
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Medical device fabrication equipment
Benchtop Equipment	Scientific instruments



Biomedical Engineering Lab

Containment

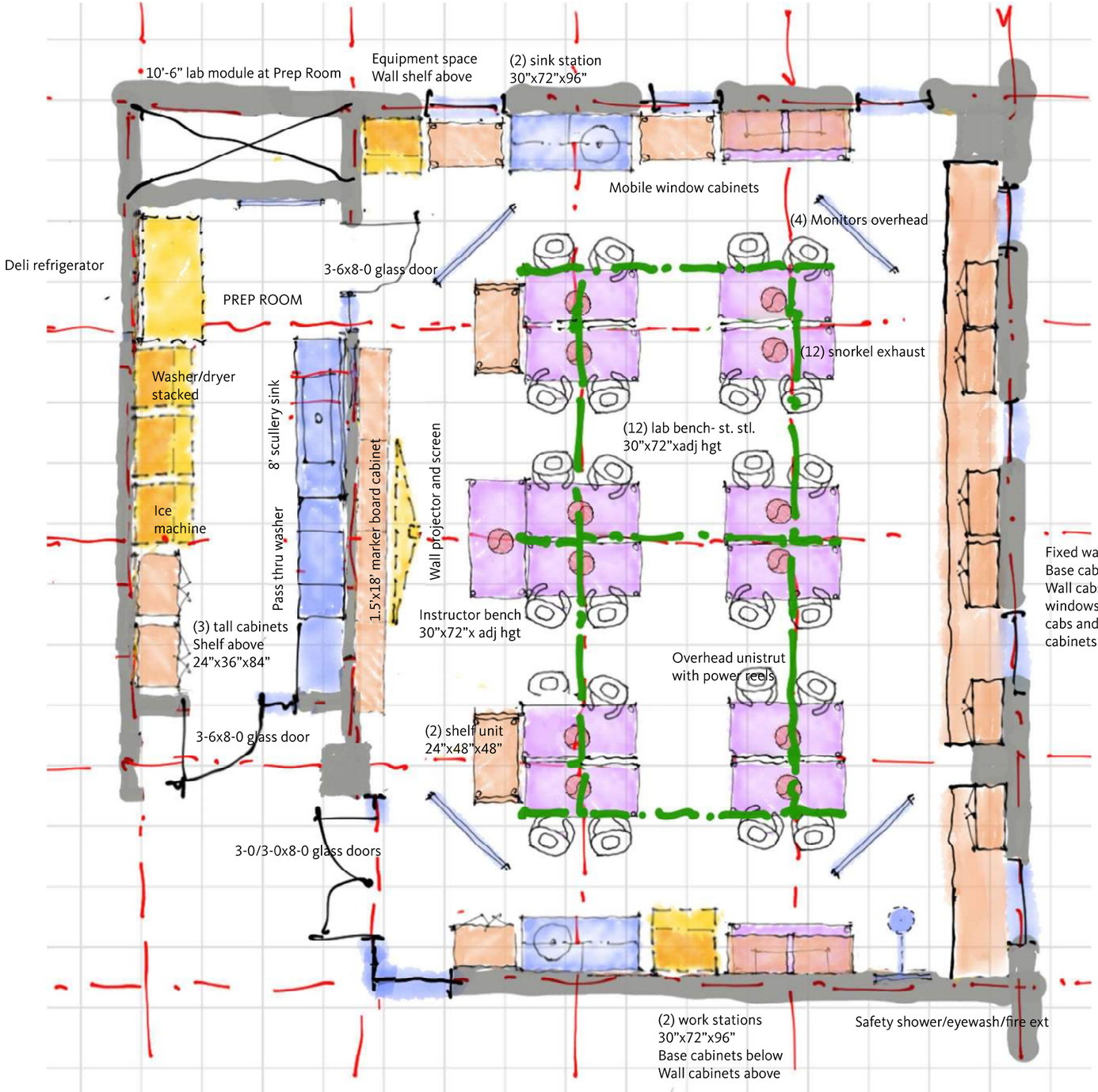
GENERAL	
Function	Instruction of Biomedical Engineering
Occupancy	B
Biosafety Level	BSL2
Area	~1400 square feet
Hours of Operation	24/7/365
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Epoxy paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair glass doors at lab entry; 3-0/3-0x8-0 glass doors to adjacent Med Device Lab; 3-6x8-0 glass doors at lab support rooms
Glazing	At corridor walls;
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	100% exhaust, no recirculation
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Negative to corridor
Exhaust	1 cfm/sf VAV; at chem hoods
Heat Gain	20 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	At safety shower/eyewash/fire ext unit
Hot/Cold Water	At lab sinks with vacuum breaker
Pure Water	At select sink locations with point-of-use water polishers
Floor Drain	Below safety shower
Central Piped Service	Dry Oil Free Air- 120 PSI distribution/30 PSI at valve; Vacuum 15 inHG
Local Cylinder Service	Inert gases: Argon, Helium, Nitrogen, CO_2 as needed by Owner
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v3ph/30amp circuits
Standby Power	120v20a circuits
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system; pull out boards at fixed wall bench; sinks, tops, fittings, VAV fume hoods; snorkels; biological safety cabinet II/C1 with no exhaust; storage units; safety showers; monitors; marker board/screen wall cabinet
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Refrigerators, Freezers, Incubators, centrifuges
Benchtop Equipment	Scientific instruments, microscopes, balances, etc.



Cell-Molecular Bio/Neurobiology Lab

Containment

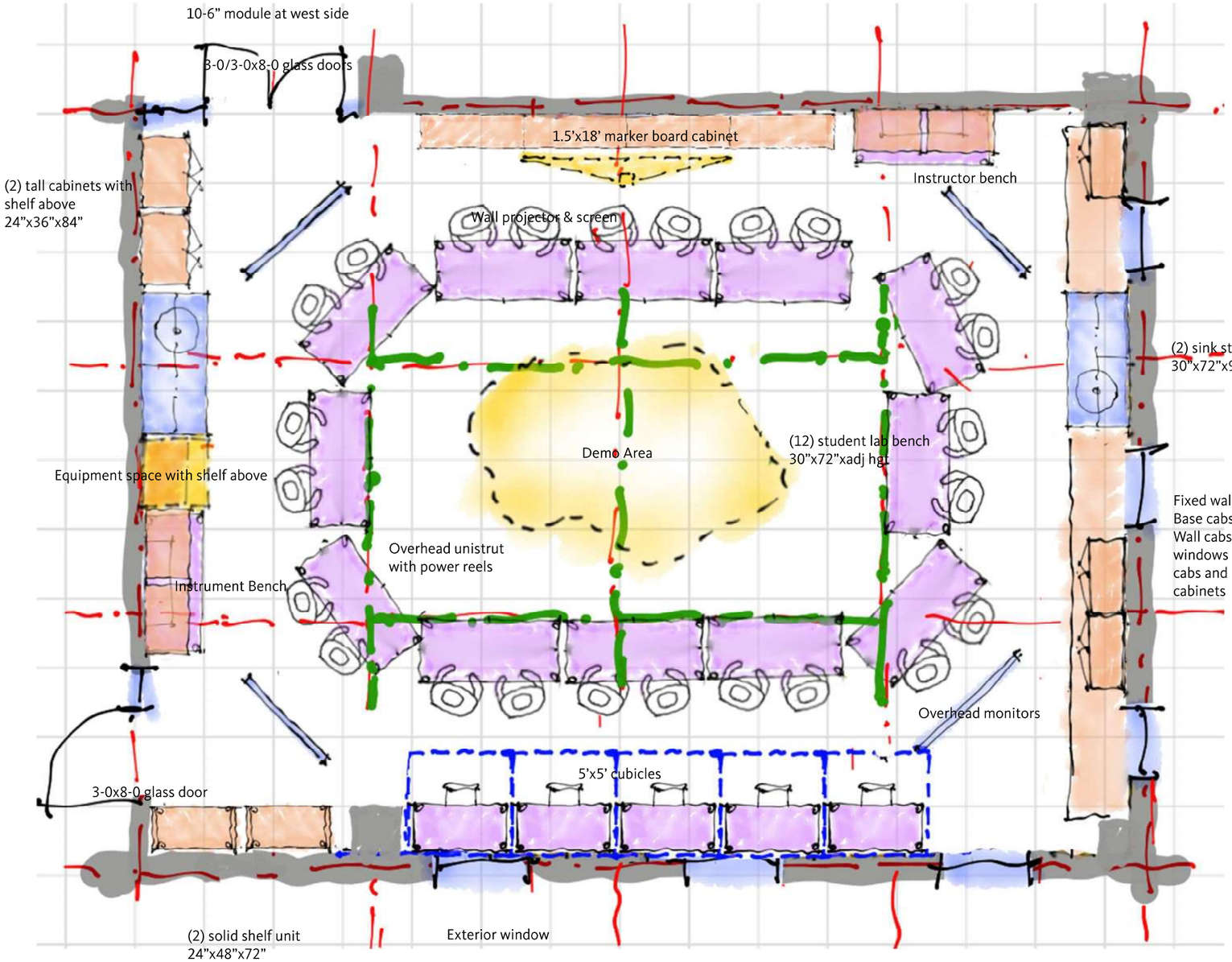
GENERAL	
Function	Instruction of Cellular/Molecular Biology; Neurobiology
Occupancy	B
Biosafety Level	BSL2
Area	~2000 square feet
Hours of Operation	24/7/365
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6” metal stud with gypsum board; Epoxy paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab doors; glass lab doors, kickplate below
Glazing	At corridor where possible
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	100% exhaust, no recirculation
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Negative to corridor
Exhaust	1 cfm/sf VAV; at chem hoods
Heat Gain	20 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	At safety shower/eyewash/fire ext unit
Hot/Cold Water	At lab sinks with vacuum breaker
Pure Water	At select sink locations with point-of-use water polishers
Floor Drain	Below safety shower
Central Piped Service	Dry Oil Free Air- 120 PSI distribution/30 PSI at valve; Vacuum 15 inHG
Local Cylinder Service	Inert gases: Argon, Helium, Nitrogen, CO_2 as needed by Owner
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v/3ph/30amp circuit; 480v30amp3ph for autoclave with disconnect
Standby Power	120v20a circuits
UPS Power	Local battery UPS units where required (OFOI)
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system; pull out boards at fixed wall bench; sinks, tops, fittings, VAV fume hoods; snorkels; biological safety cabinet II/C1 with no exhaust; storage units; Autoclave; safety showers; monitors; marker board cabinet; wall projector
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Refrigerators, Freezers, Incubators, centrifuges, LN Dewar
Benchtop Equipment	Scientific instruments, microscopes, balances, etc.



Food Science Lab

Non-Containment

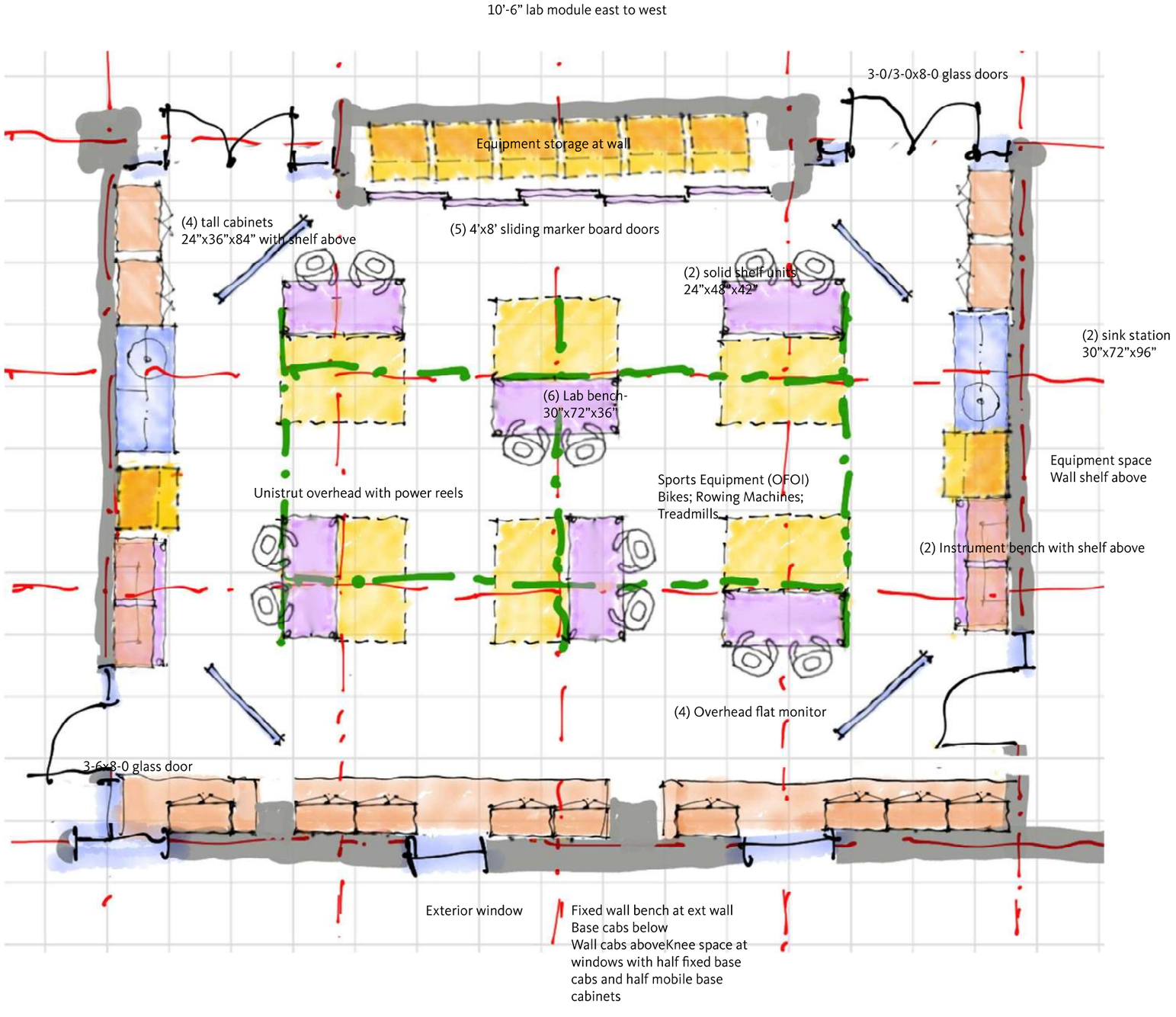
GENERAL	
Function	Instruction of Food Science & Cooking
Occupancy	B
Biosafety Level	None
Area	~1600 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab doors; Large view windows at all lab doors, kickplate below
Glazing	At corridor entry
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	Snorkel exhaust units; On demand room exhaust with auto shut-off; Canopy exhaust above washer in Prep Room
Heat Gain	30 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	At safety shower/eyewash unit
Hot/Cold Water	At sinks, washer; cold water at ice machine
Pure Water	None
Floor Drain	At select locations, if required
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 30 amp circuits may be required; 208v/3ph/30amp circuit; 208v30amp for washer with disconnect
Standby Power	120v20a circuits
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Wall projector and screen
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab stainless steel casework system, sinks, tops, fittings; storage units; unistrut frame and power reels; marker board cabinet; safety shower/eyewash/fire ext; ice machine; pass thru washer and canopy hood
OWNER FURNISHED EQUIPMENT	
Floor Equipment	6' deli ref; washer/dryer stacked;
Benchtop Equipment	computers, monitors, electric cooktops



Human Cognition/Neurophysiology Lab

Non-Containment

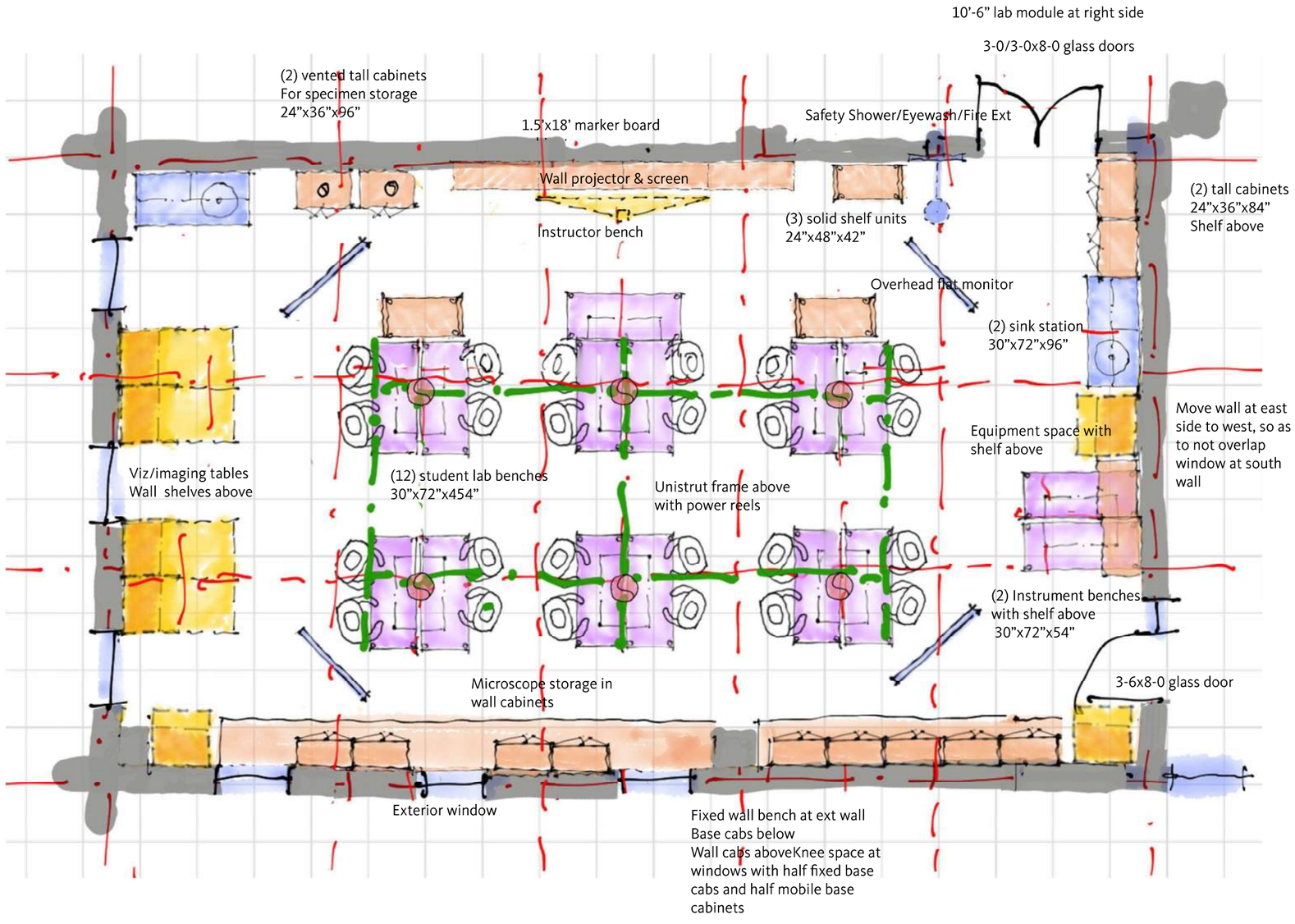
GENERAL	
Function	Instruction of Human Cognition & Neurophysiology
Occupancy	B
Biosafety Level	None
Area	~1300 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6” metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab doors; Large view windows at all lab doors, kickplate below
Glazing	At lab door entry
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	None
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At lab sink station
Pure Water	none
Floor Drain	none
Central Piped Service	none
Local Cylinder Service	none
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; daisy chain lab benches such that two mobile lab benches can plug into one power reel with one plug; 208v/3ph/30amp circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors; wall projector & screen
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, tops, fittings; solid shelf units; wall projector & screen; marker board cabinet; 5’ cubicles with mobile partitions and/or curtain dividers
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Neurophysiology equipment
Benchtop Equipment	Electronics, computers, monitors



Biomechanics/Sports Physiology Lab

Non-Containment

GENERAL	
Function	Instruction of Biomechanics and Sports Physiology
Occupancy	B
Biosafety Level	None
Area	~1300 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab doors; Large view windows at all lab doors, kickplate below
Glazing	At lab entry doors
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	None
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At lab sink stations
Pure Water	None
Floor Drain	None
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v/3ph/30amp circuit
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors; wall projector
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, tops, fittings; storage units; wall projector & screen; unistrut frame; power reels, monitors
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Sports equipment- rowing machines, bikes, treadmills Folding tables that can be stored at north wall
Benchtop Equipment	Electronics, computers, monitors



Viz/Imaging Anatomy/Physiology Lab

Non-Containment

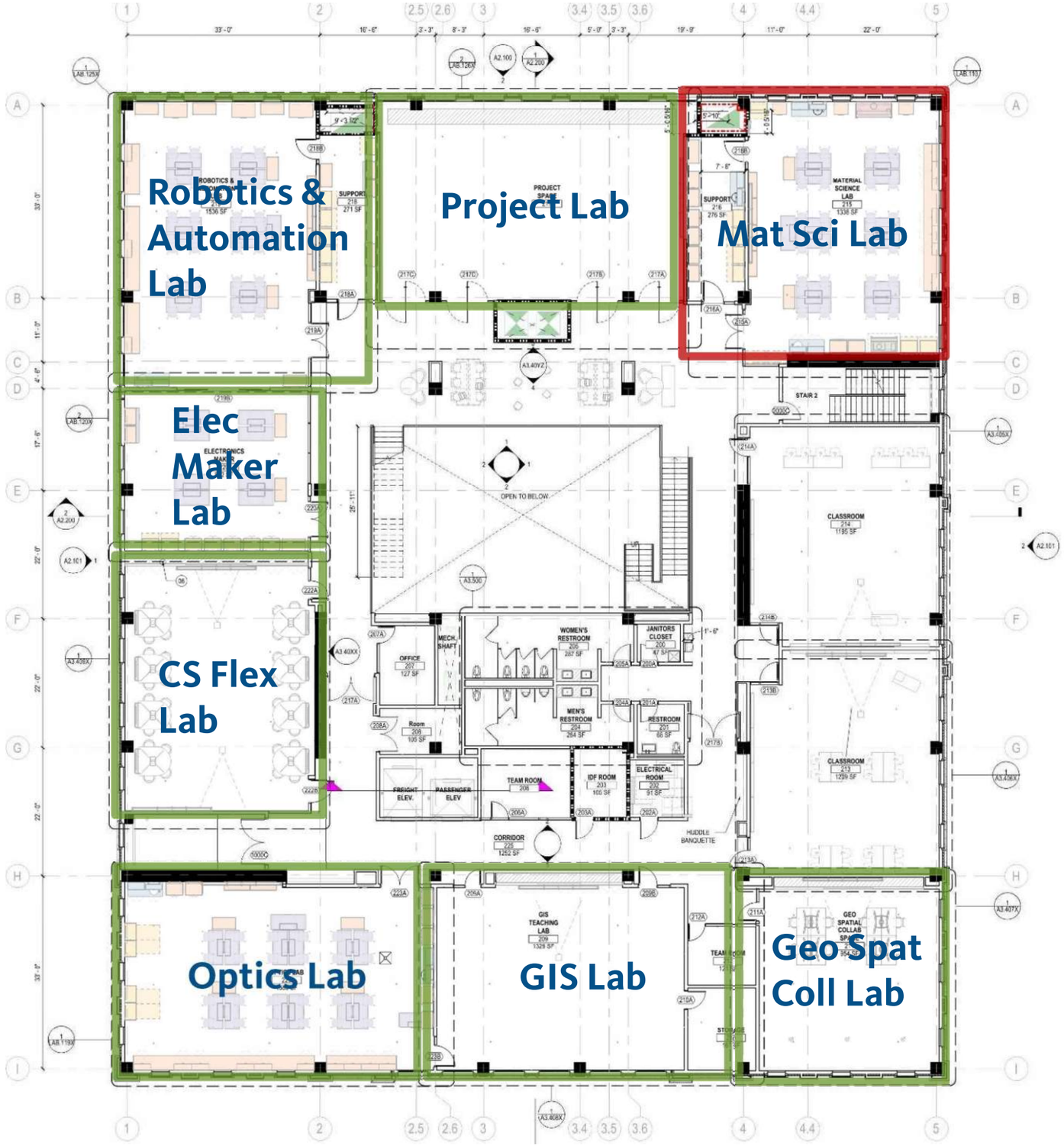
GENERAL	
Function	Instruction of Anatomy & Physiology with visualization and imaging
Occupancy	B
Biosafety Level	None
Area	~1600 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab door, kickplate below
Glazing	Large floor to ceiling glass wall at corridor
Light Attenuation	Roller shades at exterior windows; light attenuation at glass doors; Entire room must be darkenable
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	Vented storage cabinets for specimens; On demand exhaust for the room, with auto shut-off; at snorkels
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At sink stations
Pure Water	None
Floor Drain	None
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v/3ph/30amp circuit
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; monitors; marker board cabinet; wall monitor and screen; monitors
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Visualization/simulation tables
Benchtop Equipment	Electronics, computers, monitors

See Arch Plans

Project Lab

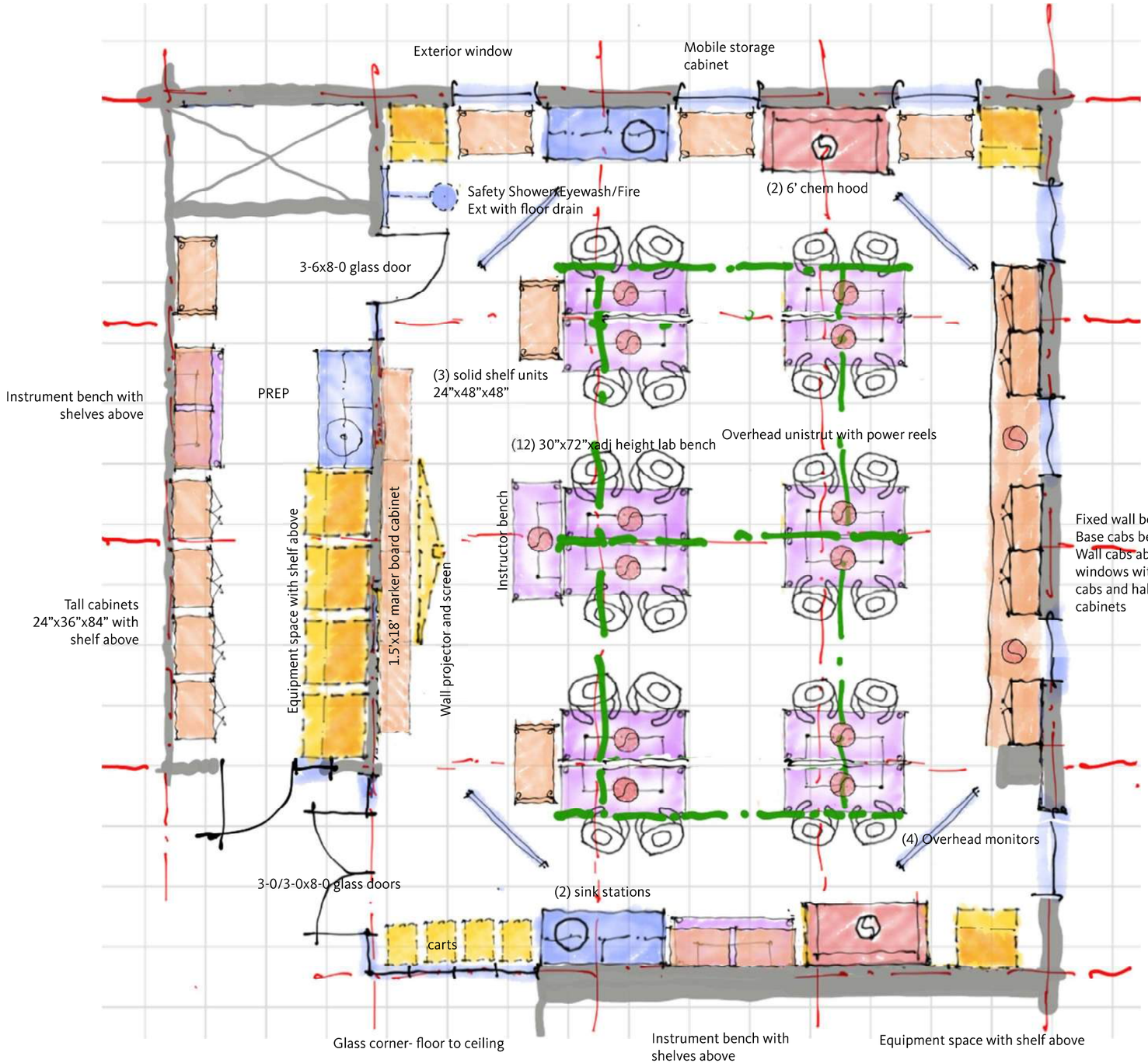
Non-Containment

GENERAL	
Function	Student projects
Occupancy	B
Biosafety Level	None
Area	~1400 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; Large view windows at all lab doors, kickplate below
Glazing	At corridor walls
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	None
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At sinks
Pure Water	None
Floor Drain	None
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; shelf units; monitors; marker board/storage unit
OWNER FURNISHED EQUIPMENT	
Floor Equipment	3D printers, fabrication equipment
Benchtop Equipment	Electronics, computers, monitors



Level 2 Labs

Starting at Materials Science Lab, northeast corner, and proceeding clockwise:



Materials Science Lab

Containment

GENERAL	
Function	Instruction of Materials Science
Occupancy	B
Biosafety Level	BSL2
Area	~1600 square feet
Hours of Operation	24/7/365
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Epoxy paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab doors at lab support rooms; Glass doors, kickplate below
Glazing	At corner adjacent to corridor
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	100% exhaust, no recirculation
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Negative to corridor
Exhaust	1 cfm/sf VAV; at chem hoods; at snorkels
Heat Gain	20 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	At safety shower/eyewash/fire ext unit
Hot/Cold Water	At lab sinks with vacuum breaker
Pure Water	At select sink locations with point-of-use water polishers
Floor Drain	Below safety shower; at select locations
Central Piped Service	Dry Oil Free Air- 120 PSI distribution/30 PSI at valve; Vacuum 15 inHG
Local Cylinder Service	Inert gases: Argon, Helium, Nitrogen, CO_2 as needed by Owner
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v30amp3ph circuit
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings, fume hoods; snorkels; shelf units; safety showers; projector & screen; marker board cabinet
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Materials testing equipment
Benchtop Equipment	Scientific instruments, microscopes, balances, etc.

See Arch Plans

Geo-Spatial Collaboration Lab

Non-Containment

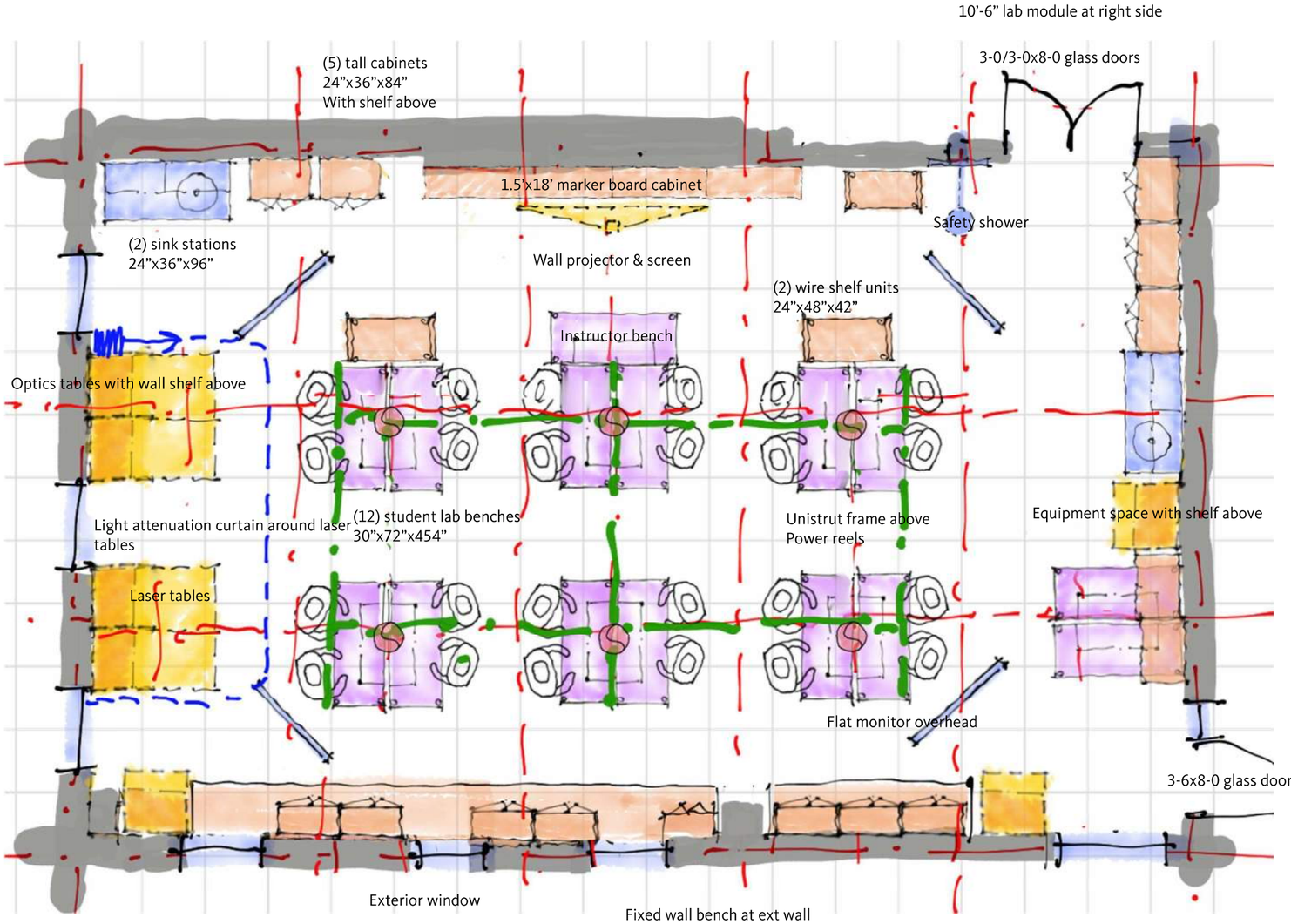
GENERAL	
Function	Instruction of Geo Spatial Collaboration
Occupancy	B
Biosafety Level	None
Area	~1000 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; Large view windows at all lab doors, kickplate below
Glazing	At corridor walls;
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	None
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	None
Pure Water	None
Floor Drain	None
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; shelf units; monitors; marker boards
OWNER FURNISHED EQUIPMENT	
Floor Equipment	3D printers, fabrication equipment
Benchtop Equipment	Electronics, computers, monitors

See Arch Plans

GIS Teaching Lab

Non-Containment

GENERAL	
Function	Instruction of GIS
Occupancy	B
Biosafety Level	None
Area	~1800 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; Large view windows at all lab doors, kickplate below
Glazing	At corridor walls;
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	None
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	None
Pure Water	None
Floor Drain	None
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; shelf units; monitors; marker board cabinets
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Scientific Equipment
Benchtop Equipment	Electronics, computers, monitors



Optics Lab

Non-Containment

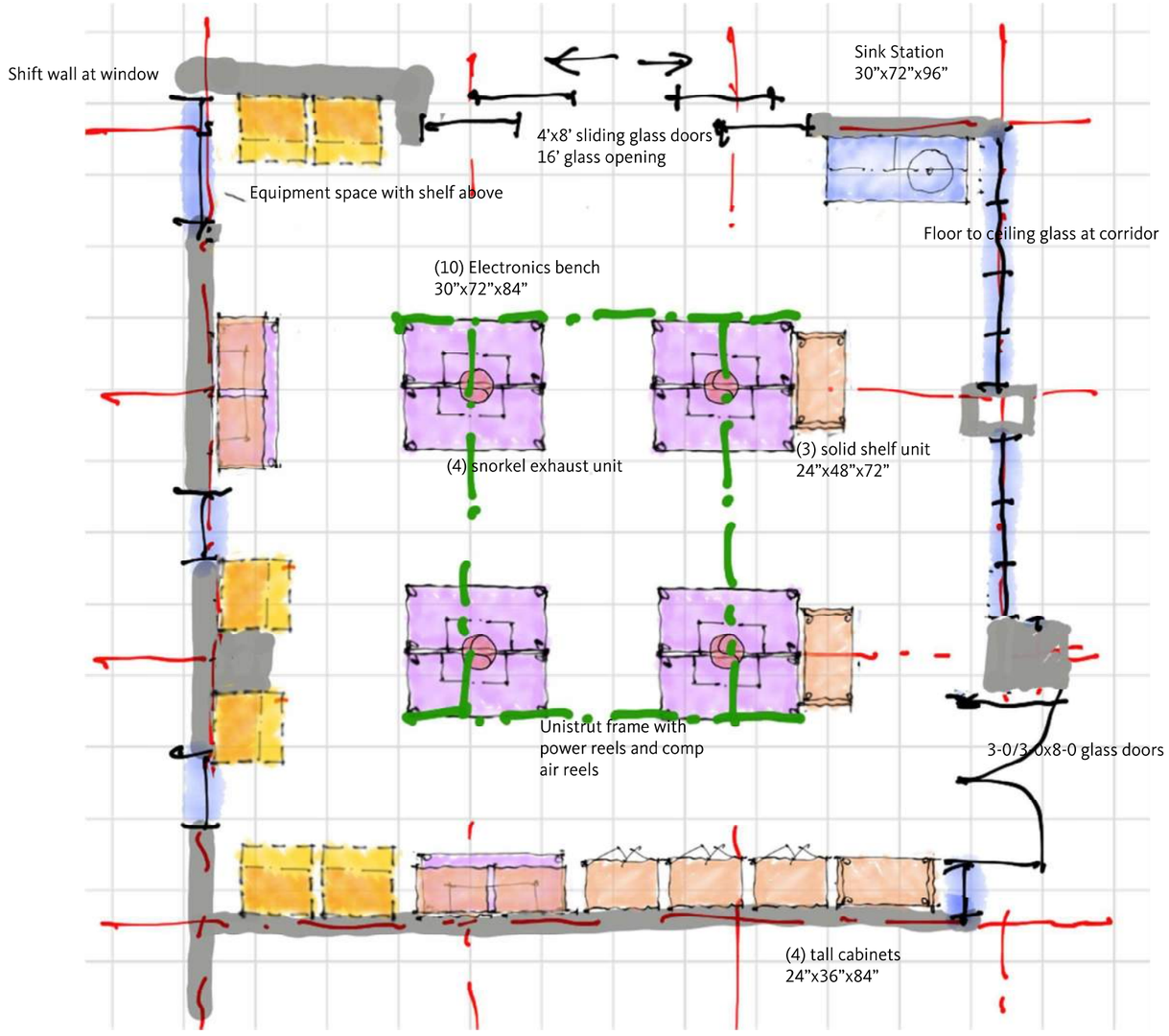
GENERAL	
Function	Instruction of optics, spectroscopy, astronomy, and instrumentation
Occupancy	B
Biosafety Level	None
Area	~1600 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab door, kickplate below
Glazing	Large floor to ceiling glass wall at corridor
Light Attenuation	Black out shades at windows- room must be able to be completely dark; laser safety curtain around optics tables
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	At snorkel units
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At lab sinks
Pure Water	None
Floor Drain	None
Central Piped Service	Compressed Air
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v/3ph/30amp circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; monitors; marker board cabinet; wall monitor and screen; light attenuation curtain at laser tables
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Optics equipment, optics tables
Benchtop Equipment	Electronics, computers, monitors

See Arch Plans

CS Flex Lab

Non-Containment

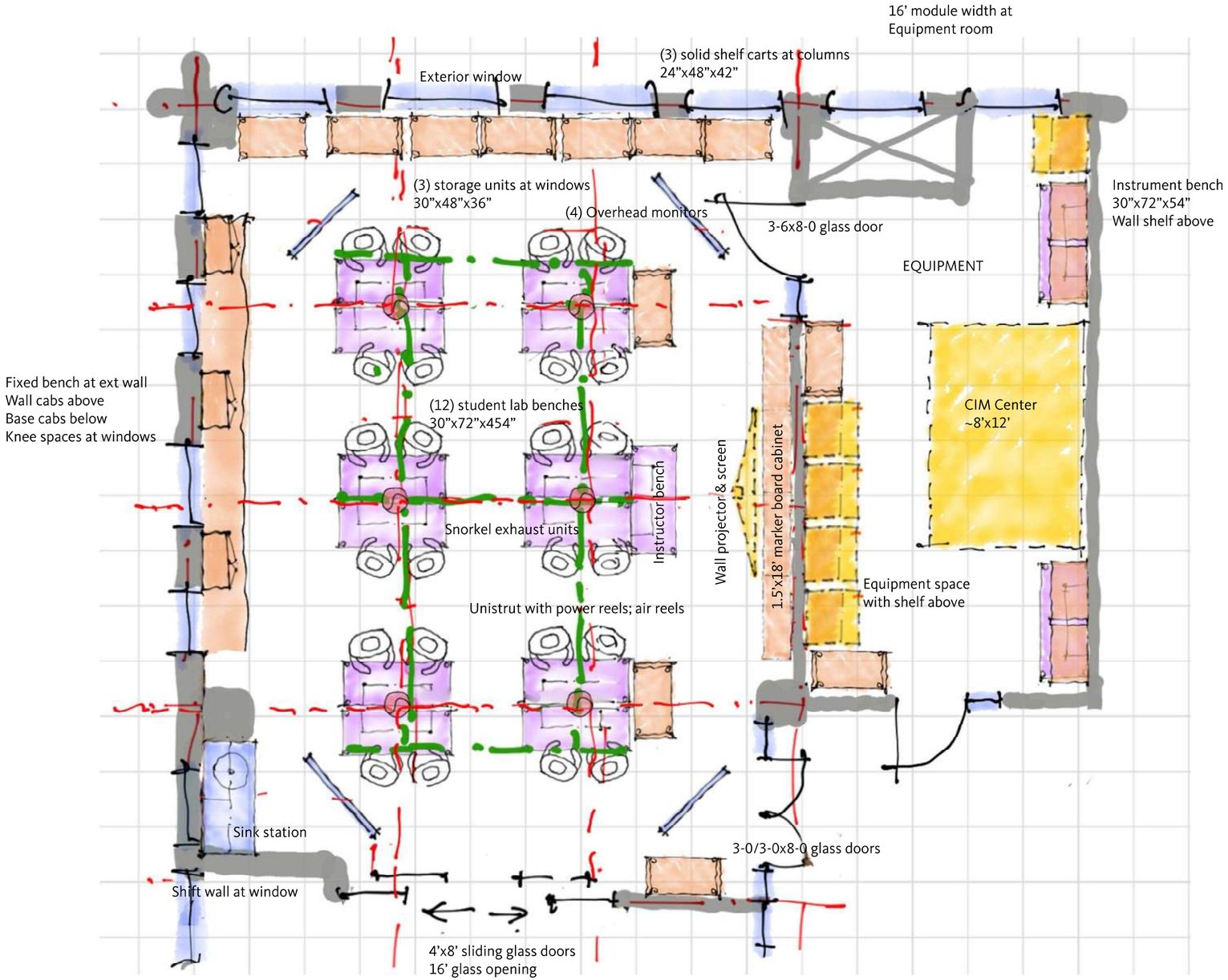
GENERAL	
Function	Multi use computer science lab
Occupancy	B
Biosafety Level	None
Area	~1300 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; Large view windows at all lab doors, kickplate below
Glazing	At corridor walls;
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	None
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	None
Pure Water	None
Floor Drain	None
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, tops, fittings; shelf units; monitors; marker board cabinets
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Computer equipment
Benchtop Equipment	Electronics, computers, monitors



Electronics Maker Space Lab

Non-Containment

GENERAL	
Function	Design/fabrication of electronic devises
Occupancy	B
Biosafety Level	None
Area	~1000 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6” metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; sliding glass doors between adjacent lab; glass doors, kickplate below
Glazing	Between labs and at corridor walls;
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	Snorkel exhaust units
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At sink
Pure Water	None
Floor Drain	None
Central Piped Service	Compressed air at reels above elec benches
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v30amp3ph circuit
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	None
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; shelf units; tall cabinets; unistrut frame and power reel, air reels
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Electronics fabrication equipment; 3D printers
Benchtop Equipment	Electronics, computers, monitors, oscilloscopes



Robotics & Automation Lab

Non-Containment

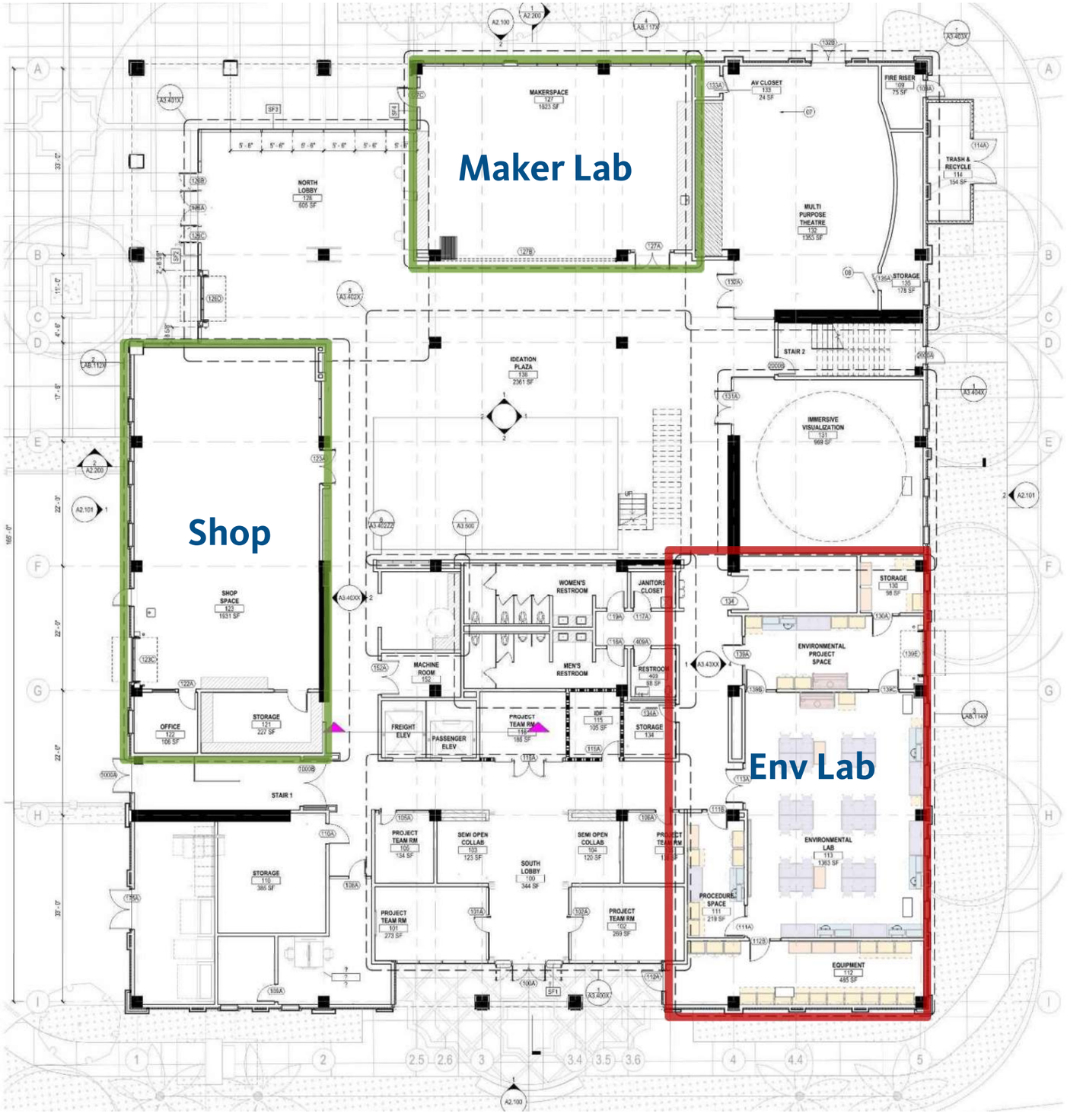
GENERAL	
Function	Instruction of Robotics
Occupancy	B
Biosafety Level	None
Area	~1400 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6” metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 single lab doors; Large view windows at all lab doors, kickplate below
Glazing	At corridor wall
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	At snorkel units
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At sink station
Pure Water	None
Floor Drain	None
Central Piped Service	Compressed air reels at unistrut frame; stub out vacuum
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v/3ph/30amp circuit
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; shelf units; wall projector and screen; marker board cabinet
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Robotics Instruments
Benchtop Equipment	Electronics, computers, monitors

See Arch Plans

Project Lab

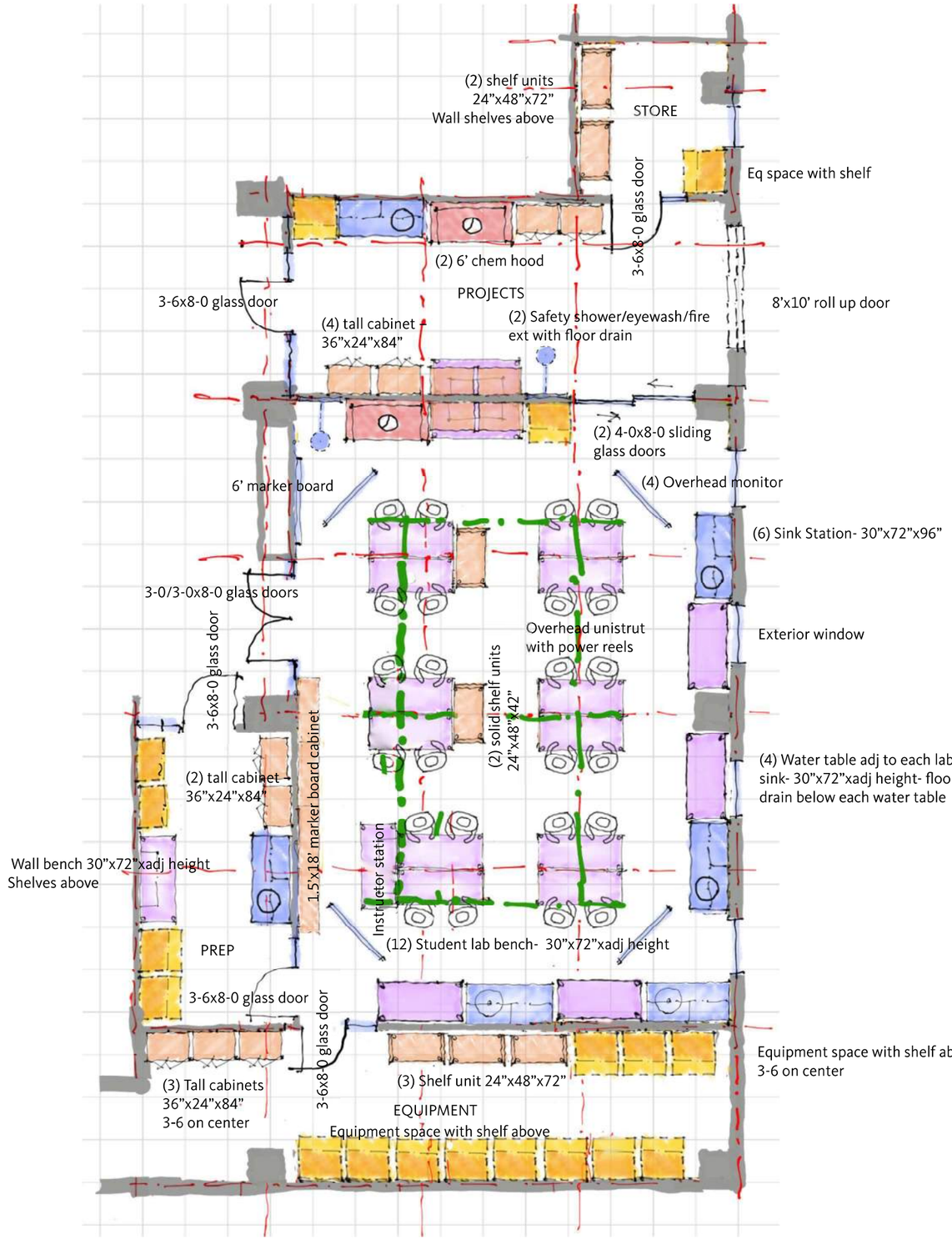
Non-Containment

GENERAL	
Function	Instruction of Biomedical Technology
Occupancy	B
Biosafety Level	None
Area	~1500 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6" metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; Large view windows at all lab doors, kickplate below
Glazing	At corridor walls;
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	None
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At sinks
Pure Water	None
Floor Drain	None
Central Piped Service	None
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Flat screen monitors
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; shelf units; monitors; marker boards
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Fabrication equipment
Benchtop Equipment	Electronics, computers, monitors



Level 1 Labs

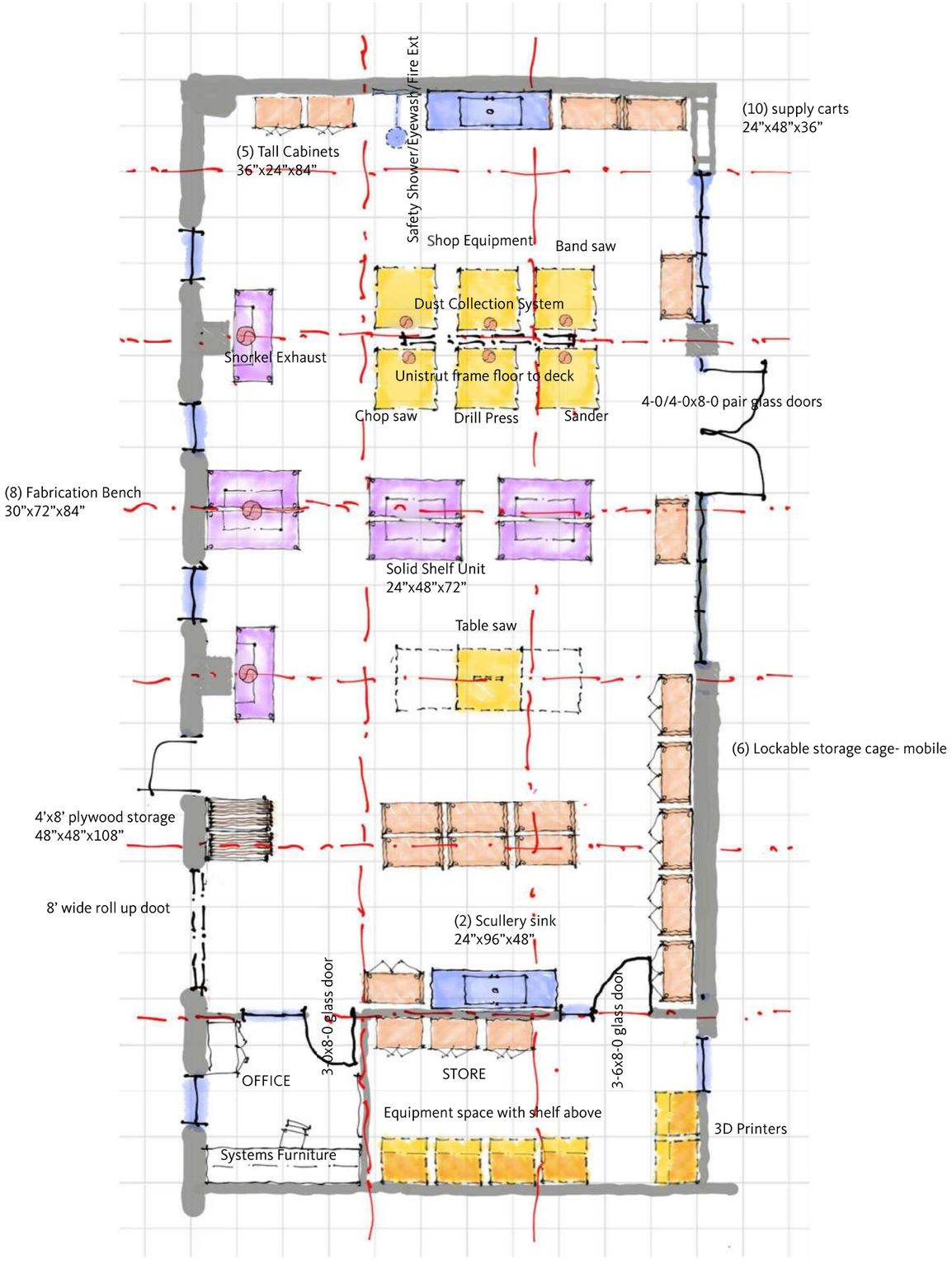
Starting at the Environmental Lab, southwest corner, and proceeding clockwise:



Environmental Lab

Containment

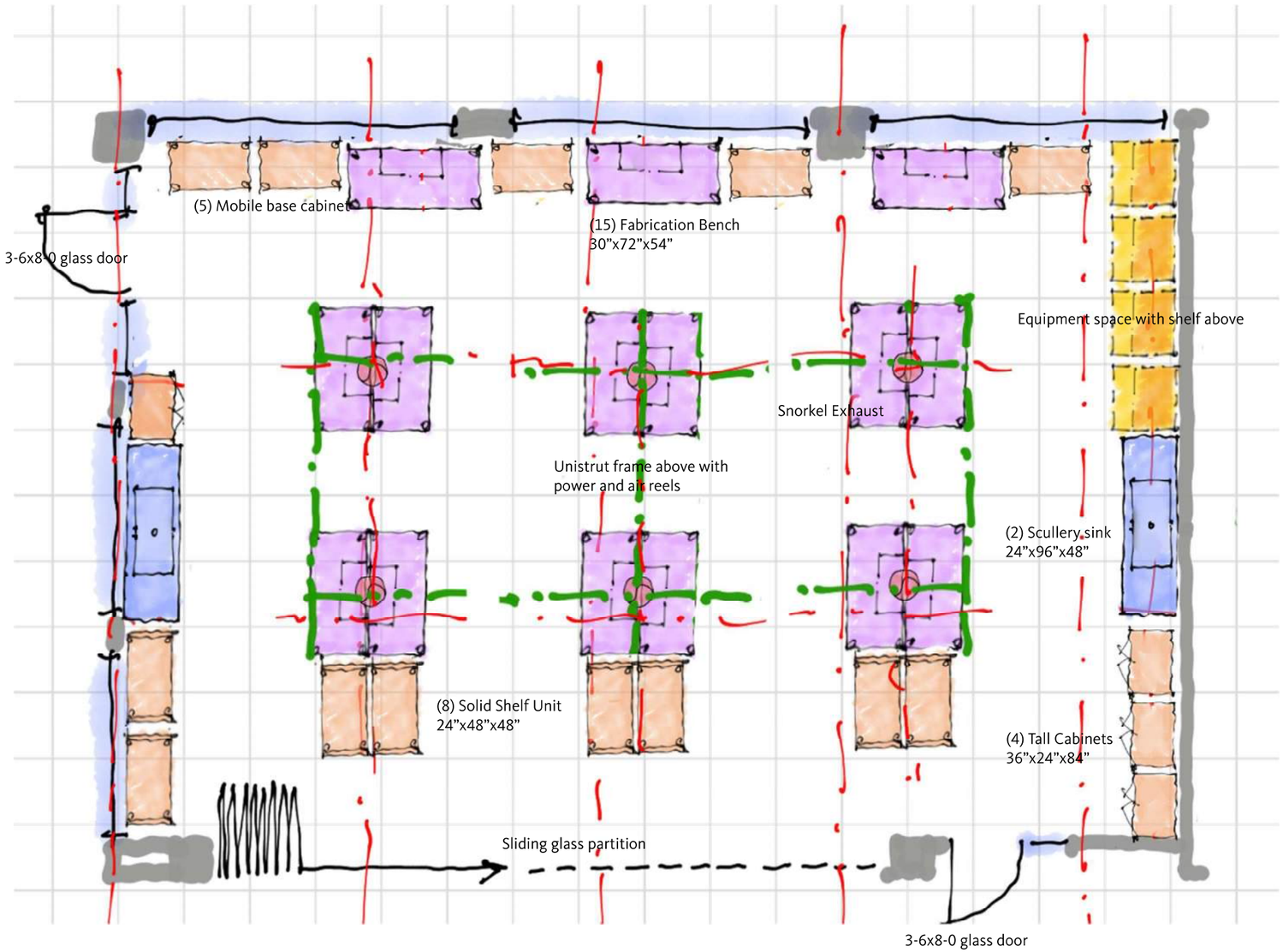
GENERAL	
Function	Instruction of Environmental Science & Fluid Dynamics
Occupancy	B
Biosafety Level	BSL2
Area	~2500 square feet
Hours of Operation	24/7/365
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
height	6" metal stud with gypsum board; Epoxy paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair glass at lab entry; 3-6x8-0 glass at lab support rooms; Pair of sliding 4-0 glass doors; kickplate below at all doors
Glazing	Between labs and at corridor walls; At corridor lab doors
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	100% exhaust, no recirculation
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Negative to corridor
Exhaust	1 cfm/sf VAV; .5 cfm/sf at night setback; at chem hoods
Heat Gain	20 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	At safety shower/eyewash/fire ext unit
Hot/Cold Water	At lab sinks with vacuum breaker; Sediment traps at all sinks; disposal at Prep Room lab sink
Pure Water	At lab sinks where required via point-of-use polisher No central pure water system
Floor Drain	Below safety shower; below water tables; sediment traps at all floor drains
Central Piped Service	Dry Oil Free Air- 120 PSI distribution/30 PSI at valve; Vacuum 15 inHG
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v30amp3ph circuit
Standby Power	120v20a circuits
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	Overhead monitors; Document camera above instructor bench mounted to unistrut frame
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; chemical fume hoods, solid shelf units; marker board cabinet; overhead monitors
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Scientific equipment
Benchtop Equipment	Water flow equipment



Shop

Non-Containment

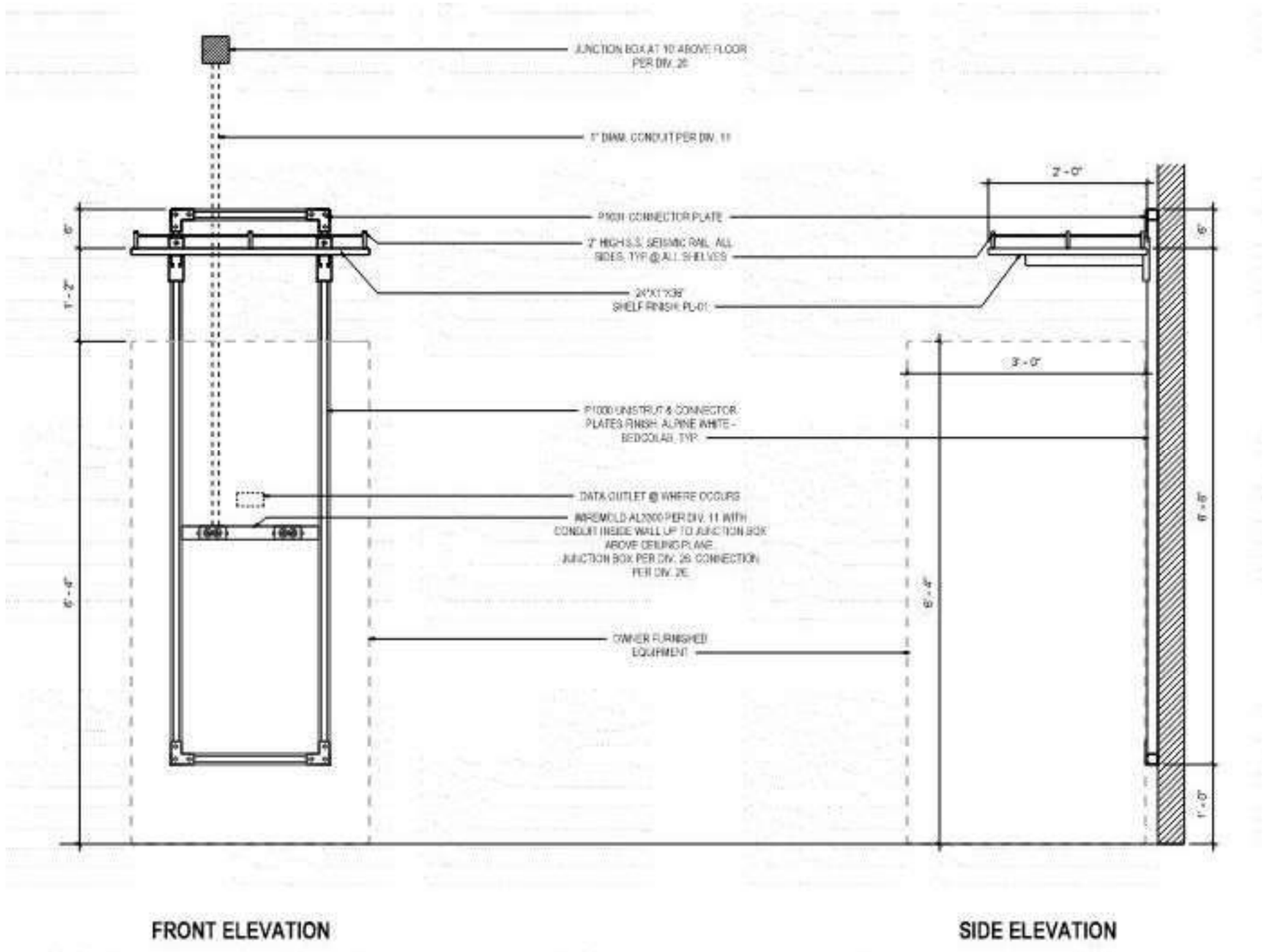
GENERAL	
Function	Plastics and Wood fabrication
Occupancy	B
Biosafety Level	None
Area	~2300 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete
Walls	6” metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-0/3-0x8-0 pair at lab entry; 3-6x8-0 at Store Room; 3-0x8-0 at office; Glass doors, kickplate below
Glazing	At corridor wall, floor to ceiling
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 60 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	Dust collection system at shop equipment; Snorkel exhaust above fabrication benches
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	At safety shower/eyewash unit
Hot/Cold Water	At scullery sinks; sediment traps at sinks, floor drains
Pure Water	None
Floor Drain	Below safety shower
Central Piped Service	Compressed air at shop equipment
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v20amp circuits
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	700 LUX LED not including task lighting
Audio/Visual	None
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Furnishings	Shop casework system, sinks, tops, fittings; shelf units;
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Shop Equipment- drill press, chop saw, table saw, band saw, sander, 3D printers; Office systems furniture
Benchtop Equipment	Fabrication tools, instruments



Maker Space Lab

Non-Containment

GENERAL	
Function	Maker/Incubator/Startup projects
Occupancy	B
Biosafety Level	None
Area	~1600 square feet
Hours of Operation	6 am to 10 pm
ARCHITECTURAL (DIV 9)	
Security	Card Reader
Floor	Polished concrete or rubber tile
Walls	6” metal stud with gypsum board; Enamel paint
Ceiling	Open to structure
Doors	3-6x8-0 at entry and side door; Glass doors, kickplate below; Sliding glass partition at corridor
Glazing	At corridor
Light Attenuation	Roller shades at exterior windows
Sound Attenuation	NC 45 or less
STRUCTURAL (DIV 5)	
Vibration Attenuation	4,000 microinches per second or less
Life Load	125 lbs. per square foot minimum
MECHANICAL (DIV 23)	
HVAC	Recirculated Air
Temperature	68-74 deg F +/- 2 deg F
Humidity	Ambient
Pressure	Neutral
Exhaust	At sorkel units
Heat Gain	15 btuh/sf
PLUMBING (DIV 22)	
Tepid Water	None
Hot/Cold Water	At sinks
Pure Water	None
Floor Drain	At select locations, if required
Central Piped Service	Air reels at unistrut frame, Vacuum
Local Cylinder Service	None
ELECTRICAL (DIV 26)	
Normal Power	120v20a circuits; 208v30amp3ph circuit
Standby Power	None
UPS Power	Local battery UPS units where required by Owner
Data	Hardwire and wireless
Lighting	500 LUX LED not including task lighting
Audio/Visual	None identified
CONTRACTOR FURNISHED EQUIPMENT (DIV 11)	
Lab Furnishings	Lab casework system, sinks, tops, fittings; shelf units; air reels, snorkel units
OWNER FURNISHED EQUIPMENT	
Floor Equipment	Fabrication equipment, 3D printers
Benchtop Equipment	Electronics, computers



FRONT ELEVATION

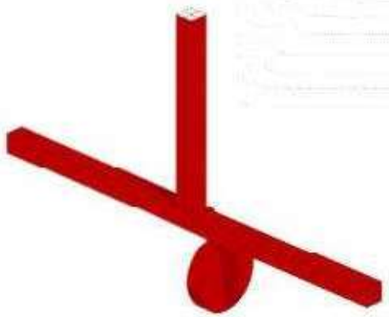
SIDE ELEVATION

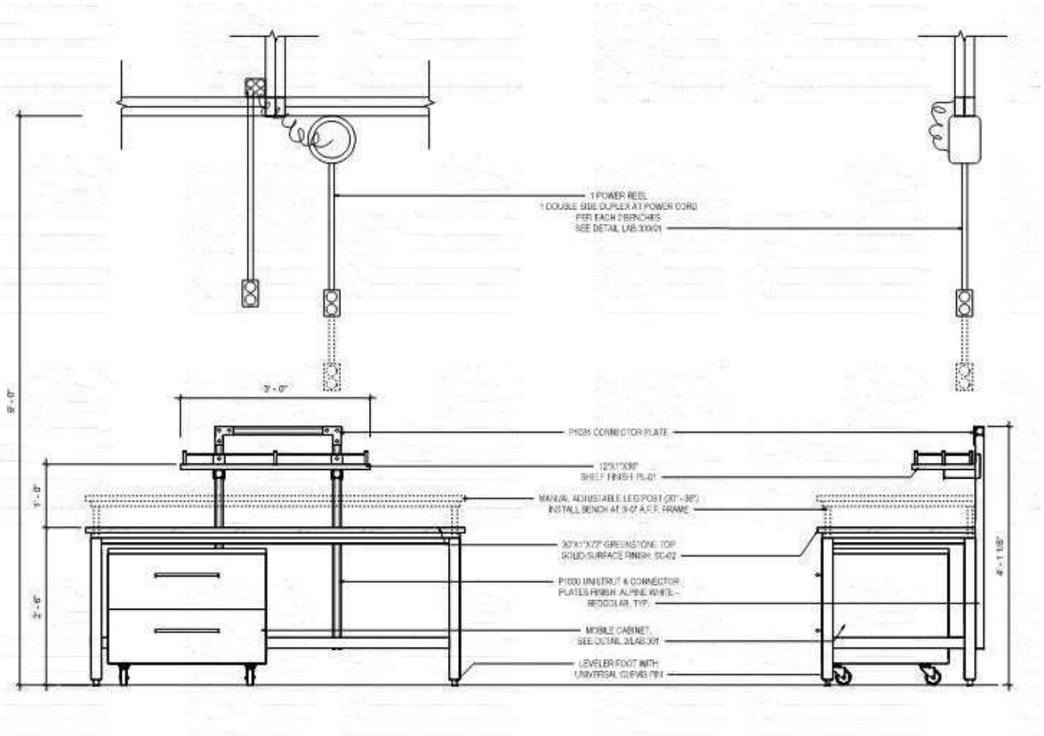
Lab Cut Sheets

Cut sheets for the following contractor furnished (CFCI) equipment:

USD will need to provide cut sheets for large, floor mounted Owner furnished (OFOI) equipment such as:

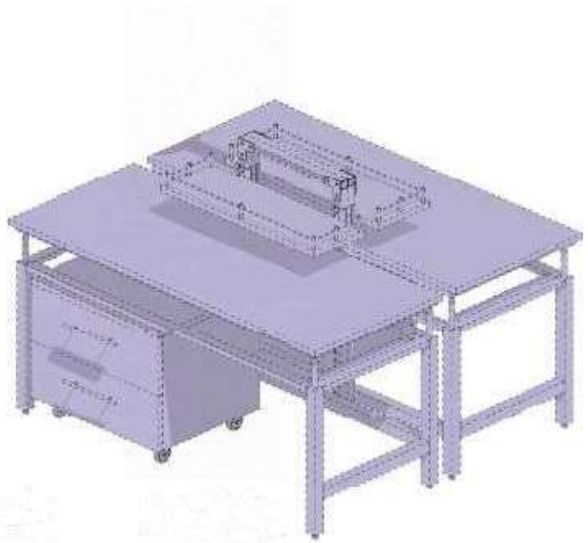
1. Deli Refrigerator
2. Refrigerators
3. Freezers
4. Incubators
5. Shop equipment- table saw, chop saw, band saw, sander, jointer
6. 3D printers
7. Maker lab equipment
8. Other large floor equipment not yet identified

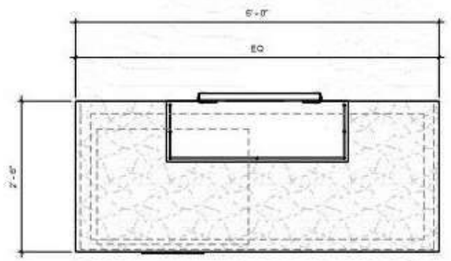




FRONT ELEVATION

SIDE ELEVATION





PLAN VIEW

Lab Student Bench Cut Sheet

Location:
All labs where noted.

Dimensions:
30” wide x 72” long x 60” high

Material:
Welded 12 gauge tube steel
Epoxy powder coat finish
Stainless steel welded frame at Food Science Lab

Heavy Duty, Lockable Casters:
At each table leg (not shown in illustration)

Work Surface:
Dark grey epoxy resin in labs
Hardwood butcher block in maker labs, shop
Stainless steel at Food Science Lab

Electrical:
Prewire with (4) 120v duplex per bench (not shown in illustration)
Power cord plugs into drop down power reel
Power reel above at unistrut frame per Div 11
Dedicated 120c20amp circuit Fourplex above at unistrut frame per Div 26; One circuit per two lab benches, plus one circuit at instructor bench

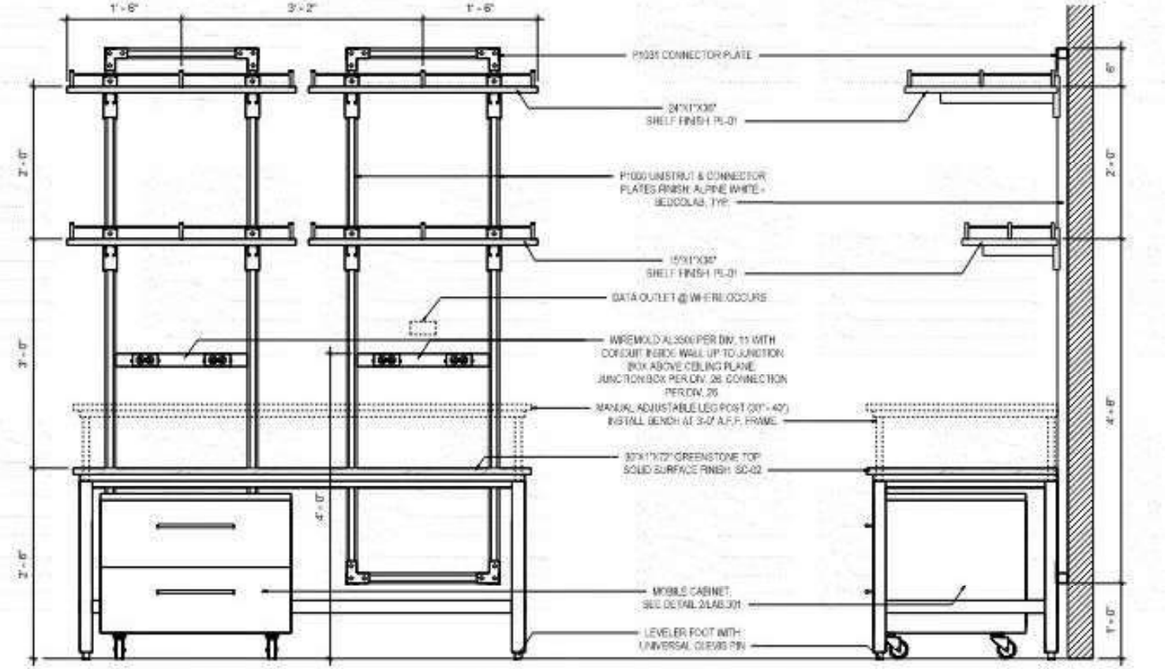
Data:
One data reel at Instructor bench

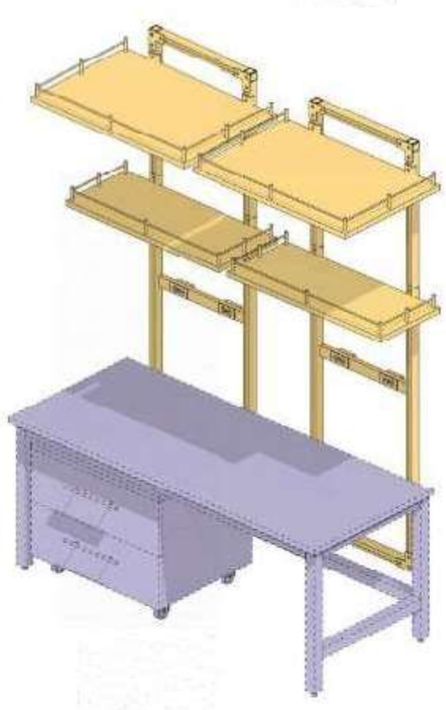
Plumbing:
Air reels at shop, maker labs

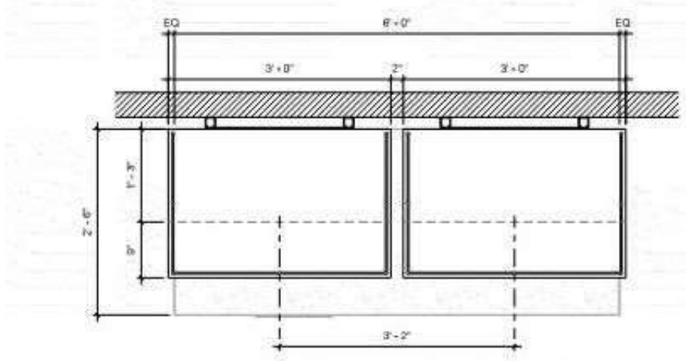
Base Cabinet:
2 drawer lockable base cabinet below on heavy duty lockable casters

Shelf:
15”x36” shelf above work surface, removable
Some labs do not have shelf above- Env Lab,
Human Cognition Neuro Lab

Similar for Instructor Bench.







PLAN VIEW

Lab Instrument Bench Cut Sheet

Location:
All labs where noted, at side walls

Dimensions:
30” wide x 72” long x adj height

Material:
Welded 12 gauge tube steel
Epoxy powder coat finish
Stainless steel in Food Science Lab

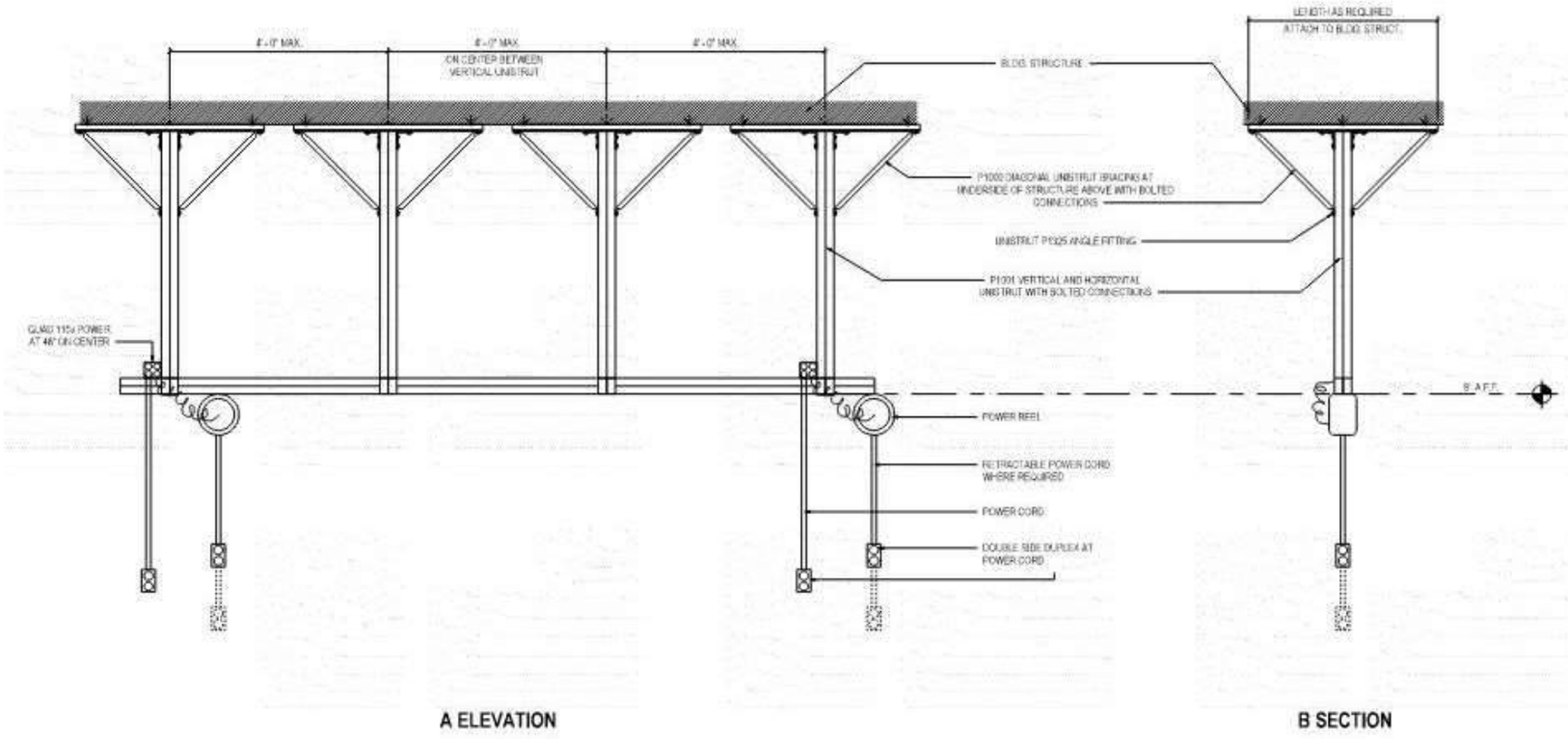
Heavy Duty, Lockable Casters:
At each table leg (not shown in illustration)

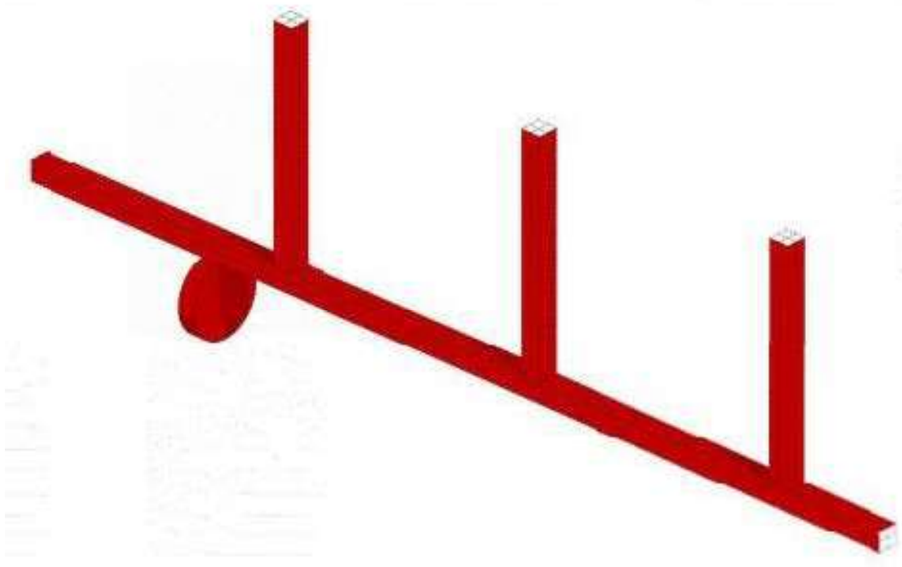
Work Surface:
Dark grey epoxy resin in labs
Hardwood butcher block in maker labs, shop
Stainless steel at Food Science Lab

Electrical:
Wiremold AL3300 raceway at wall per Div 26
Dedicated 120v20amp circuit for each pair of shelf units

Base Cabinet:
2 drawer lockable base cabinet below on heavy duty lockable casters

Shelf:
24”x36” top shelf above at unistrut frame
15”x36” lower shelf above at unistrut frame





Lab Unistrut Frame Cut Sheet

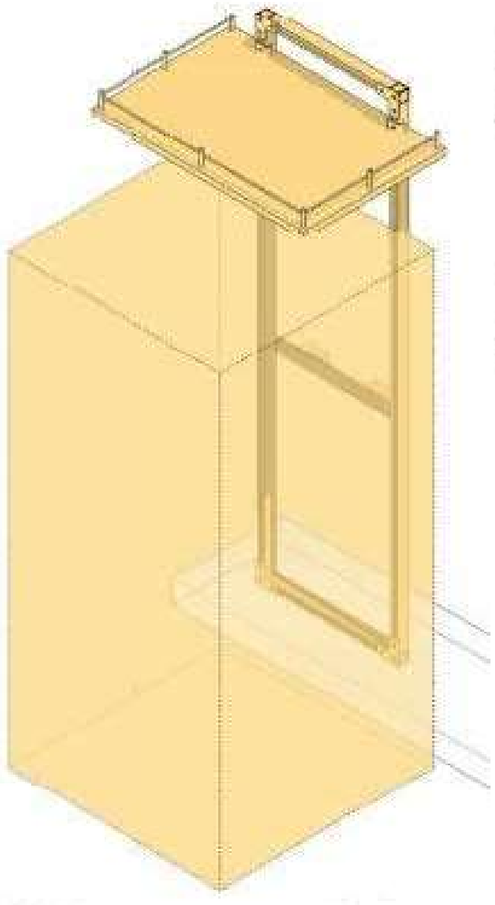
Location:
All labs where noted above bench islands

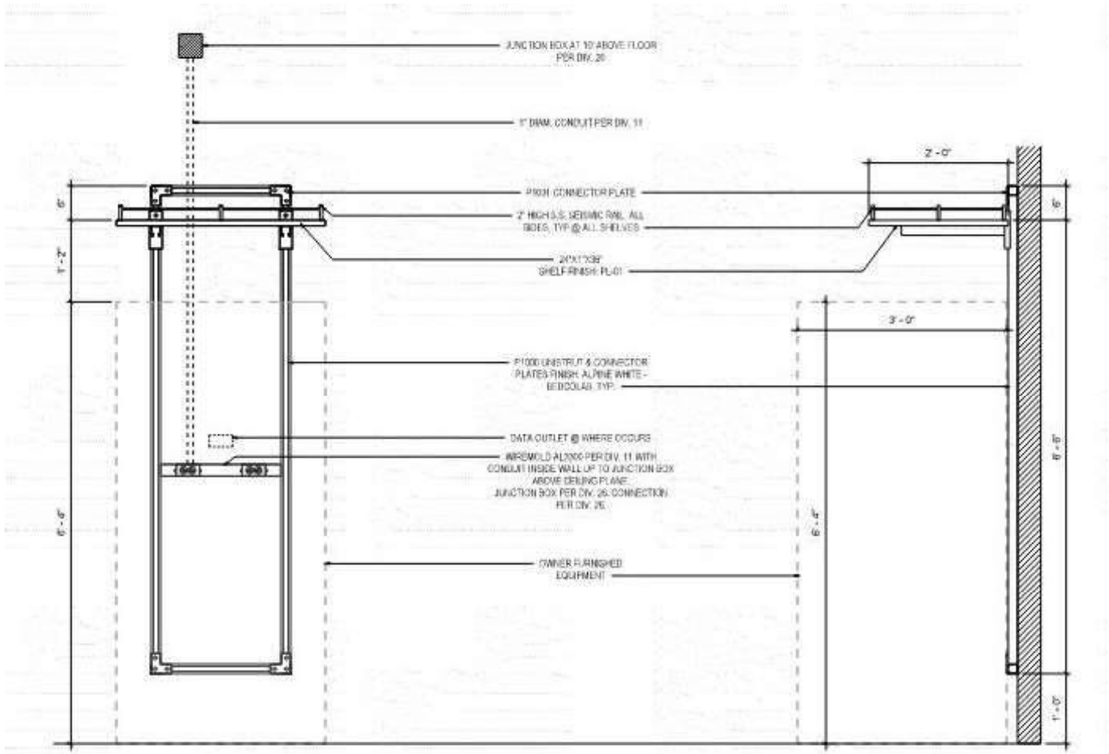
Dimensions:
Locate at 4' on center vertical to vertical
Bottom of horizontal at 9' or 10' above floor- not 8' as shown in illustration

Material:
P1001 strut, epoxy powder coat

Electrical:
120v20amp dedicated circuit fourplex at each pair of island benches below per Div 26
Dedicated 120v20amp dedicated circuit fourplex at instructor bench

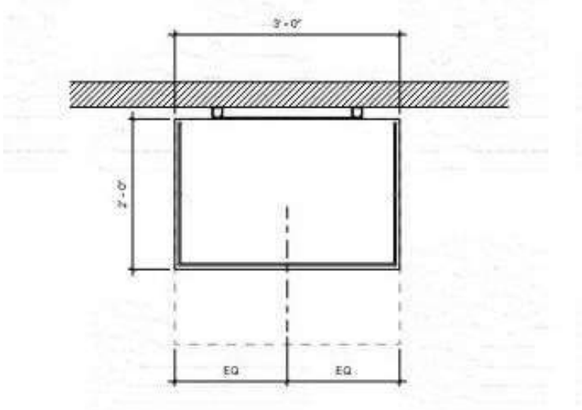
Data:
Drop down data cord at instructor bench





FRONT ELEVATION

SIDE ELEVATION



PLAN VIEW

Lab Equipment Space Cut Sheet

Location: All labs where noted, at side walls

Dimensions: 36” wide x 24” deep x 96” high

Material: P1000 unistrut frame at wall with epoxy powder coat Wood shelf above

Electrical: Wiremold AL3300 raceway at wall per Div 26 with 2 duplex per circuit

Equipment: Open floor space below for OFOI lab equipment

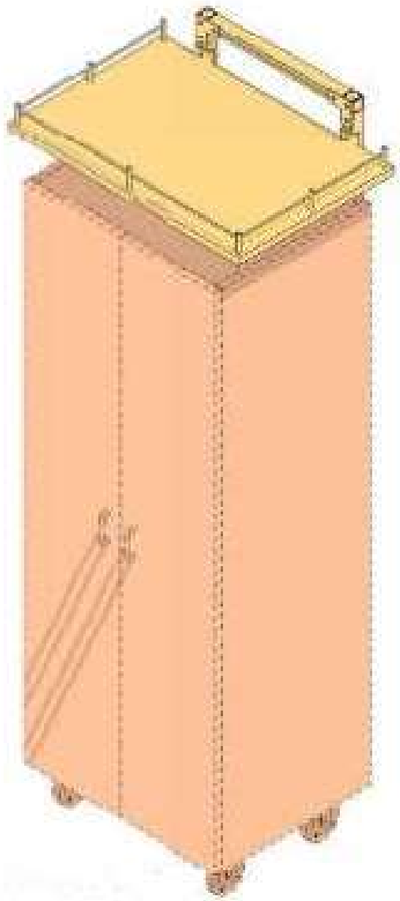
Lab Tall Cabinet Cut Sheet

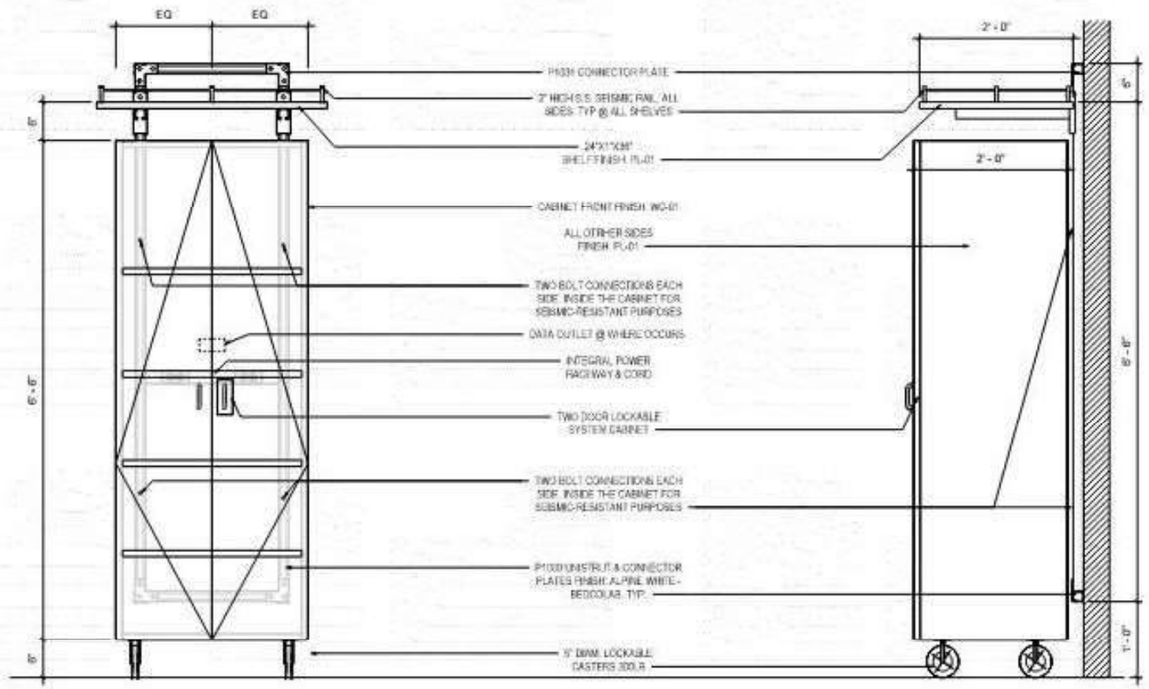
Location: All labs where noted, at side walls

Dimensions: 36” wide x 24” deep x 96” high

Material: P1000 unistrut frame at wall with epoxy powder coat
Wood shelf above
Wood tall cabinet on heavy duty casters- cabinet bolts to wall unistrut for seismic restraint

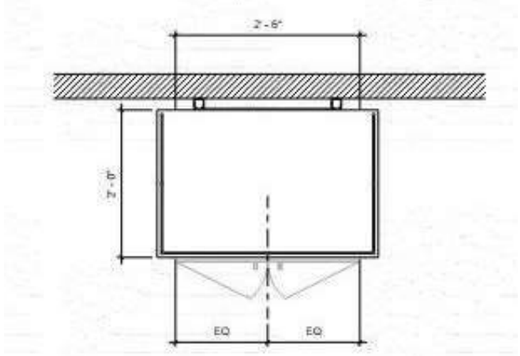
Electrical: Wiremold AL3300 raceway at wall per Div 26 with 2 duplex per circuit





FRONT ELEVATION

SIDE ELEVATION



PLAN VIEW

Lab Sink Station Cut Sheet

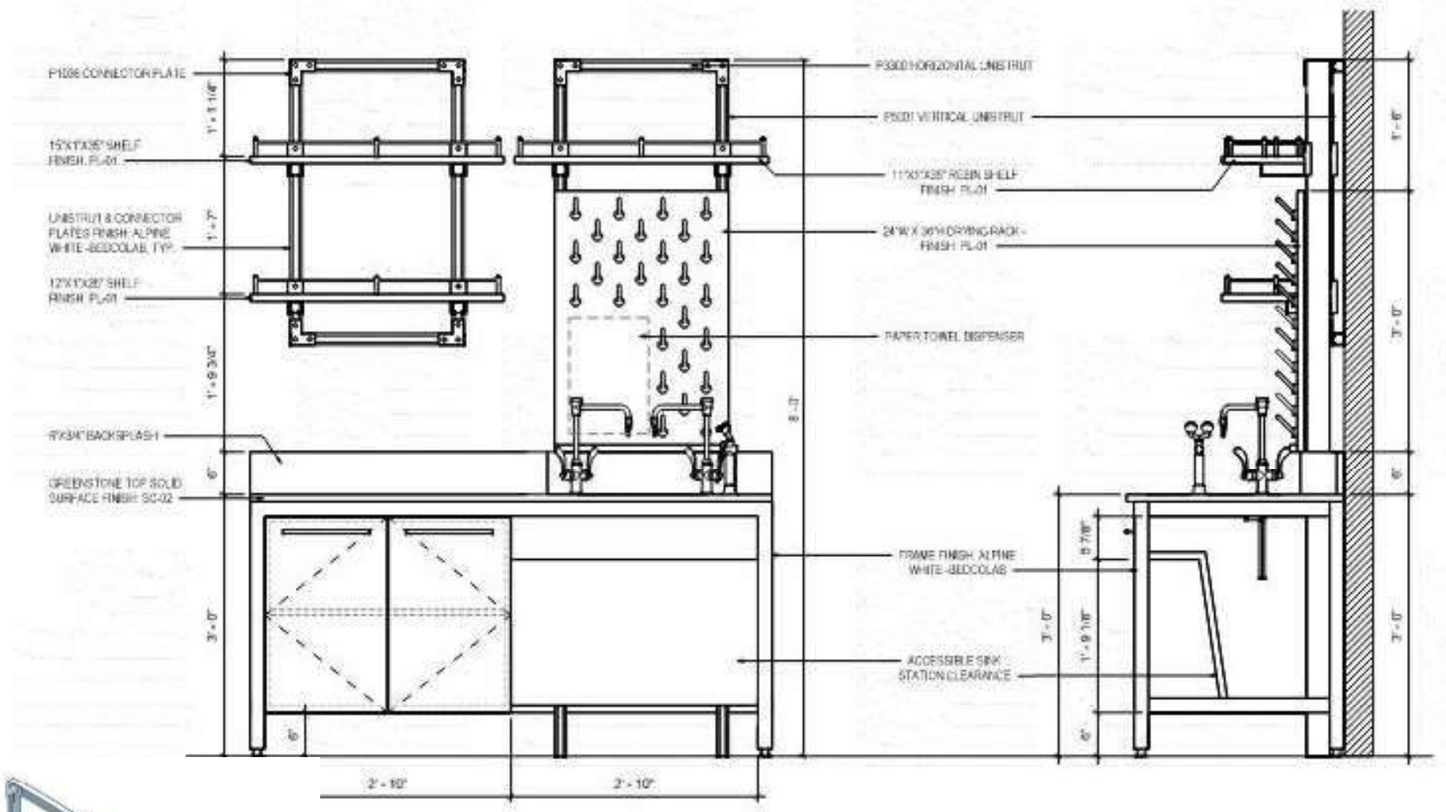
Location: Where noted on lab plans.

Dimensions: 30” deep x 72” wide x 96” high

Material: 12 gauge welded tube steel frame with wood suspended cabinets below; phenolic resin shelves above; phenolic resin drying rack; Pegs at selected sinks only- not all sink stations to have pegs; Epoxy resin work surface with marine edge.

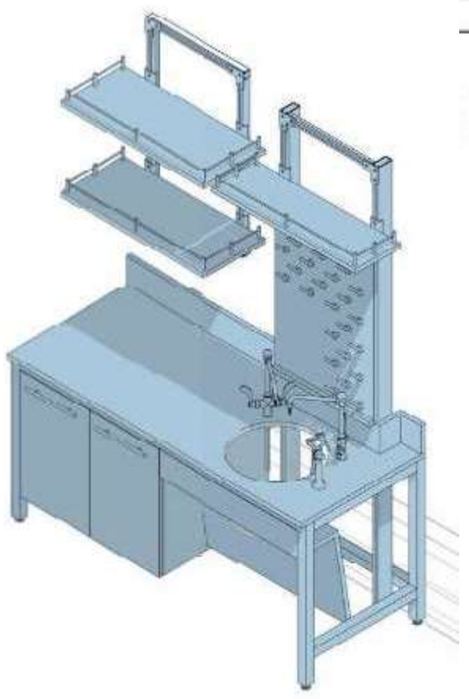
Plumbing: HW/CW domestic water feed per Div 22.

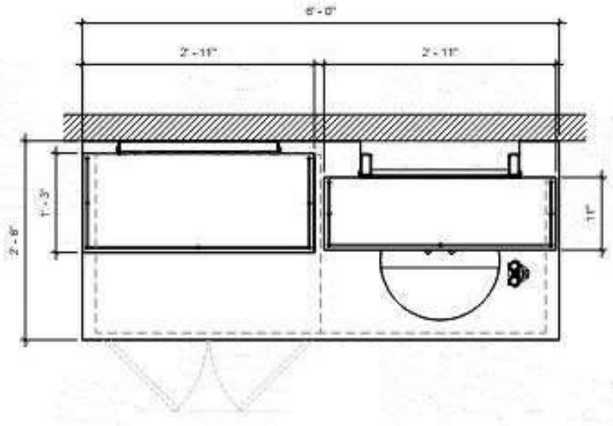
Electrical: Fourplex at wall above work surface.



FRONT ELEVATION

SIDE ELEVATION





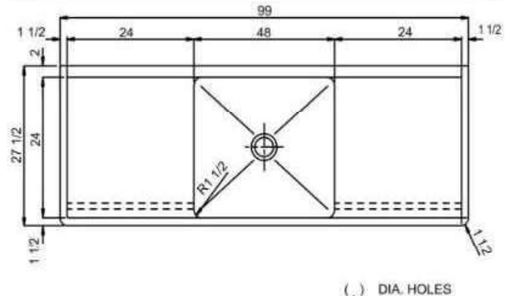
NSFB-148-24RL-12/12

INSTITUTIONAL GROUP

SINGLE COMPARTMENT
DRAINBOARD - LEFT and RIGHT
NSF Certified

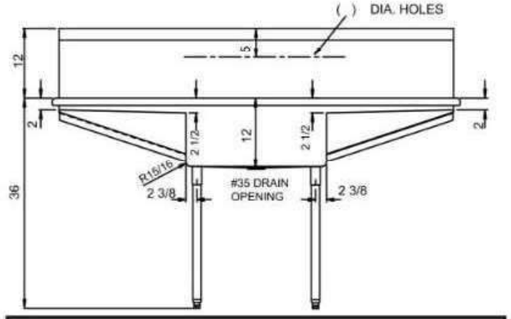
SUBMITTAL DATA

SPECIFICATION
Constructed of 14 gauge, type 304 stainless steel. Backsplash 12" high with 2" angled return. Interior surfaces polished with a non-porous Hand-Blended Just Finish. Exterior surface to have a brush finish. Underside cleaned. Supported on (4) 1-5/8" O.D. 16 gauge stainless steel tubular legs with fully enclosed gussets and adjustable bullet feet. Drain punch for Just J-35 series drains. Certified to NSF Std. No. 2; ASME A112.19.3/CSA B45.4; UPC; IPC.



NSF Sink certified to NSF Standard No. 2 for Food Service Equipment by NSF International

NSF Sink certified to ASME A112.19.3/CSA B45.4; Uniform Plumbing Code (UPC); International Plumbing Code (IPC), by NSF International.



APPROVED FOR MANUFACTURING

MODEL NO.: **NSFB-148-24RL** QTY: _____

JOB NAME: _____

TAG/ITEM: _____

CUSTOMER: _____

SIGNATURE: _____

To be specified :	**Standard**
■ Faucet hole punching:	**Depth** - 12"(Water level 9-1/2")
❑ (1) Hole Centered	**Backsplash height** - 12"
❑ (2) Holes on 8" centers	**Alternate sizing**
❑ (3) Holes on 4 "centers	❑8" backsplash / 14" depth
❑ Alternate Punching: Faucet Model: _____	❑_____backsplash
Punching required: _____	❑_____depth

MADE IN U.S.A.

JUST MFG. COMPANY CONTINUES TO MAKE QUALITY AND FUNCTIONALITY A MARK OF THE JUST PRODUCT LINE. WE RESERVE THE RIGHT TO CHANGE PRODUCT INFORMATION WITHOUT NOTICE. DIMENSIONS MAY CHANGE AND MAY BE SUBJECT TO CHANGE WITHOUT NOTICE. NO RESPONSIBILITY IS ASSUMED FOR USE OF SUPERCEDED OR VOIDED DATA. JUST MFG. CO. SINKS ARE MADE IN THE U.S.A. WHEN COMPARING OTHER BRAND PRODUCTS, BE SURE TO COMPARE USA QUALITY ALONG WITH FEATURES AND DIMENSIONS.

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

NSFB148-24RL

Lab Scullery Sink Cut Sheet

Location: Shop, L1; Maker Lab, L1; Food Science Lab Prep, L3

Dimensions: 99” long x 22” wide x 48” high

Material: 14 gauge, 304 stainless steel

Plumbing: HW/CW domestic feed water per Div 22; HW/CW spray faucet per Div 11; Eyewash per Div 11

Lab Sink Cut Sheet

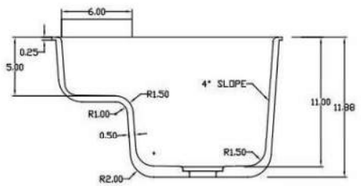
Location: At lab sink stations noted on plans.

Dimensions: 18” diameter x 12” depth; 18” diameter x 5/11“ dual depth at ADA accessible sink.

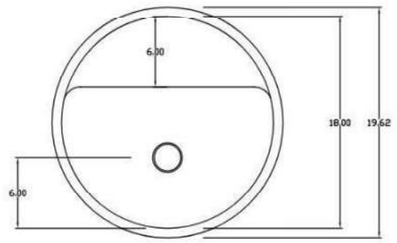
Material: Epoxy resin.

Mount: recessed, flush

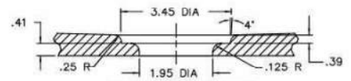
DURCON™ INCORPORATED



SECTION VIEW

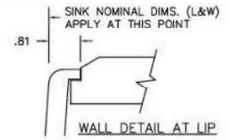


TOP VIEW



DRAIN OPENING DETAIL

SECTION NOT TO SCALE



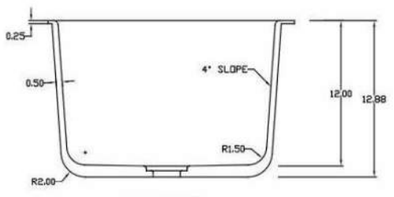
WALL DETAIL AT LIP

DETAIL NOT TO SCALE

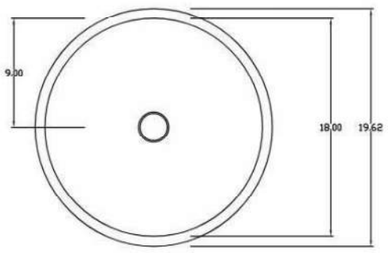
"DIMENSIONS ARE NOMINAL, PROVIDED FOR PLANNING PURPOSES ONLY.
CONTACT DURCON FOR RECOMMENDED SINK CUTOUT DIMENSIONS TO INSURE A QUALITY INSTALLATION."

SINK	WEIGHT	OUTLET LOCAL.	CODE	FACTORY TAYLOR TX	DATE: 01/21/2021 SCALE: 1=1 DRAWN: BKT FILE: ROUND18ADA
XXX	LBS	CENTER	SNKD–XXX		

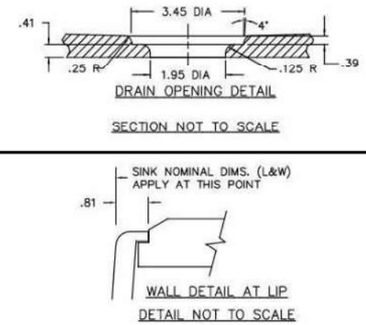
DURCON™ INCORPORATED



SECTION VIEW



TOP VIEW



DRAIN OPENING DETAIL

SECTION NOT TO SCALE

WALL DETAIL AT LIP

DETAIL NOT TO SCALE

ISOMETRIC VIEW

"DIMENSIONS ARE NOMINAL, PROVIDED FOR PLANNING PURPOSES ONLY.
CONTACT DURCON FOR RECOMMENDED SINK CUTOUT DIMENSIONS TO INSURE A QUALITY INSTALLATION."

SINK	WEIGHT	OUTLET LOCAL.	CODE	FACTORY TAYLOR TX	DATE: 01/21/2021 SCALE: 1=1 DRAWN: BKT FILE: ROUND18
XXX	LBS	CENTER	SNKD–XXX		

Lab Island Shelf Unit Cut Sheet

Location: Where noted on plans, adjacent to island benches

Dimensions: 24”x36”, 3 shelf unit

Material: 304 stainless steel solid shelves

METRO

METRO LAB CARTS

TYPE 304 STAINLESS STEEL

Contaminant-free grade A process.

Introducing Grade A Pharma Carts

When your environment calls for premium solutions, every storage or transport product must work to preserve the contaminant-free conditions. Each piece of Metro's NEW Grade A Pharma Cart down to the casters is specifically designed to handle regular cleaning and sterilization without compromising its structural integrity.

Don't trust your cleanroom to any cart. Trust the cart built specifically for your cleanroom.

- Type 304 Stainless Steel Construction
- All Stainless-Steel Shelves and corners
- Stainless-Steel Posts
- Metro 5MPGSA/5MPBGSA 5" Polyurethane Cart-washable 2 swivel/2 break stem casters

Model No.	Size (in.)	Size (mm)	Shelf #	Approx. Pkd. Wt.
CRLS222NFS	18"x30"	(457.2 x 762)	2	60.2 lbs. (27.3 kg)
CRLS223NFS	18"x30"	(457.2 x 762)	3	66.7 lbs. (30.3 kg)
CRLS432NFS	24"x36"	(609.6 x 914.4)	2	72.9 lbs. (33.1 kg)
CRLS433NFS	24"x36"	(609.6 x 914.4)	3	79.1 lbs. (35.9 kg)

Metro Grade A Pharma Carts are available in various sizes. Carts come in both two shelf and three shelf options depending on your use.

- 18" x 30"
- 24" x 36"
- 2 and 3 shelf models
- Additional sizes available

Visit Metro.com or call 1-800-992-1776.

Lab Wall Shelf Unit Cut Sheet

Location: Where noted on plans, adjacent to walls

Dimensions: 24”x48”x72”

Material: 304 stainless steel solid shelves; Polyurethane casters

{11.10}

Super Erecta® Shelf Solid Shelf Carts

- **Stem Caster Carts** combine Super Erecta® Shelf solid shelving features with the mobility of stem casters to provide a high-quality, strong and versatile material handling cart.
- **Variety of Casters Available:** Select the caster that allows the right combination of rollability and maneuverability to suit your requirements. Casters are available in swivel, rigid or brake types. All Metro® casters come complete with a 3½" (89mm) donut bumper. Refer to sheet #11.20 for additional caster information.
- **Strength:** Two-fold thickness of 18-gauge steel forms ⅛" (3mm) raised edges on all four sides of the shelving. This ship's edge gives all-around rigidity and high-strength. Sturdy aluminum castings firmly lock the corners to the posts.
- **Sanitary:** The raised ship's edge on all four sides and at the corners contains spillage, minimizes contamination and permits easier clean-up.
- **Fast, Secure Assembly:** Post has rolled, circular grooves along its entire height at 1" (25mm) intervals. A tapered split sleeve (plastic or aluminum) snaps together around each post. Tapered openings in the shelf corners slide over the tapered split sleeves providing a positive lock. Cart is assembled in minutes without the use of nuts or bolts and without the use of any special tools.
- **Adjustability:** Shelves can be adjusted at 1" (25mm) intervals along the entire height of the post.

{14.01}

Security Units
Super Erecta® & MetroMax®

Security Units Super Erecta® & MetroMax® provide **safe storage** and protects valuable materials and sensitive items from loss or pilferage.

Microban® Antimicrobial Product Protection*: Metroseal Green and MetroMax Q models feature Microban Antimicrobial Product Protection that helps fight the growth of stain and odor-causing bacteria to keep product cleaner between cleanings.

Ready View of Contents: Heavy-gauge open wire construction keeps the entire contents of the unit visible at all times, making it easy to check inventory.

Adjustable, Optional Intermediate Shelves: Patented, easily adjustable shelf designs — Super Erecta EZ-ADD, Super Adjustable Super Erecta, and MetroMax Q — allow flexibility to meet changing needs. Can be positioned in 1" (25 mm) increments along the entire height of post.

Choose from Stationary or Mobile Standard and Heavy-Duty Configurations:

Safe Transportation: Mobile, security trucks provide the advantage of quick, protective transportation.

Easy Cleaning of Storage Areas: Mobile units move easily from walls to allow thorough cleaning of floors and walls.

Mobile Units: Available in Standard and Heavy-Duty models Heavy-Duty units offer increased rigidity and durability for applications such as crossing thresholds.

Time Saving Assembly: Metro security units assemble quickly — right out of the box.

Shipped Knocked-Down: Saves on freight

Door Options

Hinged Doors: Each door opens 270 degrees and can be secured along the sides of the unit with a patented 1/4 turn door handle locking system that accommodates a pad lock.

Sliding Doors: Each door slides over each other to save aisle space and has a flip lock that accommodates a pad lock. Perfect for use in Top-Track & qwikTRAK applications.

Locking

Standard Pad lock: Not included

Super Erecta® Chrome Mobile Security

MetroMax® Q Stationary Security

Super Erecta Sliding Door Security

Super Erecta Heavy Duty Security with a dolly base and optional intermediate shelves.

Lab Lockable Cage Unit Cut Sheet

Location: Shop, L1

Model: Metro Super Erecta Sliding Door SEC56VK3-SL

Dimensions: 52”wide x 29” deep x 69” high overall (24”x48” shelf)

Casters: 5” lockable swivel

Lab HW/CW Faucet Cut Sheet

Location: At lab sink stations.

Mount: Deck mount.

Finish: Satin chrome.

Plumbing: Domestic HW/CW feed per Div 22.

Electrical: 120v duplex per Div 26 below sink for infrared sensor

Note: Faucet functions as hands free with infrared sensor, or manual with blade handles.

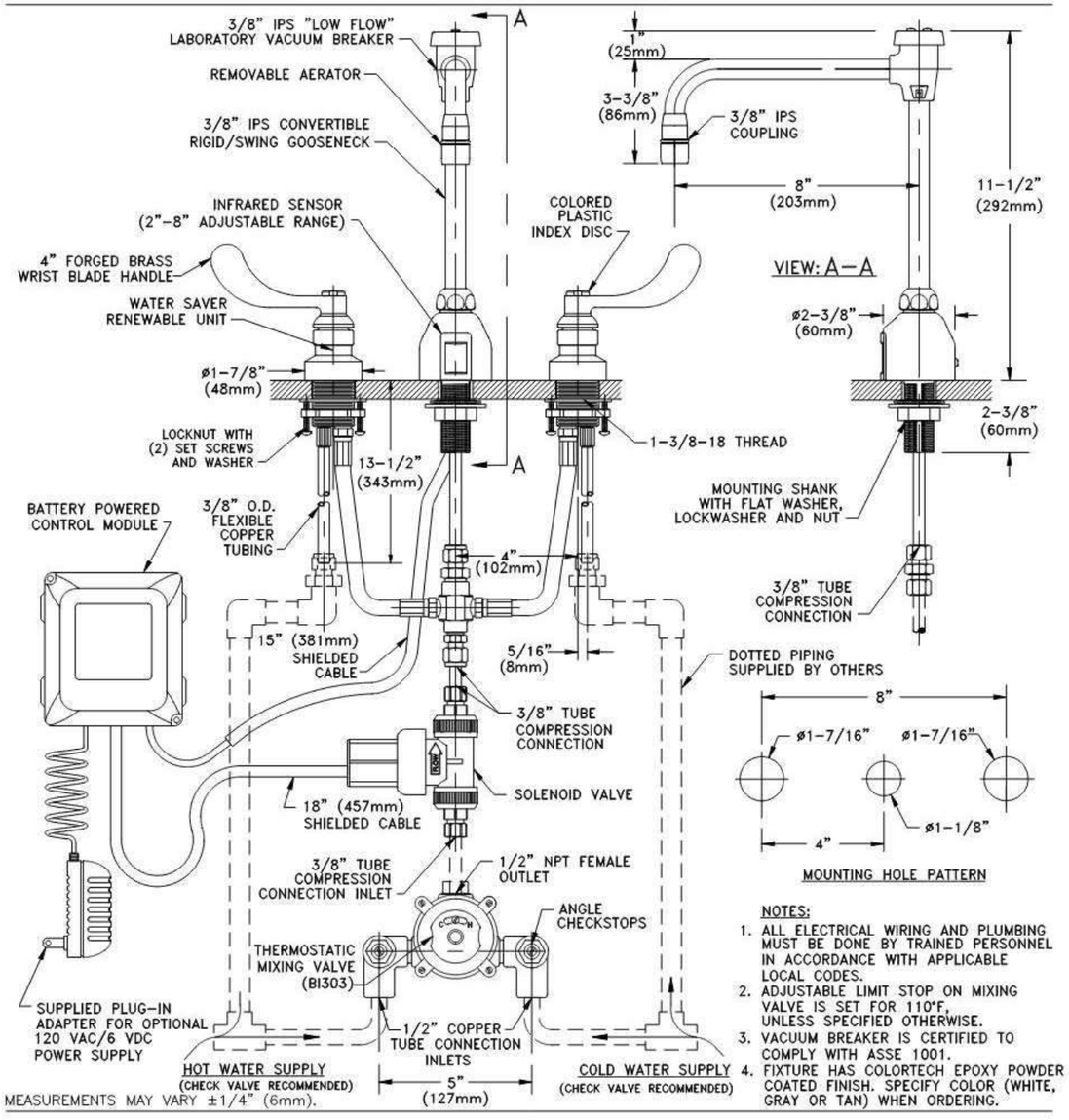
WaterSaver | ColorTech

WaterSaver Faucet
701 W Erie St
Chicago, IL 60654

312 666 5500 TELEPHONE
312 666 5501 FACSIMILE
wsflab.com

CT4544–8VB55BH303

DUAL ACTIVATION FAUCET, DECK MOUNTED, 8" RIGID/SWING VACUUM BREAKER GOOSENECK, OPTIONAL BATTERY OR PLUG–IN ADAPTER POWER SUPPLY, WRIST BLADE HANDLES, AERATOR, THERMOSTATIC MIXING VALVE



NOTES:

1. ALL ELECTRICAL WIRING AND PLUMBING MUST BE DONE BY TRAINED PERSONNEL IN ACCORDANCE WITH APPLICABLE LOCAL CODES.
2. ADJUSTABLE LIMIT STOP ON MIXING VALVE IS SET FOR 110°F, UNLESS SPECIFIED OTHERWISE.
3. VACUUM BREAKER IS CERTIFIED TO COMPLY WITH ASSE 1001.
4. FIXTURE HAS COLORTECH EPOXY POWDER COATED FINISH. SPECIFY COLOR (WHITE, GRAY OR TAN) WHEN ORDERING.

MEASUREMENTS MAY VARY ±1/4" (6mm).

Drawing Number: _____ Revision Number: 072815–TEC

Lab HW/CW Spray Faucet Cut Sheet

Location: At scullery sink stations

Mount: Panel mount.

Finish: Satin chrome.

Plumbing: Domestic HW/CW feed per Div 22.

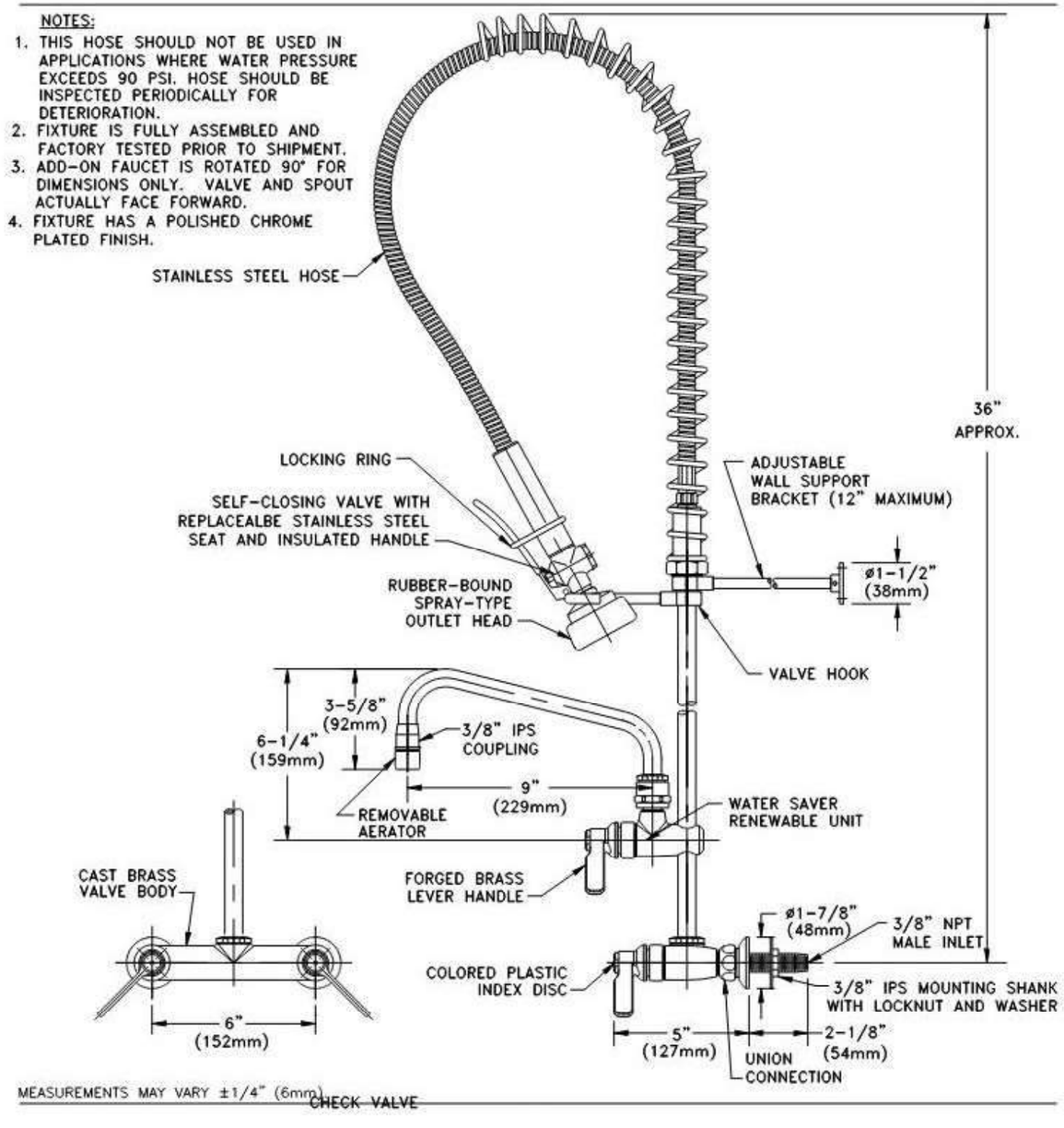
Electrical: None.

WaterSaver
INNOVATIVE PRODUCTS FOR RESEARCH

WaterSaver Faucet
701 W Erie St
Chicago, IL 60654

312 666 5500 TELEPHONE
312 666 5501 FACSIMILE
wsflab.com

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



Lab Eyewash Faucet Cut Sheet

Location: At select lab sinks

Finish: Satin Chrome

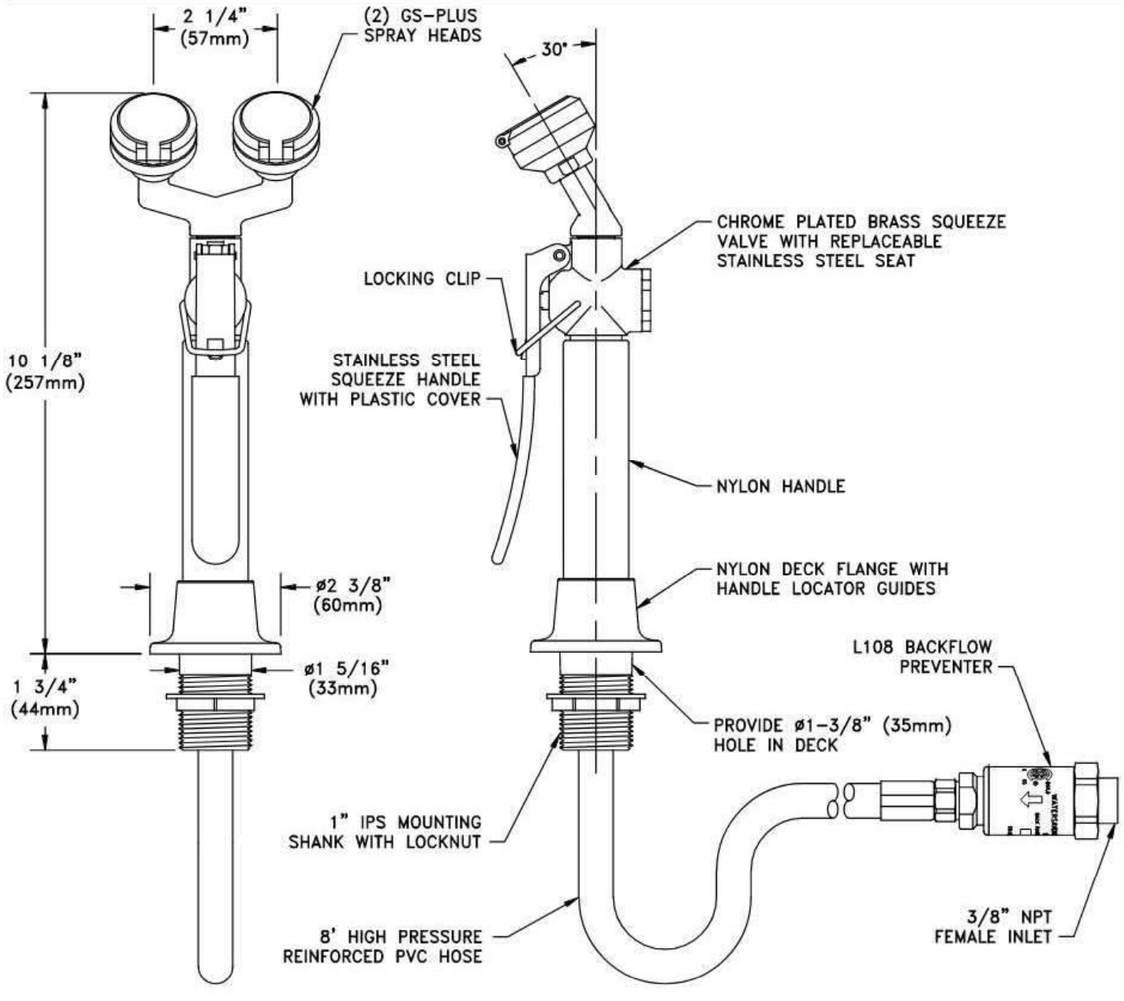
Plumbing: Domestic feed water, per Div 22; Faucet per Div 11

WaterSaver
INNOVATIVE PRODUCTS FOR RESEARCH

WaterSaver Faucet
701 W Erie St
Chicago, IL 60610

312 666 5500 TELEPHONE
312 666 5501 FACSIMILE
wsflab.com

EW1022BP
EYE WASH/DRENCH HOSE, DECK MOUNTED, WITH BACKFLOW PREVENTER



NOTES:
1. EACH GS-PLUS SPRAY HEAD HAS A "FLIP-TOP" DUST COVER, INTERNAL FLOW CONTROL AND FILTER TO REMOVE IMPURITIES FROM THE WATER FLOW.
2. HOSE SHOULD NOT BE USED IN APPLICATIONS WHERE WATER PRESSURE EXCEEDS 90 PSI. HOSE SHOULD BE INSPECTED PERIODICALLY FOR DETERIORATION.

UNITS (EXCEPT THOSE WITH SELF-CLOSING VALVES) COMPLY WITH THE REQUIREMENTS OF ANSI Z358.1. TEST ALL EMERGENCY EQUIPMENT AT LEAST WEEKLY.

Lab Safety Shower Cut Sheet

Location: Labs where noted on plans.

Dimensions: 34” wide x 3.5” deep x 33” high

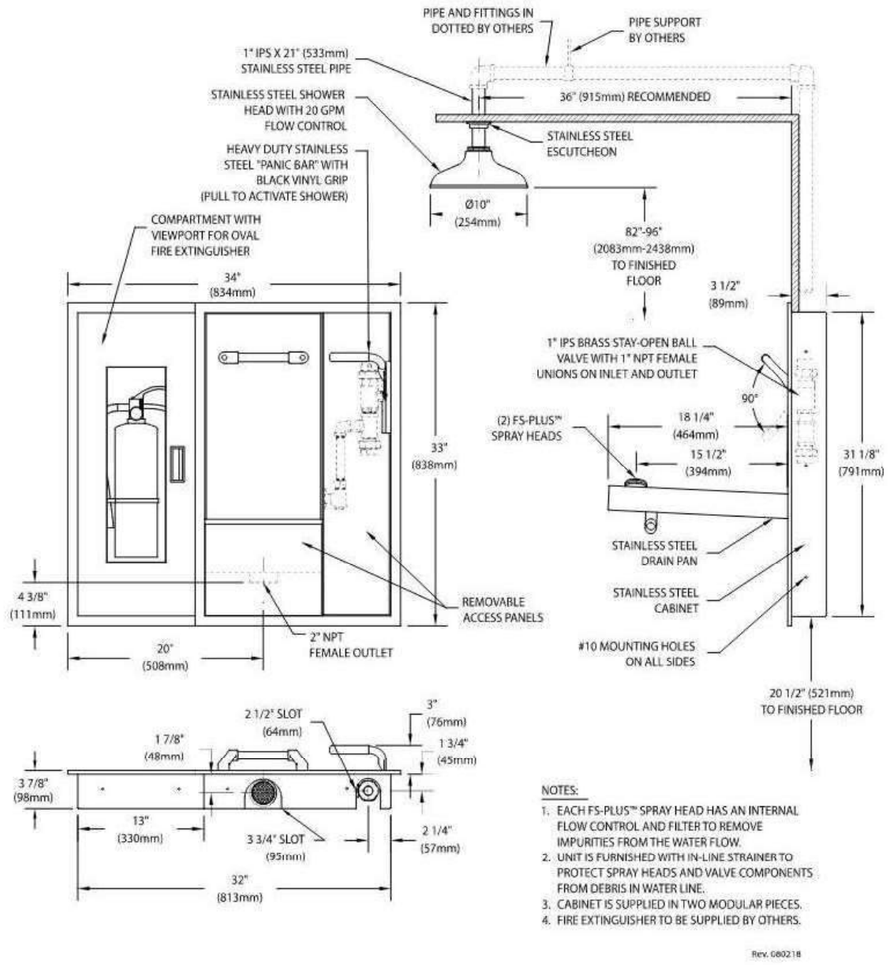
Material: Stainless steel

Plumbing: Tepid water feed per Div 22; Floor drain below shower per Div 22; Eyewash drain in wall per Div 22, do not daylight drain; Safety Shower unit per Div 11

WaterSaver

Safety Centers

☐ **GSC2650B** Recessed Safety Center with Drain Pan, Exposed Shower Head



NOTES:

1. EACH FS-PLUS™ SPRAY HEAD HAS AN INTERNAL FLOW CONTROL AND FILTER TO REMOVE IMPURITIES FROM THE WATER FLOW.
2. UNIT IS FURNISHED WITH IN-LINE STRAINER TO PROTECT SPRAY HEADS AND VALVE COMPONENTS FROM DEBRIS IN WATER LINE.
3. CABINET IS SUPPLIED IN TWO MODULAR PIECES.
4. FIRE EXTINGUISHER TO BE SUPPLIED BY OTHERS.

Rev. 080218

THIS SPACE FOR ARCHITECT/ENGINEER APPROVAL

Due to continuing product improvement, the information contained in this document is subject to change without notice. All dimensions are ± 1/4" (6mm). rev. 072022

Designed to accommodate: OVAL BRAND FIRE PRODUCTS

Sign Included

WaterSaver
701 W Erie St
Chicago, IL 60654

312 666 5500 TELEPHONE
312 666 5501 FACSIMILE
wsflab.com

Listed 8116. Units have been tested to and comply with ANSI Z358.1-2014 and the Uniform Plumbing Code.

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

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

Lab Power Reel Cut Sheet

Location: Labs where noted on plans.

Cord length: 25 feet

Density: One power reel at each pair of lab benches

Electrical: Dedicated circuit 120v20amp fourplex at each pair of lab benches, and at each instructor Bench, per Div 26. One power reel at each fourplex per Div 11. Box at end of power cord has two duplex, one duplex per side.

Mount: Mounts to unistrut frame overhead.

Lab Air Reel Cut Sheet

Location: Med Device Lab, L3; Elec Maker Lab, L2; Robotics Lab, L2; Shop, L1; Maker Lab, L1

Cord length: 20 feet

Density: One power reel at each pair of lab benches

Plumbing: Dry, oil free, instrument grade air supply per Div 22

Mount: Mounts to unistrut frame overhead.

20' 300PSI Hi-Vis Compact Spring Retractable Low Pressure Hose Reel

Write a Review | Questions & Answers (0)

Shop All Compact Footprint Spring Retractable Hose Reels

Product Description

Coxreels LG-LP-320-HV 3/8" x 20' 300PSI Hi-Vis Compact Spring Retractable Low Pressure Hose Reel With High Visibility Hose.

COXREELS® LG Series "Little Giant" is the first lightweight - heavy duty reel on the market. The LG is perfect for commercial or industrial applications where space or budget is limited. It is extremely lightweight and compact and can install almost anywhere. This little giant can accept either a 1/4" or 3/8" hose to tackle the jobs of reels almost double its size.

- Professional grade heavy duty steel construction
- Rolled edges & ribbed discs provide strength & safety
- Leading 2-year manufacturer's limited warranty
- Made in the U.S.A. – Sold & Supported Worldwide

- **SWIVEL** – Machines from solid brass 90° full-flow NPT swivel fro simple seal maintenance and fast and easy hose installation. No need to remove the reel from its mount.
- **RACHET HUB** – Non-corrosive, high strength CoxComposite ™ ratchet hub with self-lubricating bronze bearings secures hose at desired length.
- **CNC SPUN DISCS**– Heavy duty CNC robotically spun and ribbed discs with rolled edges fro greater strength durability, hose protection and operator safety.
- **12GA STEEL BASE**– Solid one piece, 12GA Steel base and support post for maximum stability. Compact & lightweight spring driven hose reel.
- **GROMMET**– Coxcomposite™ grommet with continuous radius design that does not pinch or catch the hose during operation.
- **OTHER FEATURES INCLUDE**– long lasting, chip resistant and rust inhibiting CPC powder coat finish, adjustable solid rubber hose stop, and sturdy permanently lubricated precision bearings.

GLOBAL INDUSTRIAL
We can supply that.

Specifications

Weights & Dimensions

Length	10.5 in	Hose Inside Diameter	3/8 in
Width	5.25 in	Hose/Cord Length	20 ft
Height	10.63 in	Reel Hose Length Capacity	20 ft
Weight	11 lbs		

Product Details

Type	Hose Reel	Drive/Return Type	Spring Return
Open or Enclosed Chassis	Open	Material	Steel
Color	Blue	Inlet	3/8
Series	LG	Manufacturers Part Number	LG-LP-320-HV
Max Temperature	158 °F	Cable/Cord/Hose Included	Yes
For Use With	Air, Water	PSI	300 psi
Temperature Range	-40 to 158 °F	Hose Material	PVC
Style	Open Chassis	Brand	Coxreels

Warranty

Warranty	2 yr

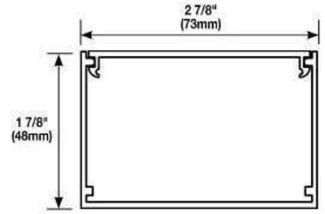
Lab Electrical Raceway Cut Sheet

The raceway is per Div 26, but is shown here for reference only.

The horizontal raceway occurs at exterior window wall fixed lab benches, above the backsplash, at the back of the lab work surface.

A maximum of 8 plugs (4 duplex) should be on each 120v circuit.

AL3300 Series Raceway Specifications



Material: 6063 T6 Aluminum Alloy
Wall Thickness: 0.078" (1.99mm)
Anodized Finish Thickness: 0.004" (0.004mm)

AL3300 Series Raceway Wire Fill Capacity Charts

AL3300 Series Raceway Wire Fill Capacities For Power

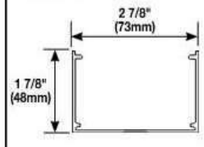
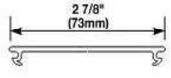
WIRE SIZE THHN/THWN	O.D. Inches	O.D. (mm)	CAPACITY OF CROSS SECTIONAL AREA WITH DUPLEX DEVICE WITH OFFSET DIVIDER 1.35 in² (871mm²)	WITH DUPLEX DEVICE WITHOUT DIVIDER 4.40 in² (2839mm²)	WITH DUPLEX DEVICE WITH HALF DIVIDER 2.20 in² (1419mm²)	WITHOUT DEVICE WITH OFFSET DIVIDER 1.35 in² (871mm²)	WITHOUT DEVICE WITHOUT DIVIDER 4.40 in² (2839mm²)	WITHOUT DEVICE WITH HALF DIVIDER 2.20 in² (1419mm²)
14 AWG	0.111	(2.8)	59	136	39	59	193	96
12 AWG	0.130	(3.3)	40	93	27	40	132	66
10 AWG	0.164	(4.2)	25	58	17	25	83	41
8 AWG	0.216	(5.5)	14	33	9	14	48	24
6 AWG	0.254	(6.5)	10	24	7	10	34	17

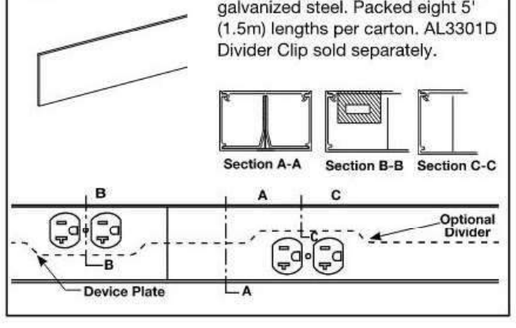
AL3300 Series Raceway Wire Fill Capacities For Communications

O.D. (Approx. Dia.) CABLE TYPE	CABLE/WIRE SIZE	Inches	(mm)	WITHOUT DIVIDER 1.35 in² (871mm²) 20% Fill	WITHOUT DIVIDER 1.35 in² (871mm²) 40% Fill	WITH OFFSET DIVIDER 4.40 in² (2839mm²) 20% Fill	WITH OFFSET DIVIDER 4.40 in² (2839mm²) 40% Fill	WITH HALF DIVIDER 2.20 in² (1419mm²) 20% Fill	WITH HALF DIVIDER 2.20 in² (1419mm²) 40% Fill
UNSHIELDED TWISTED PAIR	4-pair, 24 AWG, Cat 3	0.190	(4.8)	30	61	9	19	15	30
	4-pair, 24 AWG, Cat 5e	0.210	(5.3)	25	50	7	15	12	35
	4-pair, 24 AWG, Cat 6	0.250	(6.3)	17	35	5	10	8	17
	4-pair, 24 AWG, Cat 6a*	0.354	(9.0)	8	17	2	5	4	8
	25-pair, 24 AWG	0.410	(10.4)	6	13	2	4	3	6
COAXIAL	RG6/U 20 Gage	0.270	(6.9)	15	30	4	9	7	15
FIBER	2 Stranded ZipCord	0.118 x 0.236	(3 x 6)	31	63	9	19	15	31
	Round 4 Strand Fiber	0.187	(4.8)	32	64	9	19	16	32
	Round 6 Strand Fiber	0.256	(6.5)	17	34	5	10	8	17

NOTE: **For additional information, refer to the Technical Section of the current version of ED1560 (Wiremold Catalog).**
*** Category 6 augmented (6a) cable for 10 gigabit ethernet – max allowed cable diameter per addenda No. 11 ANSI TIA/EIA 568-B.2.**

AL3300 Series Raceway Ordering Information

Catalog No./Item	Description/Specifications
AL3300B10 	**Raceway Base –** 6063-T5 extruded aluminum, satin anodized finish. Nominal wall thickness .060" (1.5mm). Packed four 10' (3m) lengths per carton.
AL3300C5 	**Raceway Cover –** 6063-T5 extruded aluminum, satin anodized finish. Nominal wall thickness .060" (1.5mm). Packed eight 5' (1.5m) lengths per carton.

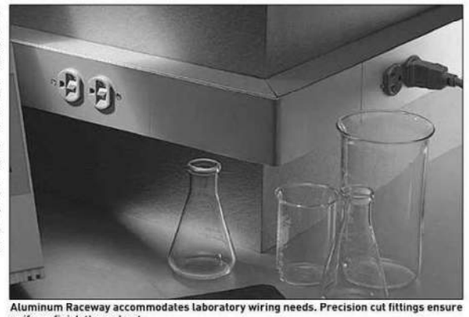
Catalog No./Item	Description/Specifications
AL3300D5 	**Divider –** Divider is 0.040" (1.0mm) galvanized steel. Packed eight 5' (1.5m) lengths per carton. AL3301D Divider Clip sold separately.

legrand®

WIREMOLD®
Aluminum Raceway

Architectural Aluminum Raceway

AL3300 Series Aluminum Raceway System meets the demands of today's commercial spaces, providing a compact, handsome and effective method of consolidating all power and communication cabling. In laboratories, healthcare facilities and upscale office locations, the divided aluminum raceway separates power and communication cabling and directs these services where required. The low-profile design can be installed as baseboard, surface mounted, or under laboratory reagent shelves. The two-piece raceway design means wiring is always accessible and changes are easily accomplished at any time.



Aluminum Raceway accommodates laboratory wiring needs. Precision cut fittings ensure uniform finish throughout.

FEATURES & BENEFITS

- **Attractive, snap-together aluminum extrusions.** Complements decor in commercial offices, laboratories and healthcare facilities. Enables quick and easy circuit modifications or additions.
- **Satin anodized finish.** Good-looking appearance, resists corrosion and is easy to clean and maintain.
- **Field installed divider creates dual wiring channels.** Permits separation of power and voice/data communication wiring or allows breakout of "clean" power from standard power circuits.
- **Accommodates most electrical wiring devices and full-size communication face plates.** Accepts single, duplex, NEMA-Locking, GFCI and surge protection outlets and most communication activation devices.
- **Full line of fittings.** Provides a complete installation connection to existing wiring or other raceways.
- **Compact size.** Application flexibility. Useful for locations requiring limited space.
- **UL and cUL Listed Raceway:** File E73943 Guide RJBT. Fittings: File E74243, Guide RJPR. Meets Article 386 of NEC and meets Section 12-1600 of CEC.
- **Communication connectivity options.** Accepts industry standard and proprietary devices from a wide range of manufacturers to provide a seamless and aesthetically pleasing interface for voice, data, audio, and video applications at the point of use.
- **UL5 and ADA Compliant.** Raceway and fittings meet UL5 specifications and can be installed in conformance with ADA requirements.

PEP ecoPASSPORT® Download this product's PEP ecopasport® environmental product declaration at www.legrand.us/resources-and-downloads. This declaration conforms with ISO 14025 and 14040 and is in alignment with EN 15804.

ED593R9 – Updated January 2016 – For latest specs visit www. legrand.us/wiremold

The task light at wall cabinets is per Div. 26. Shown here for reference only. Task lighting at mobile lab benches, if any, will be per Div. 11.

Mocha Task Lighting
HERO – Line Voltage

mocha LIGHTING

HERO

- Intergrated Power Supply without external wall adapter
- Features integral dimmer switch.
- Color balance from warm to cool white available.
- Low Profile (0.6"H) for small niche or pocket areas.
- Integral infrared proximity sensor option available (title 24 compliant)
- Integral programmable work day timer option available.
- Ideal for interior under-counter, under-cabinet, toe-kick or accent light.
- Daisy chain configuration options with integral individual on/off and dimming available.
- Optional Bluetooth connectivity with app*
- Optional Bluetooth music streaming*

LED SPECIFICATIONS

Color Temp	3000K, 3500K, 4000K standard Color Balance, 2700K, 3500K, 5000K Additional CCT available
CRI	94
L70(10k)	>60,000 hrs
Mounting	Mounts to wood, sheetrock or metal surfaces
Daisy Chain/ Interconnect	Optional daisy chain link for easy connectability (25 max)
Proximity Sensor	4 Meter human detection distance
Power Options	Retractable power cord available as addon

Power Supply	Integrated
Lisiting	ETL listed to UL153 , CSA C22.3#9, #12, CEC Title20
Compliance	ROHS complaint, CA Title 24 Complaint
Rating	90-130 Vac
Warranty	10 years warranty
LEED V4	Interior Control Lighting Control 1 Point Lighting Quality 1 Point
Dimension	Height 0.6"x Width 2" x Length (12.25", 21.35", 30.45", 39.55", 48.65", 57.7")

*Contact your sales rep for more information.

300 SPECTRUM CENTER DRIVE, STE 400 | IRVINE CA 92618
OFFICE 949 754 4040 | FAX 949-627-2757
INFO@MOCHASOLUTIONS.COM | MOCHALIGHTING.COM

mocha LIGHTING

Lab Mobile Task Light Cut Sheet

The mobile task light occurs at mobile lab benches at side walls in labs. These are specified per Div. 11.

Mobile task lights can be provided at student lab benches with shelves if necessary.

Tolomeo Clip Spot With Logo

By Artemide

LUMENS
LIGHT AND LIVING
Call Us 877.445.4486

Details

- Flared matte anodized aluminum shade
- Metallic Grey lacquered steel spring action clip (1.75" max. opening)
- Rotatable and tiltable shade
- On/off switch on lampholder
- Designed by Giancarlo Fassina, Michele De Lucchi
- Finish: Polished Die-Cast Aluminum
- Material: Die-cast Aluminum
- Shade Material: Aluminum
- Switch Included
- UL Listed
- Made In Italy

Dimensions

Fixture: Height 9", Diameter 7"

Lighting

- One 72 Watt (1490 Lumens) 120 Volt E26 Medium Base Halogen Lamp(s) (Not Included)

Tolomeo Clip Spot With Logo

Additional Details

Product URL: https://www.lumens.com/tolomeo-clip-spot-with-lo-o-by-artemide-uu554811.html
Rating: UL Listed

Notes:

Product ID: uu554811

Prepared by:

Prepared for:
Project:
Room:
Placement:
Approval:

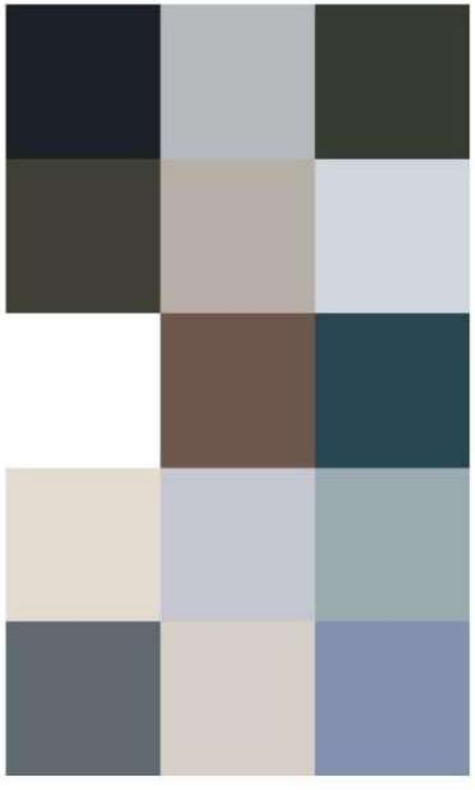
Created November 18th, 2019

DURCON EPOXY DESIGN GUIDE

III. COLORS

A. Specify colors clearly, by name, to ensure the correct color is provided for the project.
B. Contact Durcon representative for current color availability and pricing.
C. Custom Colors are available. A color chip must be submitted to Durcon when requesting a custom color. Allow a minimum of six weeks for shipment after customer approval.

Black Onyx, Gray, Graphite,
Dark Khaki, Tan, Lunar White,
Alpine White, Bronze, Forest Green,
Ivory, Pearl, Pewter,
Platinum, Sand, Steel Blue



Lab Top Cut Sheet

Location: At lab benches where noted

Dimensions: 1" thick

Material: Greenstone Epoxy Resin with recycled content

Color: Graphite as shown at left

Other top materials: Hardwood butcher block top at maker labs and electronics labs; stainless steel at Food Sci Lab.

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

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

Lab Chemical Fume Hood Cut Sheet

Location: (2) Biomedical Lab, L3; (2) Cell Mol Bio Neurobio Lab, L3; (1) Mat Sci Lab, L2; (2) Env Sci Lab, L1. Total of 7 chem hoods.

Dimensions: 72" wide x 36" deep x 96" high

Electrical: Dedicated 120v20amp circuit at junction box above in interstitial space per Div 26. Fume hood is prewired.

Plumbing: Air and Vac per Div 22. Fume Hood is pre plumbed.

Exhaust: 900 cfm VAV per Div 23

Base stand: 12 gauge tube steel frame with epoxy powder coat

Base Cabinet: Corrosive (acid) cabinet suspended below with vent to fume hood superstructure; Mobile flammable cabinet at knee space, no vent.

Description

Features (All Models)

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

Vertical-Rising Sash Models Feature

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

Combination Sash Models Feature

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

Lab Snorkel Exhaust Cut Sheet

Location: (4) Med Device Lab, L3; (13) Food Sci Lab, L3; (6) Viz Image Anat Phys Lab L3; (13) Mat Sci Lab, L2; (6) Optics Lab, L2; (4) Elec Maker Lab, L2; (6) Robotics Lab, L2; (2) Shop, L1; (6) Maker Lab, L1.

Model: MT 1500-75, ceiling mount

Dimensions: 3" diameter x 30"/18" arms

Material: Aluminum with clear hood

Electrical: None

Plumbing: None

Mechanical: 80 cfm, 1.2 static pressure

MOVEX® TERFU

A local extractor with friction joints for worksites where great flexibility is required.

The TERFU is a local extractor with friction joints designed for use in workplaces where great flexibility is required e.g. laboratories, production environments, and lighter industrial applications.

Simple, easy function.
The friction joints have a large frictional diameter and are supported with ball bearings. The degree of friction is easily adjusted with a one-hand knob. Adapted support springs balance out the weight of the arm. All arms are equipped with a 360 degree rotational swivel mounted in place. An air tight damper is fitted as standard.

Always easy to select the right product.
Terfu is available in two versions:
– Standard version. Suitable for evacuation of most types of airborne contaminants.
– PP version. Most suitable for evacuation of highly corrosive contaminants in high concentrations.

All sizes are suitable for table mounting, ceiling mounting and wall mounting.
The same suction arm is used for suspended mounting from ceilings and walls.
Ceiling and wall brackets both consist of an anodized square aluminum profile for durable surfaces and high stability.

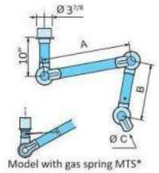
All ceiling brackets are available in eight standard lengths up to 80 inches. Longer lengths can be supplied by special orders.
To further simplify your mounting and provide a cleaner look, an MTI CT escutcheon plate can be used to cover rough cut holes in the false ceiling.

The TERFU system is design protected with several patents- and design protections pending.

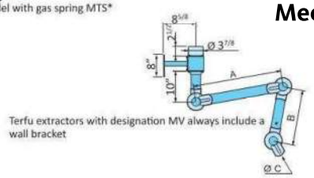
Ceiling mount		Size (inch)				Weight
Designation		A	B	Total length	C	lb
MT 1000-75	PP	16	12	40	3	5.0
MT 1300-75	PP	22	18	51	3	5.7
MT 1500-75	PP	30	18	60	3	6.0
MT 2000-75	-	40	26	80	3	7.1
MTS 1500-75	PP	30	18	60	3	6.0
MTS 2000-75	PP	40	26	80	3	7.1

Wall mount		Size (inch)				Weight
Designation		A	B	Total length	C	lb
MV 1000-75	PP	16	12	40	3	9.7
MV 1300-75	PP	22	18	51	3	10.4
MV 1500-75	PP	30	18	60	3	10.7
MV 2000-75	-	40	26	80	3	11.8
MVS 1500-75	PP	30	18	60	3	10.7
MVS 2000-75	PP	40	26	80	3	11.8

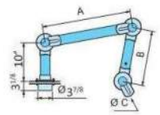
Table mount		Size (inch)				Weight
Designation		A	B	Total length	C	lb
MB 1000-75	PP	16	12	40	3	5.0
MB 1300-75	PP	22	18	51	3	5.7
MB 1500-75	PP	30	18	60	3	6.0



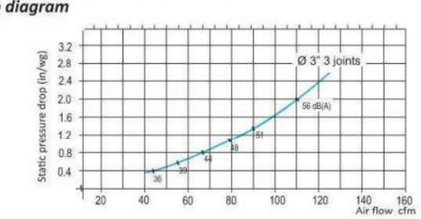
Model with gas spring MTS*



Terfu extractors with designation MV always include a wall bracket



Pressure drop diagram



The static pressure drop is measured in accordance with ISO-standard 5167-1. The noise level is measured in accordance with ISO-standard 3741.

Project planning advice

Typical values Terfu

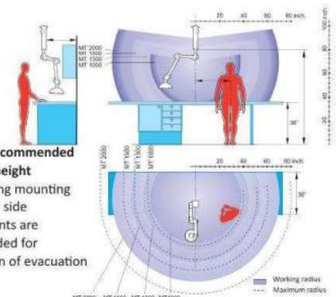
Function	Air flow
Laboratory Schools	70-85 cfm 70-85 cfm

Recommended mounting height

Designation	H inch
MT 1000	64-76
MT 1300	72-84
MT 1500	76-88
MT 2000	84-96

Recommended side displacement in relation to workplace

Designation	S inch
MT 1000	12-24
MT 1300	16-24
MT 1500	20-32
MT 2000	28-40



Range at recommended mounting height
The following mounting heights and side displacements are recommended for optimization of evacuation

Axiom® Class II, Type C1 Biosafety Cabinets

Specifications

All models feature:

- ❇ Omni-Flex™ two mode design (Type A and B mode) and two programmable working sash heights (8" and 10")
- Intrinsically-safe negative pressure design
- ❇ Fully scannable 99.99+% supply and exhaust HEPA filters (99.999% ULPA filters available)
- ❇ Long-life Dual DC Electronically Commutated Motors (ECM)
- ❇ Constant Airflow Profile™ (CAP) airflow monitoring system
- ❇ Active Protection Protocol that operates the cabinet's exhaust blowers for up to five minutes, in the event of exhaust system failure, preventing the flow of air into the laboratory*
- Low static pressure and volumetric rate exhaust requirements when in Type B mode. No dedicated exhaust system per BSC required
- ❇ Air-Wave™ Entry System at access opening to enhance containment
- ❇ Contain-Air™ Negative Pressure Channel at top of sash to enhance containment
- MyLogic™ Operating System and interior-mounted, line-of-sight, full color, easy-to-understand LCD information center with:
  - Smart-Start™ System allows user-to start up and shut down cabinet functions by raising and lowering the sash
  - Night-Smart™ System for idling the blower when the sash is fully closed (while in Type A mode only)
  - "Filter Life Remaining" bar graph and numeric value displayed for easy HEPA filter monitoring
  - Status line for alarm conditions and alerts to warn when filter life diminishes to 20% and 10% before alarming at 0%
  - Interval/elapsed timer for experiment monitoring
  - UV light timer (on models with UV)
  - Digital clock
  - 8 Languages
- Bright glare-free LED lighting up to 156 footcandle (1679 lux).

Located outside the contaminated work area

- Electronic security lock (optional activation) that requires access code to operate the cabinet
- ❇ Two electrical outlets. Flush mounted stainless steel cover with dampened hinges.
  - 115V GFCI, double receptacles, maximum amperage draw 5A.
  - 230V, single receptacles, maximum amperage draw 3A.
- 10° angled, fully closing sash. 1/4" tempered safety glass with counterbalanced, anti-racking, easy-to-lift mechanism
- ❇ Curved, stainless steel inlet grill with waterfall design and Reserve-Air(TM) Secondary Airflow Slots
- Unitized, pressure tested stainless steel interior. Glacier White epoxy-coated steel exterior
- 22.5" (57 cm) max. sash opening & 27.0" (69 cm) viewing height
- ❇ Chem-Zone™ work surface with dedicated direct exhaust for use with hazardous vapors or radionuclides*
- ❇ Removable, type 304 stainless steel 3-piece work surface (dished Chem-Zone in center and two flat sides) with lift out knobs and clearly delineated working area (when handling chemicals)*
- ❇ Touchpad on right-hand side post controls blower, light(s), timer, electrical receptacles, audible alarm mute and menu selection
- Six year warranty
- Nominal inflow velocity of 105 fpm (0.53 m/sec)
- Nominal downflow velocity of 65 fpm (0.33 m/sec) for all 4' models and the 6' x 10" sash model. Nominal downflow velocity of 55 fpm (0.28 m/sec) for 6' x 8" sash models.

Models conform to the following standards:

- UL Standard 61010-1
- CAN/CSA 22.2 No. 61010-1
- NSF/ANSI Standard 49 listed
- CE/UKCA Mark (230V models)
- ISO Class 5 (Grade A) per ISO 14644-1
- ADA-compliant

Required accessory:

- Supporting base if non-welded stand option is not selected

Options include:

- Unassembled, NSF-approved, epoxy-coated steel non-welded telescoping base stand with fixed leveling feet
- Accessory Package: UV lamp (254 nm), service fixture(s) with ball-type valve(s) and right-side Vacu-Pass™ Cord & Cable Portal
- 10" diameter stainless steel manual damper for Type B mode
- Bag-In/Bag-Out Package: Exhaust filter for use with radionuclides or harmful chemicals

Lab Biological Safety Cabinet Cut Sheet

Location: Biomedical Engineering, L3; Cell Mol Bio Neuro Bio L3; Mat Sci L2

Dimensions: 55"wide x 33" deep x 96" high

Material: Stainless steel

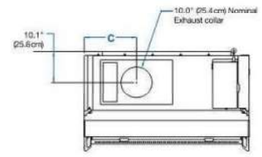
Electrical: 120v20amp dedicated circuit per Div 26

Plumbing: Vacuum per Div 22 with quick connect per Div 11

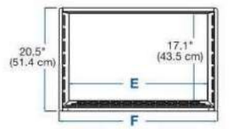
Exhaust: None.

Axiom® Class II, Type C1 Biosafety Cabinets

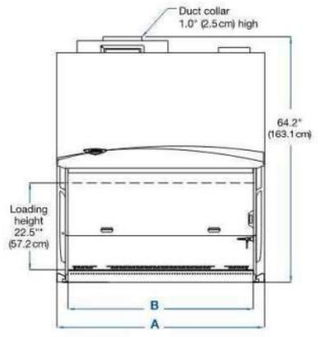
Dimensional Data

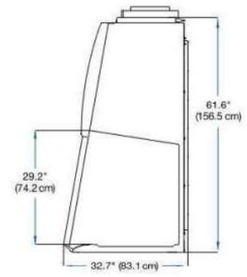


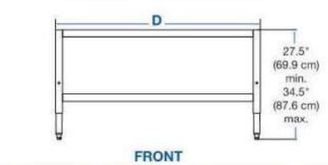
TOP



Chem-Zone Work Surface







FRONT

SIDE

Nominal Width	A Inches	B Inches	C Inches	D Inches	E Inches	F Inches
4'	54.3 (137.9 cm)	48.5 (123.2 cm)	17.1 (43.4 cm)	50.5 (128.3 cm)	27.1 (68.9 cm)	31.0 (78.8 cm)
6'	78.3 (198.9 cm)	72.5 (184.2 cm)	28.2 (71.6 cm)	74.5 (189.2 cm)	42.1 (107.0 cm)	46.0 (116.9 cm)

Lab Autoclave Cut Sheet

Location: Food Science Lab Prep Room, L3

Model: 3AV 20x20x38

Dimensions: 29”wide x 47” deep x 71” high

Material: Stainless steel

Heat Gain: 7,000 btuh

Electrical: 480v30amp3ph with disconnect per Div 26

Plumbing: HW/CW feed per Div 22; RO feed for rinse cycle via local RO Unit per Div 11

Mechanical: Canopy exhaust above unit per Div 23

CONSOLIDATED STERILIZER SYSTEMS

Models	
3AV (20" x 20" x 38")	
26AV (26" x 26" x 39")	
26BV (26" x 26" x 49")	

EZ-Glide™ Lab Series Steam Sterilizers General Specifications

General Specification
Steam Sterilizer, EZ-Glide™ Vertical Sliding Door, Single Chamber, Double Wall

Consolidated EZ-Glide™ 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 a stainless steel vessel construction in a variety of sizes and programmable control options for pre-vacuum or gravity operation. Consolidated sterilizers offers a range of performance options to meet the most demanding applications in clinical, animal and life science, biotechnology, pharmaceutical, and commercial/industrial applications.

** Exact upper temperature limit is model specific and may vary depending on model and/or options. Contact Consolidated for a solution tailored to your requirements.*

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.

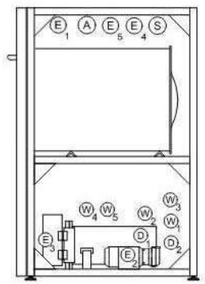
Green and Environmentally Friendly.
Unique, new technologies reduce water and energy consumption without compromising performance.

Consolidated EZ-Glide™ Series Sterilizers are available in single door models. A versatile control system offers a range of performance options to meet the most demanding applications in clinical, life science, biotechnology, pharmaceutical, and commercial/industrial applications. Model 3AV-X1 shown with X1™ programmable logic controller.

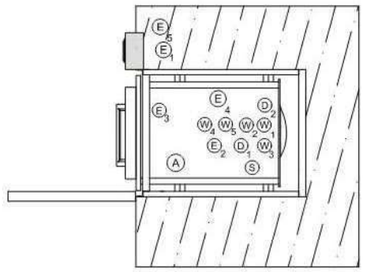
Table 2: Sterilizer Dimensions[9]

Model	3AV	26AV	26BV
Chamber Dimensions (w x h x f-b)	20" x 20" x 38" 50.8 x 50.8 x 96.5 cm	26" x 26" x 39" 66 x 66 x 99 cm	26" x 26" x 49" 66 x 66 x 124.5 cm
Volume	8.8 cu. ft (249 L)	15.3 cu. ft (433L)	19.2 cu. ft (543L)
Overall Length (X)	47" 119.4 cm	54" 137.2 cm	64" 162.6 cm
Overall Width (Y)	39.375" 100 cm	46.375" 117.8 cm	46.375" 117.8 cm
Overall Height (Z) *Includes leveling feet*	71" 181.6 cm	77" 195.6 cm	77" 195.6 cm
Frame Length (L)	45" 114.3 cm	48" 121.9 cm	58" 121.9 cm
Frame Width (W)	29" 73.7 cm	36" 91.4 cm	36" 91.4 cm
Wall Opening Width (A)	30" 76.3 cm	37" 94.1 cm	37" 94.1 cm
Wall Opening Height (B)	74" 189.2 cm	80" 203.2 cm	80" 203.2 cm
Access Door Swing[7] (D)	29" 73.7 cm	36" 91.4 cm	36" 91.4 cm

Typical Utility Requirements



SIDE VIEW (CABINET UNITS)



TOP VIEW (CABINET UNITS)

UTILITY LEGEND

- (E) Electrical
- (D) Drain
- (W) Water
- (S) Steam
- (A) Air

Table 3: General Connections

Name	Symbol	Connection on Sterilizer	MEP Requirements[13]
Wastewater Cooling	W_1	¾" NPT	45 psig dynamic min, 80 psig static max, ¾"-1" NPT, 12 gpm capacity, with shut off valve and union[11]
Controls System	E_1	NEMA 5-15 Plug	120VAC 10A non-GFCI outlet/220VAC 10A hard wire
Ethernet Port (Optional)	E_5	RJ-45	Standard RJ-45 ethernet cable with internet access
Sterilizer Drain	D_1	1 ½" Sweat (NPT on units with WaterEco)	2 ½" air gap, 3" diameter minimum funnel required, 15 gpm, min 1½" drain piping, location external to unit footprint recommended
Direct Steam (Optional)	S	¾" NPT	50-80 psig dynamic, ¾-1" NPT, 180 lbs/hr capacity, insulated line with shut-off valve and union
Dry Contacts (Optional)	E_4	2-Wire Terminal	2 signal wires per contact compatible with Form C Dry Contacts
Compressed Air (Optional)	A	¾" NPT	50-75 psig, 10-35 SCFM, 99% dry & oil free, backflow preventer not provided by CSS

Table 4: Optional Vacuum Systems (maximum one per unit)

Name	Symbol	Connection on Sterilizer	MEP Requirements[13]
Economy Post-Vac	W_3	¾" NPT	45 psig dynamic min, 80 psig static max, ¾"-1" NPT, 12 gpm capacity, with shut off valve and union[11]
Hi-Vac with Water Ejector	W_3	¾" NPT	45 psig dynamic min, 80 psig static max, ¾"-1" NPT, 12 gpm capacity, with shut off valve and union[11]
Booster Pump	E_2	Hard Wire	120VAC/208-230VAC, single phase, minimum 20 Amp circuit required
Vacuum Pump - Electrical	E_2	Hard Wire	208/240/480VAC, 3-phase, minimum 20 Amp circuit required
Vacuum Pump-Water	W_2	¾" NPT	45 psig dynamic min, 80 psig static max, ¾"-1" NPT, 12 gpm capacity, with shut off valve and union[11]

11. W_1 and W_2 cold water connections can be from a single source for a combined 12 gpm capacity. Water quality must comply with the General Vacuum Device & Quench specification in Table 9. Backflow preventer not provided by CSS.

Table 5: Optional Electric Steam Generator

Name	Symbol	Connection on Sterilizer	MEP Requirements[13]
Power Supply	E_3	Hard Wire	Available in 208/240/380/480VAC, 3-phase, see Table 7 for Amp Draw, Fused Disconnect Required
Generator Water Feed	W_3	¾" NPT	45 psig dynamic min, 80 psig static max, ¾" NPT, 1 gpm, with shut off valve and union[12]
Manual Generator Drain	D_2	¾" NPT	See D1 in Table 3

12. Generator feedwater must comply with the Generator Water Feed specification in Table 9. Backflow preventer not provided by CSS.

Table 6: Optional Chilled Water (WaterEco Plus and Vac Plus Units Only)

Name	Symbol	Connection on Sterilizer	MEP Requirements[13]
Chilled Water Feed	W_4	1" NPT	20 psig dynamic min, 35°F-55°F, 10 gpm, insulated with ball valve and union
Chilled Water Return	W_5	1" NPT	-5 psi drop on return side, +15°F max rise

13. For a more detailed list of MEP requirements and specifications see document 92006-01 "Autoclave Installation and Utility Overview".

Table 7: Power and Steam Usage[14]

Model	Chamber Dimensions (w x h x f-b)	Air Removal Method	Electrically Heated: Generator Size (KW)	Generator Current (amps)[15] 208V	240V	380V	480V	Steam Heated: Steam Consumption Peak (lb/hr)	Per Cycle (lb/cycle)	Idle (lb/hr)
3AV	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
26AV	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
26BV	26" x 26" x 49" 66 x 66 x 124.5 cm	Gravity	30	83	72	46	36	180	40	9
		Vacuum	45	125	108	68	54	180	70	9

14. Assuming 30 Minute sterilizing time at 250°F (121°C) and 5 minute drying time.
15. Nominal current drawn by a 3-phase generator. Local codes and regulations may affect breaker size. Single phase available if required.

Table 8: Water Consumption (Per Chamber)[16]

Model	Chamber Dimensions (w x h x f-b)	Air Removal Method	Water Consumption: Cold Water Peak (gpm)	Per Cycle (gal/cycle)	Idle (gph)	Hot/Treated Water Peak (gpm)	Per Cycle (gal/cycle)	Idle (gph)
3AV	20" X 20" X 38" 50.8 X50.8 X 96.5 cm	Gravity	6	46	1	1	3	1
		Ejector	6	87	1	1	4	1
		Vac Pump	6	27	1	1	4	1
26AV	26" x 26" x 39" 66 x 66 x 99 cm	Gravity	6	48	1	1	4	1
		Ejector	6	104	1	1	7	1
		Vac Pump	6	38	1	1	7	1
26BV	26" x 26" x 49" 66 x 66 x 124.5 cm	Gravity	6	49	1	1	5	1
		Ejector	6	115	1	1	9	1
		Vac Pump	6	45	1	1	9	1

16. Assuming 30 minute sterilizing time at 250°F (121°C) and 5 minute drying time.

Table 9: Nominal Water Quality Requirements

Characteristic	Carbon Steel Steam Generators[17] Recommended Condition	Carbon Steel Steam Generators[17] Maximum Condition	General Vacuum Device & Quench Recommended Condition	General Vacuum Device & Quench Maximum Condition
Temperature [°F (°C)]	As Supplied	140 (60)	40-60 (4-16)	70 (21)
Total Hardness (mg/L)	17	85	10-85	171
Alkalinity (mg/L)	50-180	350	50-180	350
Total Dissolved Solids (mg/L)	50-150	250	50-200	500
pH	7.5-8.5	7.5-9.0	6.8-7.5	6.5-9.0
Total Silica (mg/L)	0.1-1.0	2.5	0.1-1.0	2.5
Resistivity (Ω•cm)	2,000-8,000	26,000[18]	2,000-26,000	500,000

17. Stainless-steel generators require deionized water with resistivity ≥ 1MΩ•cm.
18. If water supplied is greater than 26,000 Ω•cm contact Consolidated for recommendation.

Table 10: Weight & Heat Loss Data

Model	Heat Source Options	Max. Operating Weight[19]	Peak Heat Loss (BTU/hr at 70°F [21°C]): Cabinet To Room	Recessed Front of Wall	Recessed Back of Wall
3AV	Steam	1800 lbs	7000	2500	4500
	Electric	1975 lbs	8750	3300	5450
26AV	Steam	2700 lbs	11950	4300	7650
	Electric	2875 lbs	14200	5100	9100
26BV	Steam	2950 lbs	14390	4300	10090
	Electric	3125 lbs	16640	5100	11540

19. Assuming chamber fully loaded with flasks filled 25% with water.

Lab Pass Thru Washer Cut Sheet

Location: Food Science Lab Prep Room, L3

Dimensions: 63”long x 31” deep x 69” high
Side Loader: Add 24” to length
Unloader: Add 38” to length

Material: Stainless steel

Electrical: 480v60amp3ph per Div 26

Plumbing: Domestic HW/CW per Div 22; Drain per Div 22

Mechanical: Canopy Hood Exhaust per Div 11; Exhaust per Div 23

HOBART

Project _____
AIA # _____ SIS # _____
Item # _____ Quantity ____ C.S.I. Section 114000

COMMERCIAL DISHWASHERS

CL SERIES – CL44-BAS ELECTRIC

CL44-BAS ELECTRIC
High Temperature Rack Conveyor Dishwashing Machine

STANDARD FEATURES
- 90 gallons per hour pumped final rinse
- 202 racks per hour
- ENERGY STAR® Certified
- Complete Delime™ with Delime Notification, Auto Dispensing and Booster Guard™
- Internal stainless steel pressure-less 18 kW booster heater (70°F rise)
  - Single point electrical connection standard
- Capless, anti-clogging wash arms
- Self-aligning wash manifolds
- Large double door opening for ease of cleaning
- 19.5" chamber height opening (accepts sheet pans)
- Doors are insulated & hinged with door interlock switches
- User-friendly smart touchscreen controls with diagnostics & troubleshooting
- WiFi connectivity
- SmartConnect app with machine status, temperature logs, error code reporting, and cost, consumption and usage analysis
- Energy saver mode (programmable auto-shut down)
- NSF rated configurable pot and pan cycle
- Stainless steel self-draining pump and impeller
- Single, sloping scrap screen and deep scrap basket
- Rapid return conveyor drive mechanism
- Service diagnostics
- Door actuated drain closure
- Vent fan control
- Convertible hot water or low temperature final rinse
- Booster heater control

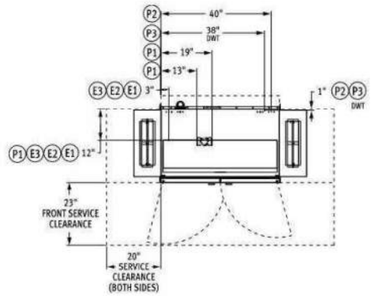
SPECIFIER STATEMENT
Specified dishwasher will be Hobart CL44 Base electric tank heat model. Features include Complete Delime™ with Delime Notification, Auto Dispensing and Booster Guard™, capless anti-clogging wash arms, 202 racks per hour, 90 gallons per hour pumped final rinse, ENERGY STAR®, insulated ergonomic cabinet style doors, touchscreen controls with WiFi connectivity, and NSF approved pot and pan cycle mode. The 19.5" standard chamber height will accommodate up to (6) standard sheet pans at a time on an open-end sheet pan rack.

OPTIONS & ACCESSORIES (Available at extra cost)
- ❑ Standard, short and extended stainless steel vent hoods
- ❑ Non-booster
- ❑ Direct drive unloader – adds 38" length; Reference spec F48944 for more details
- ❑ Side loader – SL23 adds 23" length, SL30 adds 30" length; Reference specs F40926 and F40927 for more details
- ❑ Blower-dryer – adds 33¼" to length; Reference spec F48945 (electric blower-dryer) and F48950 (steam blower-dryer) for more details (ships separate from dishmachine, contact Hobart Service for installation)
- ❑ Drain water tempering kit
- ❑ Flanged feet kit (requires two kits)
- ❑ Higher than standard chamber (24" opening)
- ❑ Table limit switch with 20' cable
- ❑ Correctional package (factory installed, contact Hobart for details)
- ❑ Water hammer arrester
- ❑ Factory-mounted circuit breakers (contact Hobart for details)

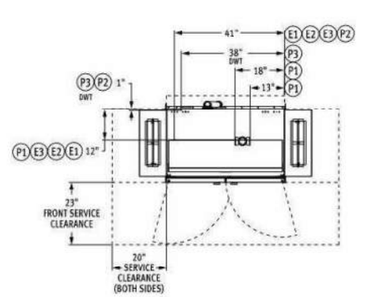
Approved by_____ Date_____ Approved by_____ Date_____

HOBART

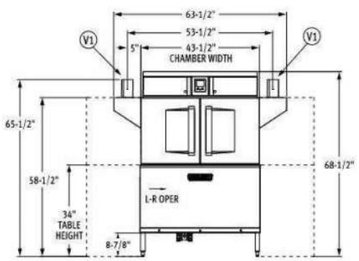
CL44-BAS ELECTRIC
High Temperature Rack Conveyor Dishwashing Machine



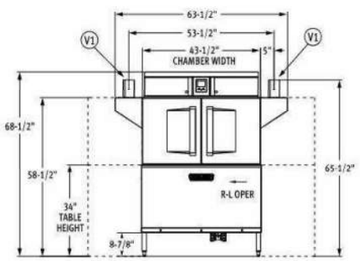
Top View Left to Right Machine



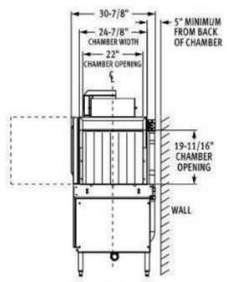
Top View Right to Left Machine



Front View Left to Right Machine



Front View Right to Left Machine



Side View

CAD and/or Revit Files Available

HOBART

CL44-BAS ELECTRIC
High Temperature Rack Conveyor Dishwashing Machine

LEGEND

Electrical Connections	
SINGLE POINT CONNECTION	
E1	Electric connection, single point: motors, controls, tank heat, with 18 kW electric booster heater, 65" AFF.
DUAL POINT CONNECTION WITH BOOSTER	
E2	Electric connection: motors, tank heat, 62" AFF.
E3	Electric connection: controls, 18kW booster heater, 65" AFF.
Plumbing Connections	
P1	Drain: 2" FPT, 7-3/8" AFF, two possible connections; may be drained to either side of drain housing, plug opposite side.
P2	Common hot water connection: 1/2" FPT, 12" AFF. See plumbing notes for required temperatures.
P3	Optional drain water tempering. Cold water connection: 1/2" FPT, 12" AFF, cold temperature 80°F maximum.
Vent Connections	
V1	Optional vent hoods: 4" x 16" vent stack with damper. Load end 200 CFM, unload end 400 CFM.

SPECIFICATIONS

Capacities	
Racks per Hour (NSF rated)	202
Wash Tank (U.S. gallons)	23
Conveyor Speed (feet per minute)	5.6
Motor Horsepower	
Drive	1/6
Wash	2
Final Rinse	2/3
Water Consumption	
U.S. Gallons per Hour	90
U.S. Gallons per Rack	0.45
Peak Drain Flow (U.S. gallons per minute)	38
Heating	
Tank Heat, Electric (kW)	15
Electric Booster (built-in) (kW for 70°F rise)	18
Electric Booster (field conversion) (kW for 40°F rise)	12
Venting	
Load End (minimum CFM)	200
Unload End (minimum CFM)	400
Shipping Weight (approximate)	600 lbs.
Crated Dimensions	53"L x 38"W x 79"H

E1	Single Point Electrical Connection with Internal Booster	
Voltage	(E1) Motors, Controls, Tank Heat, 18 kW Booster Heater	
	Rated Amps	Minimum Supply Circuit Ampacity/ Maximum Protective Device
208/60/3	109.6	150
240/60/3	99.9	125
480/60/3	51.7	60
600/60/3	39.1	50

E2 E3	Dual Point Electrical Connection with Internal Booster (Field Conversion Only)			
Voltage	(E2) Motors, Tank Heat		(E3) Controls, 18 kW Booster Heater	
	Rated Amps	Minimum Supply Circuit Ampacity/ Maximum Protective Device	Rated Amps	Minimum Supply Circuit Ampacity/ Maximum Protective Device
208/60/3	51.1	70	58.5	80
240/60/3	48.1	60	51.8	70
480/60/3	24.5	30	27.2	35
600/60/3	16.7	20	22.4	30

Lab Ice Machine Cut Sheet

Location: Prep Room- Cell Mol Bio Neurobio Lab L3

Dimensions: 20”wide x 24” deep x 38” high

Heat Gain: 4,100 btuh

Electrical: 220-240v15amp1ph per Div 26

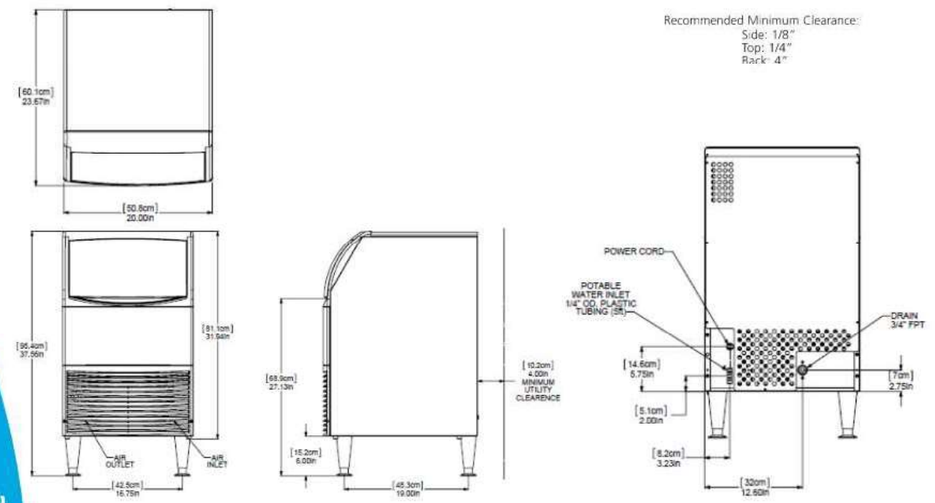
Plumbing: RO filter unit per Div 11
Domestic cold water feed per Div 22
Floor drain per Div 22

Shelf: Equipment wall shelf above with unistrut frame

CU0920 - 100 lb Self-Contained Ice Machine

Self-Contained Under Counter Cuber with Storage

CU0920 - 100 lb Self-Contained Ice Machine



Specifications

Model Number	Condenser Unit	Storage Capacity lb/kg	Basic Electrical Volts/Hz/Phase	Max. Fuse Size or HACR Circuit Breaker (amps)	Circuit Wires	Min. Circuit Ampacity	Energy Consumption kWh/100 lb (45.4 kg) 90°F(32°C)/70°F(21°C)	Potable Water Usage Gallons/100 lb (liters/45.4 kg) 90°F(32°C)/70°F(21°C)
CU0920MA-1	Air	57/26	115/60/1	15	2	Cord	10.0	35/132
*CUR0920MA-32	Air	57/26	220/60/1	15	2	Cord	10.0	35/132
CU0920MA-6	Air	57/26	220-240/50/1	15	2	Cord	10.0	35/132

*Configured for InMetro requirements

All Models

Dimensions (W x D x H):

Unit: 20” X 24” X 38” (50.8 x 61.0 x 96.5 cm)

Includes 6” (15.24 cm) adjustable legs

Shipping Carton: 21” x 26” x 37” (53.3 x 67.6 x 94 cm)

Shipping Weight: 115 lb / 52 kg

BTUs per hour: 4,100

Refrigerant: R-134A

Accessories

Model Number	Description
KUFM20	For ADA applications. Floor mount kit lowers overall height to 31.9”

Scotsman recommends all ice machines have water filtration. See Scotsman water filter specification sheet for details.

Operating Requirements

	Minimum	Maximum
Air Temperatures	50°F (10°C)	100°F (38°C)
Water Temperatures	40°F (4.4°C)	100°F (38°C)
Water Pressures	15 PSIG (1.4 bar)	80 PSIG (5.5 bar)
Electrical Voltage	-5%	+10%

Specifications and design are subject to change without notice.

• 101 Corporate Woods Parkway, Vernon Hills, IL 60061 •
• 1-800-SCOTSMAN • Fax: 847-913-9844 • www.scotsman-ice.com • customer.relations@scotsman-ice.com •

Scotsman

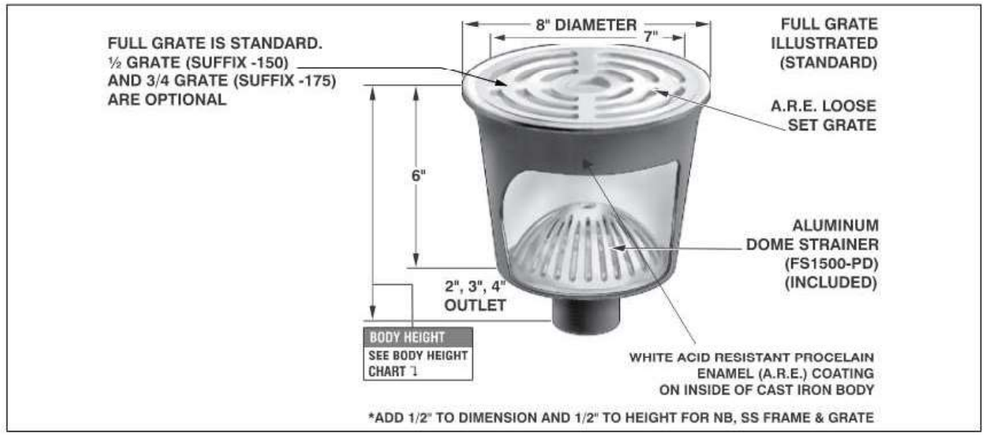
SIS-SS-CU-CU0920 01-17

Location:

MIFAB® **FS1750** **8" ROUND X 6" DEEP FLOOR AREA AND INDIRECT SANITARY WASTE DRAIN**

Specification: MIFAB Series FS1750, 8" Round x 6" deep cast iron floor area and indirect sanitary waste drain complete with white acid resistant porcelain enamel coated interior and loose set grate. Anti-splash aluminum dome strainer included.

Function: Used in kitchens, restaurants, grocery stores, hospitals, schools, and other areas that require a small volume sanitary drain. The light duty grate is not recommended for foot traffic.



*ADD 1/2" TO DIMENSION AND 1/2" TO HEIGHT FOR NB, SS FRAME & GRATE

PIPE SIZE	BODY HEIGHT				
	NO HUB (STANDARD)	PUSH ON (P)	THREADED (T)	INSIDE CAULK (X)	PVC (-30) / ABS (-31)
2" (51)	*8 1/2" (216)	7 1/2" (191)	*8 1/2" (216)	7 1/2" (191)	*9 1/4" (235)
3" (76)	*8 1/2" (216)	7 1/2" (191)	*8 7/8" (225)	7 1/2" (191)	*9 1/4" (235)
4" (102)	7 1/2" (191)	7 1/2" (191)	*8 7/8" (225)	7 1/2" (191)	*9 1/4" (235)

*Indicates outlet size and connection available with transition outlet body only.
**4" Inside Caulk Outlet body only available with -FL anchor flange Outlet sizes indicated by the * are available with the transition outlet body only.

Suffix	Description
-1	Full NB grate and frame
-3	Full SS grate and frame
-5	Sediment bucket (FS1750-PB)
-6	Security screws (H-1039A, 4 pcs) (-1, -3 only)
-7	Trap seal primer connection
-8	Backwater Valve (BV1250 Series) (2", 3", 4")
-9	Hinged grate (-3 only)
-21	Secondary flat strainer (FD-9600 Series)
-22	Less grate
-30	PVC socket connection W/A.R.E. Body (2", 3", 4")
-31	ABS socket connection W/A.R.E. body (2", 3", 4")
-32	Deep seal trap (2", 3", 4" no hub) (MI-950 Series)
-50	A.R.E. coated cast iron funnel
-51	2 ½" round center hole in grate (-1, -3 only)
-69	Stainless steel sediment bucket (FS1500-PB-3)
-83	Stainless steel mesh screen over sediment bucket (add to S.S. Bucket)

-90	Threaded side outlet
-90NH	No hub side outlet
-95	Client logo (-1, -3 only)
-150	1/2 grate
-175	3/4 grate
-BA	Buy American Act compliant product
-PA	Pennsylvania Steel Act compliant product
-C	Membrane clamp
-F4	4" round funnel
-F6	6" round funnel
-G	4" x 9" oval funnel
-J	3" x 1" oval funnel
P	Push on outlet (2", 3" or 4")
(Standard)	No hub outlet
T	Threaded outlet (2", 3" or 4")
X	Inside caulk outlet (2", 3" or 4")
-Z	Extended wide elastomeric flange (with -FL only)

CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Job Name: _____ Page No: _____
Section No: _____ Contractor: _____
Schedule No: _____ Purchase Order No: _____

USA: 1-800-465-2736 www.mifab.com CAN: 1-800-387-3880

2017-09-07

Lab Floor Drain Cut Sheet

Location: Prep Room- Food Science Lab L3, at ice machine
Env Lab- L1, at each of 4 water flow tables

Dimensions:8" diameter x 6" deep

Specified per Div 22, shown here as a recommendation only

Lab Floor Sink Cut Sheet

Location: Prep Room- Cell Mol Bio Neurobio Lab L3, at Autoclave

Dimensions: 12”wide x 12” long x 10” deep

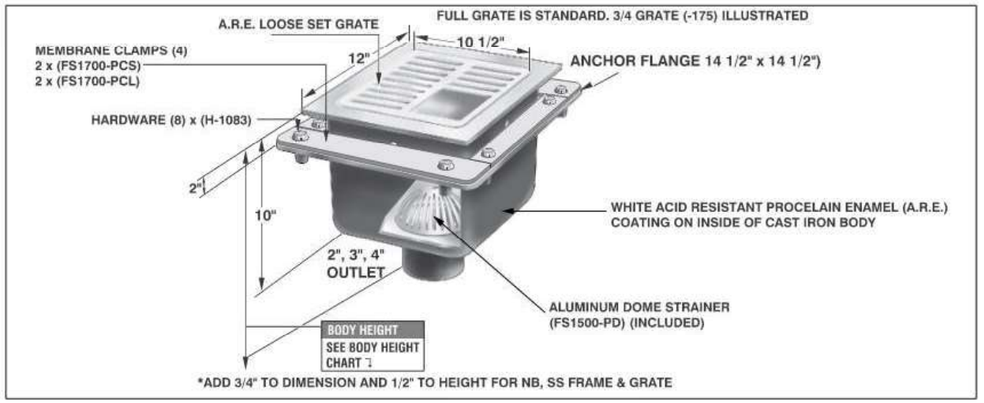
Specified per Div 22, shown here as a recommendation only

Location:

MIFAB® **FS1740-FL** **12” X 12” X 10” FLOOR AREA & INDIRECT SANITARY WASTE DRAIN WITH FLANGE**

Specification: MIFAB Series FS1740-FL, 12” x 12” x 10” deep cast iron floor area and indirect sanitary waste drain complete with white acid resistant porcelain enamel coated interior, loose set grate and anchor flange with weepholes. Anti-splash aluminum dome strainer included.

Function: Used in kitchens, restaurants, grocery stores, hospitals, schools, and other areas that require a large volume sanitary drain. Also suitable for indirect waste applications. The anchor flange is engineered to receive water proofing membrane. Membrane clamps are recommended for use with the anchor flange (Suffix -C). The light duty grate is not recommended for foot traffic.



PIPE SIZE	BODY HEIGHT				
	NO HUB (STANDARD)	PUSH ON (P)	INSIDE CAULK (X)	THREADED (T)	PVC (-30) / ABS (-31)
2” (51)	11 1/2” (292)	11 1/2” (292)	*14” (356)	*12 1/2” (318)	*13 1/4” (337)
3” (76)	11 1/2” (292)	11 1/2” (292)	12 5/8” (321)	*12 7/8” (327)	*13 1/4” (337)
4” (102)	11 1/2” (292)	*12 7/8” (327)	12 5/8” (321)	*12 7/8” (327)	*13 1/4” (337)

*Indicates outlet size and connection available with transition outlet body only.
Outlet sizes indicated by the * are available with the transition outlet body only.

Suffix	Description
-1	Full NB grate and frame
-3	Full SS grate and frame
-5	Sediment bucket (FS1700-PB)
-6	Security screws (H-1039A, 4 pcs) (-1, -3 only)
-7	Trap seal primer connection
-8	Backwater Valve (BV1250 Series) (2”, 3”, 4”)
-9	Hinged grate (-3 only)
-21	Secondary flat strainer (FD-9600 Series)
-22	Less grate
-30	PVC socket connection W/A.R.E. Body (2”, 3”, 4”)
-31	ABS socket connection W/A.R.E. body (2”, 3”, 4”)
-32	Deep seal trap (2”, 3”, 4” no hub) (MI-950 Series)
-50	A.R.E. coated cast iron funnel
-51	2 ½” round center hole in grate (-1, -3 only)
-69	Stainless steel sediment bucket (FS1500-PB-3)
-83	Stainless steel mesh screen over sediment bucket (add to S.S. Bucket)
-90	Threaded side outlet

-90NH	No hub side outlet
-95	Client logo (-1, -3 only)
-150	1/2 grate
-175	3/4 grate
-BA	Buy American Act compliant product
-PA	Pennsylvania Steel Act compliant product
-C	Membrane clamp
-F4	4” round funnel
-F6	6” round funnel
-G	4” x 9” oval funnel
-J	3” x 1” oval funnel
P	Push on outlet (2”, 3” or 4”)
(Standard)	No hub outlet
T	Threaded outlet (2”, 3” or 4”)
X	Inside caulk outlet (2”, 3” or 4”)
-Z	Extended wide elastomeric flange (with -FL only)
see FS1930-FL	Stainless steel body (Type 304)
see FS1930-FL	Stainless steel body (Type 316)

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2017-09-07

Uncomplicated Flexibility

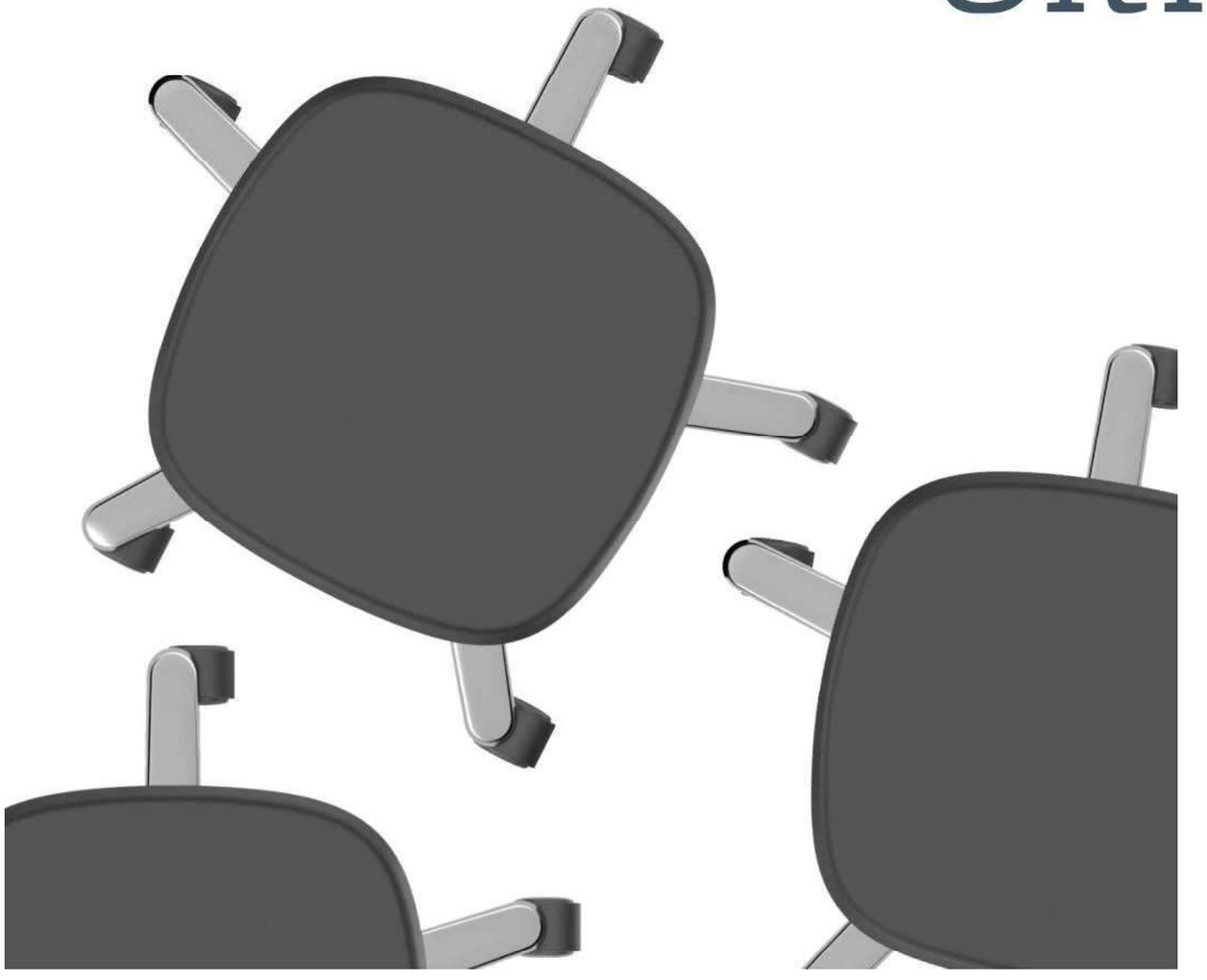
Citrus is available in both chair and 360 stool designs. With a cleanable, durable and comfortable PU foam the Citrus stool is a simple and uncomplicated seating solution for healthcare and laboratory environments.

Purposeful Design

The surface of the seat is designed to offer maximum utility. The unique shape allows users to sit comfortably along the long edge, or perched on a corner.

cramer

Citrus™



Lab Chair Cut Sheet

Lab chairs may be OFOI or CFCI.

A lab chair that is adjustable in height, without back or armrests is recommended for labs.

Other Lab Equipment Cut Sheets

Other Lab Cut Sheets will be provided as the equipment is identified. All CFCI lab equipment will be noted in an Equipment Schedule.

Cut sheets for Owner Furnished (OFOI) lab equipment will need to be provided by USD.