



Feasibility Study for Relocation of Existing DEC Marine Resources Headquarters to Kings Park NY

DASNY Project # 320310/CR2

NYS Division of Environmental Conservation Marine Resources Headquarters

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New York State Division of Environmental Conservation Bureau of Marine Resources Headquarters
**Feasibility Study for Relocation of Existing DEC Bureau
 of Marine Resources Headquarters to Kings Park NY**

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2 EXECUTIVE SUMMARY

2.1 GENERAL

Trudeau Architects pllc (TA) was asked by DASNY to provide a planning study for the relocation of the current New York State Department of Environmental Conservation (DEC) Bureau of Marine Resources (BMR) Headquarters. Two potential locations were evaluated. The first location is the existing Building 1 (B1) at Kings Park Psychiatric Center (KPPC), and the second was an unspecific location on KPPC grounds close to the existing boat launch where a new building would be constructed.

The planning study considers the requirement for additional staff, the ability to bring outsourced group meetings back to the BMR and consolidating storage from various remote locations. The relocated headquarters will provide lab spaces designed to contemporary standards that are in full compliance with federal regulations. In addition, this project will address: security issues with visitors, lab sample drop offs, one-on-one visitor interactions, seasonal influxes of staff, and lab sample rates.

A kickoff meeting was held on December 16th, 2013 with representatives from the BMR, BMR unit leaders, DEC leaders, DASNY, TA, and HERA lab consultants. During the kickoff and follow up phone calls and emails, staffing levels and functional requirements were developed. TA and FPM Group, Ltd. performed on-site existing conditions reviews at KPPC.

2.1 CONCLUSIONS/RECOMMENDATIONS/SCOPE OF WORK

The B1 option offers quicker occupancy, reuse of existing state owned space, the ability to expand in the building or allow another department in, and the most storage available for the cost, safely away from flooding hazards. The new building option offers better work adjacencies, more efficient lab spaces and the potential for a more energy efficient building. In addition, all major functions would be on one ground level and closer to the KPPC boat launch.

The challenges of the B1 option are: a less efficient work flow, constricted lab size due to existing building limitations and the need to change levels within the building to access office space. Challenges of the new building option are: a longer project schedule, unknown site/soil conditions, and additional costs to run all utilities to building and less storage space.

A significant consideration of the B1 option is that the program would only utilize one of the two floors. The second floor of the building will need minimal heating and the fire suppression system would need to be maintained - this would allow the second floor to be leased to another tenant in the future.

While reuse of B1 and the new building option are both viable options for the program of the BMR, it is our conclusion that the reuse of B1 makes the best use of existing state resources. The B1 option has the lowest capital cost and allows for a construction schedule shorter than new building construction. In addition, this recommendation has the potential to offset some building costs by leasing the second level space.

2.1 ESTIMATED COSTS

The construction estimate for the B1 renovation is \$14,509,000 and 12 months of construction. The new building option is estimated to be \$15,725,000 and 14 months of construction.



3 OTHER INFORMATION & REFERENCES

3.1 MEETINGS

On December 16th 2013 a kickoff meeting was held with the Director of New York State Department of Environmental Conservation Bureau of Marine Resources (BMR), New York State Department of Environmental Conservation Bureau of Design and Construction, the Dormitory Authority of State of New York (DASNY), Trudeau Architects pllc (TA), HERA Inc., and several divisions within the BMR at the current Setauket, NY offices. This meeting was held to evaluate the current and projected programming of the Bureau and the Marine Enforcement Unit (MEU), walk the existing building and review how the different units interact with other units and customers.

On November 26th, December 16th and December 17th meetings were held at building 1(B1) at the now closed Kings Park PC campus with New York State Office of Mental Health (OMH), TA, and FPM Group. Items discussed in the meeting included the current state of B1 and what objects had been removed, vandalized or had failed prior to the building going into a “pre-shutdown” where the heat was turned down. Further, the group held discussions of the building history, campus goals and locations of utilities, both new and old. Meetings were held with consultants to review different aspects of mechanical systems, the age and missing components.

3.2 SITE VISITS

After the December 16th kickoff meeting a site visit of the existing BMR was performed and discussions followed at multiple operational units regarding how the unit performs its tasks. Observations of the existing program space showed that the majority of the work areas did not have adequate storage space for required equipment. Further, many of the spaces lacked an accessible path due to objects being stored in hallways. Another common issue was that the units did not have space available for informal meetings to review printed materials or samples. The units lack centralized storage that could free up space at each users area. It should be noted that many of the items that need to be stored are outdoor equipment or personal protective equipment, and is frequently taking up large amount of space to “hang dry”.

Site Visits to B1 on November 26th, December 16/17th, showed that the building was generally in good to fair condition but components such as the roof were in poor condition. The site around B1, including parking lots, was in poor condition. The parking at the site would not comply with current code and program requirements for the proposed use. Other site elements such as lighting, handrails and signage are in poor condition. Further description of conditions can be found in section 5.



3.3 TESTS

The building was not tested for Hazardous materials but is not expected to have hazardous materials as it was abated in an earlier renovation in 1986. NYS provided several documents showing that B1 occupies a site that contained two other buildings and several man and mechanical tunnels. None of these remaining underground structures or fuel storage tanks have been tested for hazardous materials.

3.4 CODES, LAWS, STANDARDS AND POLICIES

The codes and laws referenced in this report and are:

- 2010 The Building Code of New York State (BCNYS)
- 2010 Existing Building Code of New York State (EBCNYS)
- 2010 The Property Maintenance Code of New York State (PMCNYS)
- 2010 The Fire Code of New York State (FCNYS)
- 2010 The New York State Energy Conservation Construction Code (ECCC)
- 2010 The Mechanical Code of New York State (MCNYS)
- 2010 The Plumbing Code of New York State (PCNYS)
- Association (NFPA) - *NFPA 72: National Fire Alarm Code*, 2002 Edition
- National Fire Protection Association (NFPA) - *NFPA 101: Life Safety Code (LSC)*, 2003 Edition
- National Fire Protection Association (NFPA) - *NFPA 241: Standard for Safeguarding Construction, Alteration and Demolition Operations*
- ICC/ANSI A117.1 - *Accessible and Usable Buildings and Facilities*, 2003 Edition
- Executive Order Number 111 (EO 111) and Executive Order Number 88 Build Smart NY.
- Federal Emergency Management Agency FIRM Panel 0363H May 4, 1998 Revised September 25, 2009

The Standards referenced for this report are:

- Brick Industry Association (BIA), *Technical Notes on Brick Construction*
- National Fire Protection Association (NFPA), *NFPA 220: Standard on Type of Building Construction*
- U.S. Green Building Council (USGBC), *Leadership in Energy & Environmental Design (LEED) Rating System*
- National Roofing Contractors' Association (NRCA), *Roofing and Waterproofing Manual*



4 BACKGROUND AND CONSTRAINTS

4.1 INTRODUCTION

The New York State Division of Environmental Conservation Bureau of Marine Resources Headquarters is currently located in a rented space in Setauket NY that is no longer fulfilling the needs of the Bureau. Given the space constraints it is no longer physically possible to accommodate the required additional staff. Moving forward the 4 units and MEU will see increased demand on services as it will continue to be the offices and a FDA certified shellfish laboratory. This lab is required to run 24 hours a day with no interruption to equipment even though it will not be staffed 24 hours a day. This lab is currently an FDA certified lab (the only one in New York State) and is a requirement in order to certify shellfish from 1.2 million acres of growing waters for consumption and sale of shellfish. The BMR also holds the primary role of establishing day to day guidelines for fishing policy in the catchment areas, issuing permits, marine habitat protection, ocean management and planning, storing department equipment used at this site and the Long Island/lower Hudson areas as well as citizen outreach to Long Island and other eastern US areas.

4.2 SCHEDULE CONSTRAINTS

Constraints on the schedule are being driven by current lease arrangements and a need to relocate to larger spaces. A secondary constraint is that the lab must be recertified over a prolonged period of time during the peak testing period of the year. Early information showed that much of this testing would need to take place concurrently in both the new lab and the existing lab for a period that could extend to six months over spring, summer and early fall. The current building lease arrangement expires in February of 2015.

4.3 ASSUMPTIONS

Remaining at the existing building is not an option given the lack of space for expansion. Dividing the BMR into different buildings was ruled out due to the inter-operations of different groups. It is also assumed that a new building site at Kings Park PC will be a clean site with no contaminants in the subsoil or demolished-in-place structures. Given that no final site has been selected, additional cost would need to be added to establish the utilities from the actual starting point to the actual building point. The land obtained should be large enough to accommodate the building, required parking, green space and loop roadways.

It is assumed that the existing heating and plumbing system will remain operable in B1 and the fire protection systems will continue to be maintained until construction can begin. Since B1 has a history of being vandalized and broken into, additional cost adjustments may need to be made if the building is further damaged.

Design of dock and/or boat launch facilities are not part of this report. The headquarters group reports that a preferred site for a new building does have water and electric lines but no gas line (it is 500 to 1000 feet away).



4.4 DESIGN REQUIREMENTS

This study reviews the feasibility of building a new facility on a new site and renovating B1 for the new program. The new building is being designed with the assumption that a total of 84 staff members will use the facility regularly and that 50 to 120 visitors will attend regular meetings, hearings, training classes and webinars in the building. Final staffing requirements are based on the updated Organization Chart dated April 2, 2014 issued from the BMR to DASNY/TA. Organization Chart is located in Appendix I.

Both design options are being conceptualized to meet current NYS codes. A loading dock will be integrated into the design to be shared by the laboratory and office spaces. The main entrance will need to be fully accessible. A drop-off location will also be required for frequent drop-offs and seasonal morning pickup of sample packages. Parking will be needed to accommodate visitors during both daytime and evening operations.

The lab spaces will need to be kept in a secure portion of the building. For both of the provided designs we have maintained a hard secure perimeter which will keep visitors out of the lab spaces.

When reviewing the current BMR building it was noted that work productivity and personal safety is compromised by lack of adequate space for safe storage of equipment and test gear. Many spaces overlap egress paths or common items are stored in the egress path. Layout of the workspaces could be more efficient if each unit was given improved storage of equipment on the same floor as the units. Each unit requires a 8'x16' storage room in the building to allow for storage of actively used equipment and safety gear.

As a Bureau with frequent contact from outside groups, users and other agencies, it was clear that the current meeting rooms are not large enough or outfitted with the correct amount of seating and parking for the visitors. BMR staff noted that multiple times a year the group needs to find meeting rooms that are a good distance away to hold what should be in-house meetings due to the number of people who attend the meetings. It would be preferred to have an in-house space that can leverage the technology of the BMR at these meetings.

Missing, undersized or unlit signage and poor wayfinding was a common complaint heard from staff. It is important that future buildings have better signage. As some user groups visit the facility infrequently (annually) or only for public meetings, signs that are lit will be a requirement to help aid night navigation.

A criterion that will be new or significantly improved from the current BMR will be the addition of secure parking for state vehicles and the state boat fleet. This lot will need to accommodate a wide size range of road trailer-able boats and be lockable at the end of the day.

The building will require a security system with multiple levels of permissions. A recommendation can be made that the first level of security would be to alarm and have card access at all exterior doors. Once inside, card access should be used to control secure doors and access secure spaces like the Marine Permit Office, the Marine Enforcement Unit and



the Department of Law Enforcement Secure Lockup. A recommendation could also be made to add the security system to the improved secure parking area as a means to track usage.

A final note about security, given the frequent visitors to the building, having the Department of Law Enforcement close to a main control point (hallway intersection) and Marine Permit office would be an asset to the building occupants.



5 EXISTING CONDITIONS AND ANALYSIS FOR RENOVATION OF BUILDING 1 AT KINGS PARK

5.1 GENERAL

Building 1 (B1) was constructed in the early 1930's as a reception building for males at the then larger Kings Park Psychiatric Center and was used for similar purposes until 1985 when the building was fully renovated. This mid-1980's renovation reportedly included removal of the hazardous materials, walling off connecting tunnels and replacement of most of the building's plumbing systems. Around 1985 Building 2, which was connected to Building 1 via tunnels, was burned down in a control burn. Records are not available about shared utilities but it is believed all connections were abandoned in place. After the renovation of B1 it was continually occupied until 2012/2013 when the building was vacated. After the building was vacated the building's heat was turned down (but not turned off) and the major utilities were relocated from the Kings Park utility system to the town's systems. This move left B1 as a standalone building fully able to operate as the remainder of the former Kings Park PC was transferred to other New York State agencies. The building layout is currently set up as a residential double loaded corridor in the majority of the building with communal bathrooms.

With the exception of the upgraded fire suppression system, the remainder of B1's HVAC, plumbing, technology, roofing and wearable items has not been updated.



Kings Park PC Circa 1952 with Building 1 in the Center and Building 2 (bottom demolished)



5.2 SITE

5.2.1 STORM DRAINAGE

The existing storm structure was recently relocated from the Kings Park PC system to the town system and is currently set up to pickup storm drainage for the sidewalk and turnaround in the access road around B1 only. The proposed usage would require additional tie-ins to handle the storm runoff from proposed parking lots.

5.2.2 EXTERIOR STAIRS AND RAMPS

The existing exterior stairs and ramps are made of concrete and are in good to fair condition however the handrails are generally in poor condition and will need to be replaced.



Rear of Building 1 showing wood/steel handrails

5.2.3 SIDEWALKS

Existing sidewalks are in fair to poor condition and will need to be replaced to create a level surface and to shed water away from travel paths. The sidewalks will also need to be expanded to connect the new parking areas.

5.2.4 PARKING LOTS

Existing parking lots are significantly undersized given current parking standards. The existing parking lot can accommodate approximately 45 vehicles. The lot has also begun to fail at the edges where temporary parking was added to the main lot. This existing parking lot is located alongside/on parts of a building demolished in the mid 1960's. Lighting around the parking lot is not fully functional and does not meet the current requirements for minimum site lighting.



5.2.5 LANDSCAPING

The existing landscaping around the building is overgrown and will need to be renovated. The larger landscaping issue is significant overgrowth of scrub trees and older growth trees that have reached the end of their life. These large trees are currently a direct hazard to the building as many lean towards the building. Scrub trees along the North side of the building will need to be cleared back by approximately 40 feet off the building and large trees growing in between the wings of the building need to be removed and replaced with smaller trees. The landscape around the rear of the building needs to be fully removed and redesigned for the new building function and to allow clearances for utility transformers and other subsurface utilities. The South side of the building has remnants of several older roads that have fallen into disrepair or that were installed and “mostly” removed as reported by OMH. It is recommended that the trees be cut back on the South side.

5.3 BUILDING STRUCTURE

The building structure has remained largely unchanged since the 1986 renovations. With the exception of the roof and vandalized doors/windows, the building structure and envelope is in good to fair condition.

5.3.1 EXTERIOR BEARING WALLS

The existing load bearing masonry walls are believed to be made up of exterior brick with CMU backup, an airspace, extruded insulation, metal stud and wallboard on the interior. The exterior brick is in good condition with minor exceptions where stress cracks have occurred as short runs of walls have intersected long runs. The building does not have isolation or masonry control joints. Other exterior locations have had windows infilled with non-compatible materials that will need to be repaired -this is limited to 2 locations on the North side of the North Wing.

5.3.2 FLOORS

The existing floor structure shows little movement and the structural concrete floors are covered in a variety of VCT tiles. Some areas at the end of the wings have the original terrazzo floors. The unfinished concrete floors in the basement appear to be in good to fair condition for spaces that would generally not be used except for mechanical spaces.



Existing room with terrazzo flooring

5.3.3 ROOF STRUCTURE

The poured concrete roof structure was observed from the underside in limited areas but appeared to be in good condition. It is expected that limited areas will need repair due to long term roof leaks.

5.3.4 COLUMNS

The column structure is inferred to be reinforced concrete. No columns were exposed in the building so this would need to be confirmed

5.3.5 BUILDING ENTRANCE CANOPY

The existing fabric of the canopy system has been removed and only the steel frame remains. If this structure is to be reused then new fabric will need to be provided for the canopy, and some steel structure will need to be repaired.



Existing building 1 canopy

5.3.6 ROOFING

The existing EPDM roofing and green slate roofing is in poor condition. The EPDM membrane has completely failed in several locations leading to major leaks in 3 areas which has caused significant damage to interior partition walls and finishes. When observing the roof, large areas of insulation attachment and/or product failure were noted. The roof also has significant blisters that are a few inches high causing stress in the aged membrane. The entire roofing and insulation system will need to be demolished and replaced from the vapor barrier up.

The existing green slate could be repaired as the majority of the slate is in good shape, but areas have been damaged from storms or flying debris which has caused direct leaks into mechanical penthouses.

5.3.7 WINDOWS

The majority of the windows in the building are vinyl double hung thermal windows from an earlier renovation. These windows are in good condition, with exceptions of the operable screens that are not present. The survey team was told that the screens are currently in storage and have been returned to the building; but the team was unable to find them. Windows on the first floor have been protected from vandalism with plywood coverings bolted to removable lumber on the interior of the windows. The installed coverings have left the windows open both on the top and bottom. This installation technique has resulted in some damaged insulated glass units, but was likely caused by vandalism.

5.3.8 DOORS

Exteriors doors on the building range from good to poor condition. The main entrance door and vestibule is in poor condition and will need to be fully replaced. According to



the Public Safety Department, people have repeatedly attempted to break in through the front and rear doors causing damage that cannot be repaired. Side egress doors or stairwell doors are in good to fair condition and will require new weather stripping, adjusting, minor surface rust repair, frame repair and repainting. All door hardware on the exterior doors are nearing the end of their life or have been damaged. While some hardware could be rebuilt, most closers are beyond repair.

5.4 BUILDING INTERIOR

5.4.1 FLOOR FINISHES

Interior VCT floors are generally in good to fair condition with the exception of where roof leaks have damaged limited areas. The floors are a wide mix of styles and will need to be removed and replaced. Quarry tiles used in the main lobby and some wet spaces in the building are generally in good condition.

5.4.2 CEILINGS

Existing ceilings are hard gypsum systems with drop ceiling systems in smaller office areas. Each of the existing wards has decorative ceiling elements that are constructed of wood and frosted plastic panels that are used for lighting. Given the mechanical and acoustical requirements of the new program, it is reasonable to assume that most ceilings will be replaced with a standard drop ceiling for easier maintenance.

5.4.3 NON LOAD-BEARING WALLS

Existing interior walls are in good to fair condition except for limited areas of wall vandalism and areas on the second floor where roof leaks have caused mold and collapsed wallboard.

5.5 BUILDING SYSTEMS

5.5.1 HVAC

The existing HVAC system is functional but is setup for residential occupancy and not for office or laboratory occupancy. The mechanical system will need to be replaced to meet current energy performance expectations.

5.5.2 FIRE ALARM/ FIRE SUPPRESSION

The existing condition of the building Fire Alarm/Fire Suppression system is good to poor. The building has been reported to be fully updated with a fire alarm and monitoring system before it was vandalized. Given most of the vandalism occurred to exposed elements of the system and the control panel, it is believed that the system could be repaired fairly easily and returned to service. A reported project is underway to repair damage to the system by OMH. The existing smoke detectors could also be reused.

The fire suppression system has also been updated and maintained and is placed in a way that many of the fire sprinkler heads will not need to be removed.



5.6 ENVIRONMENTAL

5.6.1 ASBESTOS CONTAINING MATERIALS

The design team was informed by NYS OMH that all Asbestos containing materials that were uncovered during the 1986 renovation were removed. Observations of the building did not show any exposed materials that would be commonly suspected.

5.6.2 LEAD BASED PAINTS

Testing for lead based paint has not been performed.

5.6.3 MOLD

Mold was found in multiple locations of the second floor and limited areas of the first floor - all of the locations that were subject to prolonged and active roof leaks, vandalism at bathrooms/ kitchens or areas where water had entered open ventilation windows. Test of the type of mold in the building was not performed.

5.6.4 NOISE

The building is located in a very quiet location with the nearest road being the only noise source. The building is now set around a state park where local residents and visitors walk their pets or indulge in recreational activities on the open lawns. It is not expected that the level of sound currently being generated would distract workers in the building. Given the anticipated use of the facility it is not expected that the new headquarters would significantly change the sound environment for neighboring buildings.



6 RECOMMENDED SCOPE OF WORK - OPTION 1: RENOVATE EXISTING BUILDING

6.1 GENERAL

The existing building will need to be renovated from a residential occupancy to a new business occupancy comprising of offices, labs, meeting spaces and second floor lease space.

6.2 SITE

The existing site will need to be cleared of overgrowth and landscaped.

The site will also need to be modified to accommodate parking for 202 parking spots with 8 of those being accessible and van accessible spaces. A separate fenced in secure lot will hold a drop off area for samples, 25 parking spots for state fleet cars, 1 spot for a tractor trailer, 17 spots of various sizes for boats and a boat washdown. A new pole barn located south-east of the existing building will provide access to hose bibs and exterior electrical plug-ins for multiple boats, cars and winter equipment.

New site lighting will need to be added to develop a more secure environment and show this area as being “active” to park visitors. New site lighting will be tied in with new wayfinding and signage to direct users to the correct part of the building. Signs to allow for wayfinding of the leased spaces in the building should be provided as well.

New storm water system additions may be required to handle water runoff from the parking lot and rebuilt roads.

All handrails will need to be replaced on the site and some of the existing sidewalks will need to be replaced as they have settled and direct water into the pedestrian paths. Some sidewalks will be added to a new vestibule for the first floor entrance. It is not expected that new sidewalks would be added for a potential lease space.

In the past some masonry was thrown into the courtyard spaces and it is recommended that it be removed.

6.3 BUILDING STRUCTURE

Minimal changes to the building structure are expected as part of this project, with modifications only being required for HVAC, electrical and technology penetrations.

6.4 BUILDING ENVELOPE

6.4.1 ROOFING

The entire existing roofing system will need to be removed and replaced with a new vapor barrier, insulation, cover board and EPDM membrane. In addition, repairs will need to be made to the existing green slate roof to make it weather tight again. A full replacement of the slate roof will not be required as of the review in December 2013. Roof edge metal will need to be replaced to accommodate changes in the required insulation thickness and at the same time unit ventilators on the roof will need to be



replaced as many parts will be improvised. The uninsulated metal roof at the loading dock will need to be repainted.

6.4.2 WINDOWS

The existing damaged vinyl windows will need to have the damaged insulated glass units replaced and some weather stripping repaired. The basement windows and grates that are original to the building should be replaced at this time for improved thermal performance. Some windows on the upper floor are original to the building and will need to be replaced for the security of the building and to match the existing double hung windows. Windows in the existing patio spaces will be removed and not replaced as they do not conform with the new program and increase the maintenance of the building.

6.4.3 DOORS

The entry system will need complete replacement of the door, framing and hardware. A thermally broken glass door system with a new card entry is recommended. Doors from the stairwells will need to be repaired, repainted and then adjusted with new weather-stripping at select locations.

A new entry vestibule will be added to the building to replace the former main entrance to the building.

The rear doors will need to be replaced with thermally broken doors and a new security swipe and entry system. The rear screen doors and screening systems should be removed.

Basement access doors are in good condition and will need to be repainted and the hardware freed. A limited number of doors will require updated electronic access.

6.4.4 LOADING DOCK

The existing loading dock is in good condition. It will need updated handrail/safety rails. The door off of the loading dock should also be controlled by a central security system/access system.

6.4.5 WALL INSULATION

The existing building insulation was updated during its last upgrade in the mid 1980's with both rigid insulation and loose batt insulation. Limited destructive testing showed this condition in multiple areas, and most likely would not need to be improved upon. It is estimated that the products have a combined R value from between R20 and R29.

6.4.6 DEMOLITION OF EXISTING EXTERIOR PORCHES

The existing four porches have been enclosed or modified to varying degrees and they do not conform with current code or design requirements. The renovation will include removal of existing, temporary or semi-permanent walls, doors, ceilings, and windows. Areas that have original elements can be saved and reused. The ceiling of the porch space will need to be replaced with exterior exposure finishes and lighting will need to be



upgraded to exterior rated fixtures. The spaces will then be rescreened and programed as a non-smoking seasonal break area.

6.5 BUILDING INTERIOR

The building will require significant modification and relocation of existing partitions. The existing first floor layout of small dormitory rooms will not allow for a contemporary work environment or for the requested program spaces. The new design will allow for standard commercial drywall partitions, acoustical drop ceilings and VCT flooring. The updated interior will also allow for better acoustic control and privacy between units of the Bureau.

This plan includes large areas of unused space that could be left as-is or cleared to make way for future use on the second floor.

See proposed layout in Appendix B for further information.

6.6 BUILDING SYSTEMS

The existing wet fire suppression system will be modified to fit the new layout on the first floor. The second floor fire suppression system will be modified in certain areas to allow for repair of damaged mechanical, electrical and gypsum finishes. The second floor is to remain heated at all times (even when not occupied) to maintain the finishes, fire suppression system and storage on that level.

The existing freezer in the building will not be usable for the new program in its current state. It will require significant upgrades and repair as it has been vandalized and some hardware has been damaged.



7 RECOMMENDED SCOPE OF WORK - OPTION 2: NEW BUILDING AT KINGS PARK (SITE NOT SELECTED AS PART OF THIS STUDY)

7.1 GENERAL

Trudeau Architects was asked to include the feasibility of a new building and review the pros and cons of this option over the renovation of Building 1. The possible location that was discussed with DEC is also at the former Kings Park PC and would be located on a site closer to the existing boat launch. For the purpose of this report, it is assumed that the site would not have an existing building or existing re-usable utilities within 750 feet.

7.2 SITE

Limited information is available regarding proposed sites other than the indication that the building could take advantage of being located closer to the existing boat launch. The existing sites that have been discussed along the water on “The Blvd” or “Soundview Ct” have historically had few buildings on the sites but have also been backfilled with some amount of fill material. It is noted that there is a possibility that old site utilities, fuel tanks, old pump stations or areas of demolition waste are present in this area of Kings Park PC site. Areas around buildings 39, 138, 136, 137, 139 and 140 are noted in a February 2005 report by Roux Associates, Inc. as areas reviewed for waste materials. Further information in the same report shows that areas around the East side of building 138 have an area of “undelineated contamination.” This information should be reviewed during site selection process and confirmed with updated inspection as part of due diligence.

One additional site that was discussed was a building that would be approximately located in the current/former location of buildings 40,122,123. This site also has remnants of several buildings on the site of buildings in significant disrepair that would need to be demolished. This location was not recommended unless further testing is completed in the more specific site are where the building would be located.

Current Flood Insurance Rate Maps (FIRM) shows the preliminary sites that are along Nissequogue River are located in or along a Zone AE on the Flood Insurance Rate Map (May 4, 1998 Revised September 25, 2009). It would be advisable at this early stage to not construct the building inside the AE Zone.

7.3 BUILDING STRUCTURE

The proposed new building would be a single story structure constructed as slab on grade. The main level would be clad in masonry. The structure would be fire protected steel frame.

The possibility of a multi-story building with lab and public spaces on the first floor and offices on the second floor was discussed and dismissed as a non-viable option. The Multi-



story building would require greater floor space for two additional stairwells and an elevator. Furthermore, investigation would be required for site loading capability on the sites outlined.

7.4 BUILDING ENVELOPE

7.4.1 ROOFING

The roof would be a fully adhered 90 mil EPDM roof system, with polyiso insulation and cover board system.

7.4.2 EXTERIOR WALL ASSEMBLY

The exterior wall assembly would be an insulated masonry clad structure with CMU backup. Thermally broken aluminum window and door assemblies would most likely be used for fenestration in the exterior walls.

7.5 BUILDING INTERIOR

The interior of the building would be made up of standard office wall partitions comprised of metal studs, gypsum wallboard and a painted finish. Flooring would be VCT on the main floor, except for selected offices that will receive carpet. Toilets and locker rooms would have ceramic tile flooring. Rubber base molding would be used in all spaces with VCT. Ceiling systems would be acoustical drop ceiling with inlaid lighting systems. Ceiling systems used in the lab spaces would be comprised of a cleanable material.

The building would be divided into secure spaces and limited unsecure space accessible directly off of the lobby space. The secure space will be further subdivided for lab spaces, mailroom drop off, and office units. See proposed layout in Appendix C for further information.

Unsecured space

The unsecured space would allow general visitors and the public to have clear access to the open side of the Marine Permit Office, vending, public toilets, and a small conference room. If unlocked, this would allow direct access to the large conference room. The locked spaces off of this unsecure space will include the kitchen, break room and main hallway. The concept of this plan is to allow secure entry of approved personnel from the large conference room to the kitchen or the director's suite. The second door shall give an opportunity for staff to enter/exit from the front of the room and not the back of the room. The large conference room will have a storage room that can be used for storage of tables and chairs. The large conference room will also have the ability to be divided with an operable partition system.

The hub of the unsecure space will be the lobby that would have seating, informational displays, educational fish tank and a phone system that could be used to call directly into offices.



Secure space

The secure space has four wings that have different focuses, but all spaces would gain entry from one common secure point.

Wing One

Wing One will be closest to the unsecure space and will contain the director's suite, small conference room, mailroom dropoff area, Department of Law Enforcement, Marine FinFish Investigation, Marine Permit office, Shellfisheries multi-use office and building computer server room. This will allow for more private executive spaces and conference rooms.

Wing Two

Wing Two will be a connector from Wing One to the intersection of Wings Three and Four. This wing will comprise offices, file storage/viewing room and custodial storage room.

Wing Three

Wing Three will comprise of lab spaces and the loading dock. The lab spaces will be maintained in a separate hall that would keep contamination from outside to a minimum and allow the staff to keep the flow-through traffic to a minimum. This wing will also allow for correct staging of morning ice setup and receiving throughout the day.

Wing Four

This wing will make up the remainder of program offices, male and female staff toilets with connected locker and shower rooms Units/offices at the end of the wing typically will be smaller so that they can be combined to make a larger workgroup or be kept separate for a more private work environment.



8 SUMMARY CODE REVIEW

8.1 GENERAL

This feasibility study documents the broad aspects of the project like building programming. Schematic design and plan layouts are not a part of this study. Therefore no detailed code review and analysis is being reported for the proposed options.

8.2 OPTION 1: RENOVATION OF EXISTING BUILDING

Building 1 is currently classified as Group I (Institutional) Occupancy. Any future work to re-program the building will entail a change of occupancy to Group B (Business) and shall comply with chapter EB9 of the 2010 EBCNYS.

8.3 OPTION 2: NEW BUILDING AT KINGS PARK

The proposed facility shall be classified as B (Business) occupancy. The building shall comply with requirements prescribed in 2010 BCNYS.

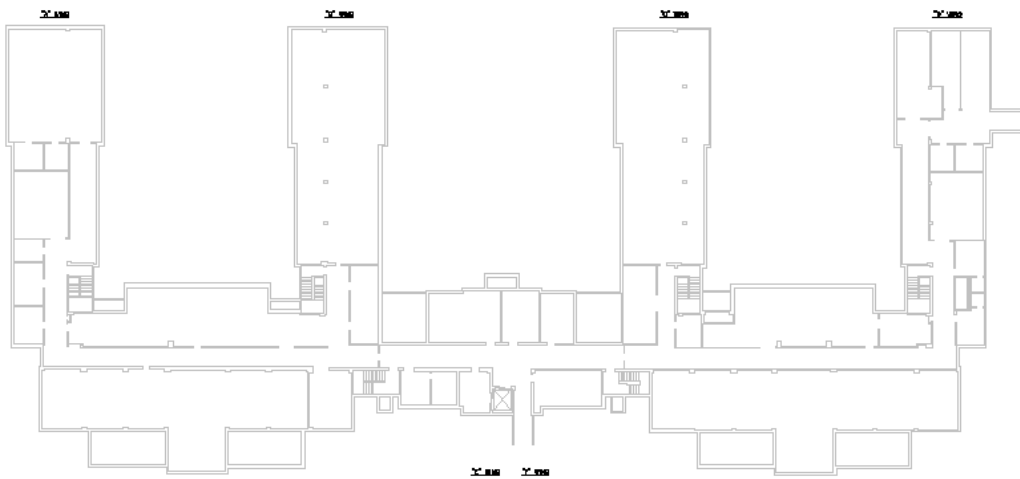
8.4 ACCESSIBILITY

Accessibility within the facility and on the site shall comply with requirements in chapter 11 of BCNYS, ICC/ANSI A117.1-2003 and ADA.



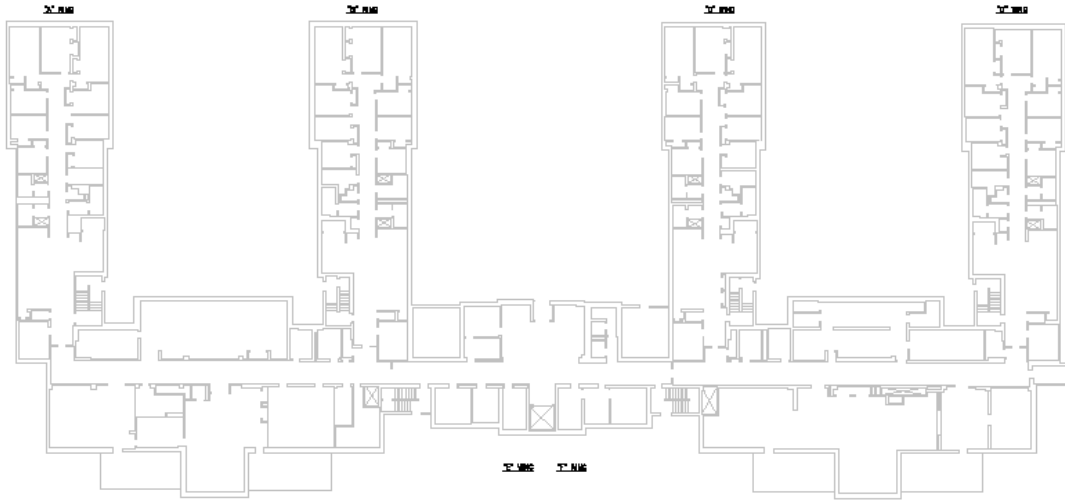
9 APPENDIX A - EXISTING PLANS AND DETAILS

The following plans are provided for reference to the existing layout of the building. Mechanical units and toilets have been removed for clarity.



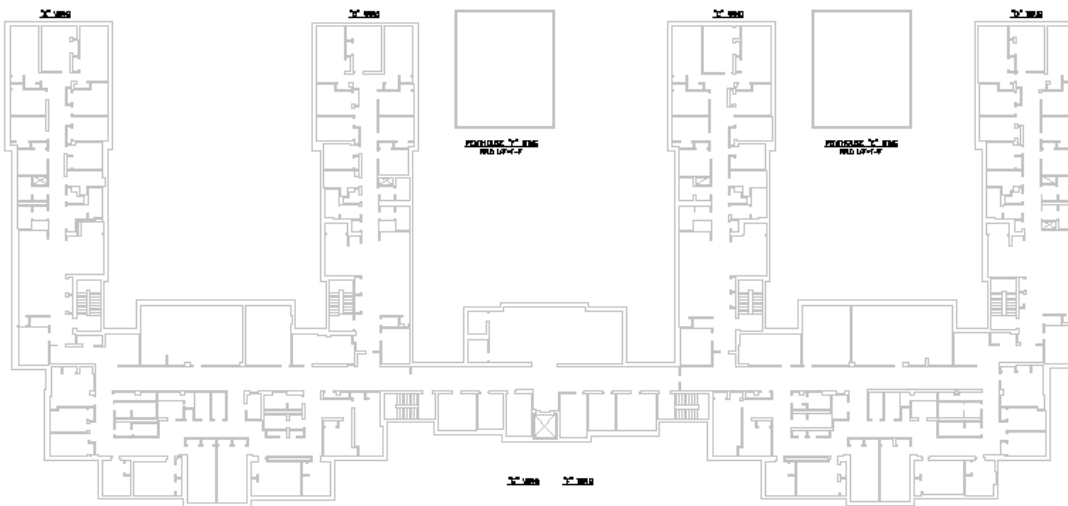
Building 1 Kings Park Basement Floor Plan (Not to Scale)

The major usage for the basement before the building was closed was building engineering, storage and building mechanical systems.



Building 1 Kings Park First Floor Plan (Not to Scale)

Before the building was closed each wing was used as an inpatient dormitory with offices and treatment rooms running down the spine of the building.



Building 1 Kings Park Second Floor Plan/ Penthouse Plan (Not to Scale)

Before the building was closed each wing was used as an inpatient dormitory with day rooms, additional inpatient dormitory rooms and small storage rooms running down the spine of the building. The penthouse is only accessible from the roof hatches through a short locked service door. The interior of the penthouse has no finished ceiling or floors and had roof mechanicals. The roof was not designed with walkways or safety rails to accommodate winter access to penthouses.



10 APPENDIX B - OPTION 1: PROPOSED PROGRAM LAYOUT EXISTING BUILDING

Proposed plan does not significantly modify the existing wall layout of the basement level except for required changes for the new mechanical system and egress out of existing mechanical spaces.

The First Floor Program

Given the existing layout of the building the design team was able to consolidate the program of the labs to a “L” shape wing in a contiguous space. This is an advantage for the lab but this layout allows more traffic through the working lab spaces which creates potential for lab components to be contaminated by passing workers. (Area shown on the next page in violet and light blue color)

Public access areas (shown in peach color on the following page) are confined to areas around the main entrance on the far side of the building. This will allow for large group meetings but staff would need to pass through the secure space to get to different divisions. This plan will also include a modern entry vestibule that would be more accessible and provide better wayfinding.

The office units are generally divided into their own wings of the building and the only sub-division of the space will be for the installation of small huddle rooms. Leaving the remainder of the space open allows for greater flexibility of space assignments, open communication among groups, and more natural light in the space.

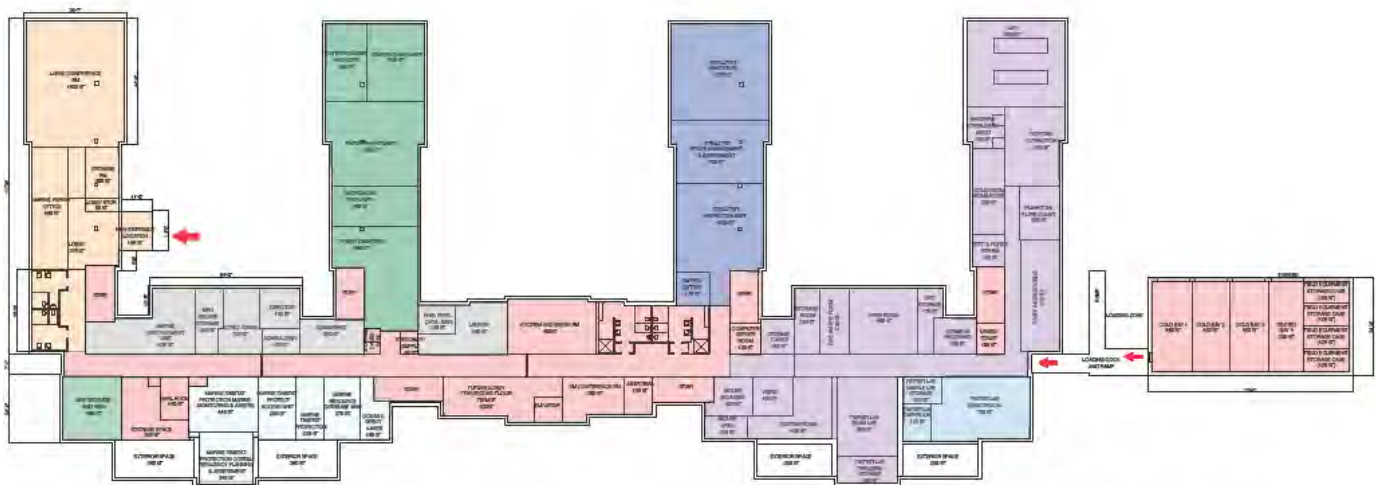
The common functions of the building are spread along the main spine of the building so staff can stay in the secure division of the building.

The administration suite will be located next to the Marine Enforcement Unit facing the new main entrance. This will allow the staff to monitor the main entrance in the evenings and monitor staff walking down the main secure corridor.

The main corridor also includes a space that is reserved for a lobby space to serve any future second floor tenants. This has been included so tenants leasing the second floor will not require access to the secure part of the first floor. This “Future Lobby for the 2nd Floor Tenant” has a connection to an existing stair and the existing elevator. This lobby location is located on the opposite side of the building from the entrance to the MRH entrance. This space is large enough to be a secure reception area or act as a secure entry point for multiple 2nd floor tenants.



- SHELLFISH LAB AREA
- FINFISH LAB AREA
- MARINE HABITAT PROTECTION
- PUBLIC ACCESSIBLE AREAS (ONLY)
- FINFISH AND CRUSTACEANS UNITS
- ADMINISTRATION
- STORAGE (MIX) AND PRIVATE UTILITY SPACES
- SHELLFISH UNIT

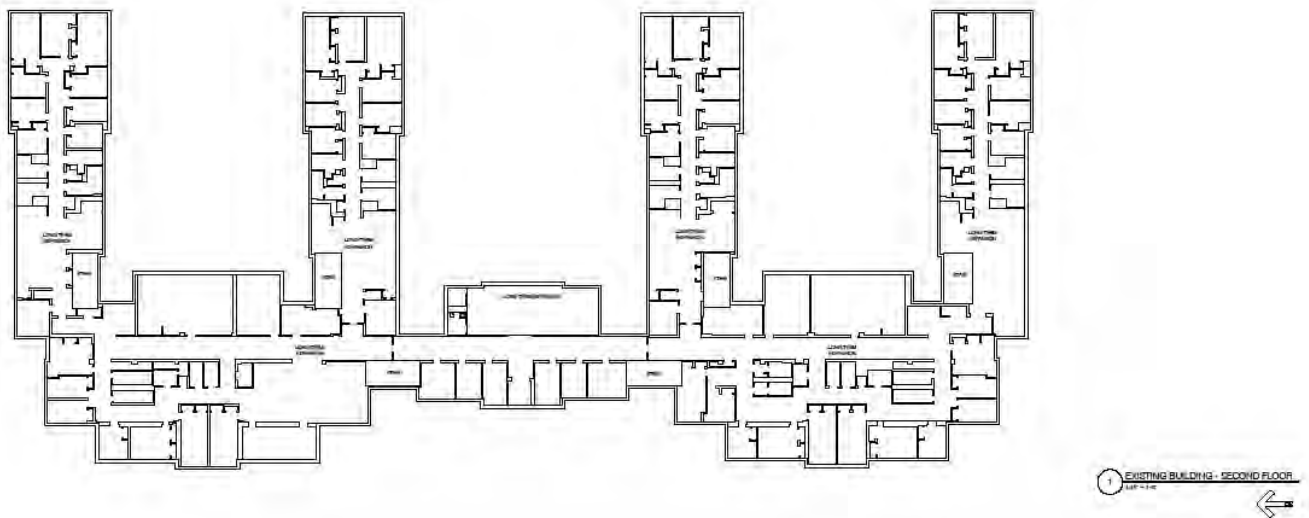


1 EXISTING BUILDING - FIRST FLOOR
 NVP - 02



The Second Floor Program

The second floor will not be used for the Marine Resource Headquarters and will have the ability to be leased or used for another agency or outside group. The space will be cleared of damaged walls and debris and cleaned. Existing fire protection, basic electrical, and basic mechanical/plumbing will be inspected and spot repaired to confirm proper operations of the systems and make the space available for future fit out. The existing toilet rooms that have been vandalized will need to be repaired but will otherwise be left as is for future use. Kitchen facilities could remain after being cleaned and existing (remaining) appliances would be mothballed if still functional.



The Penthouse Program

Penthouses would remain as mechanical spaces.

The Pole Barn Program

A new pole barn would be added to accommodate the service and winter storage of trailered boats, equipment and miscellaneous gear that may require drying out. 3 un-conditioned bays will be attached to one oversized heated bay which will contain a full size garage bay, work bench and 4 field equipment storage cages. The heated bay will also have hot and cold water for washing down equipment and oversized electrical service for any future needs. The bays will be 12'-0" clear height (with overhead doors open) with the exception of the 1 conditioned bay that will have 15'-0" clear height for oversized boats on trailers. All bays will have overhead and wall mounted electrical service for minor repairs and battery tending.

Site Program

The existing site would be modified to remove driveway loops and parking that are beyond the service life. Grade would be modified to reflect a more accessible path to the main entrance over the existing entry. This would include filling sections of the site, leveling future parking paths and removing part of a knoll that



divides the site. New hardscape would be added to reduce maintenance and improve access to parking and sample drop-off. New paved and unpaved parking would be added for both staff parking and winter equipment storage. Site planting would be required to replace trees that are diseased, naturally misshaped from storms, incorrectly pruned, or dropping limbs onto buildings/cars/people. Additional plantings would be required to improve the site and bring it into character with the goals of the DEC and to make the second floor marketable for lease.



Concept of proposed parking area



11 APPENDIX C - OPTION 2: PROPOSED PROGRAM LAYOUT, NEW BUILDING

Proposed new building plan will be able to compress the functions into a more contemporary layout that would group related units (note the majority of units are grouped together). Public spaces will be more closely tied to the entrance with more efficient circulation space. The spaces will also be more easily subdivided. This layout also allows more privacy for the Administration suite and direct access to the large conference room or kitchen. The labs are located by the loading dock to allow quick transport of samples, and give access to dedicated shower rooms and small locker rooms for staff exiting the labs, the pole barn, and other exterior activities.

Storage is spread throughout the building and utilizes storage closets/ storage rooms or storage cages. The storage cages are programmed so each unit will have one cage for miscellaneous storage of active equipment. To help cleanup of wet equipment coming in from the field, a space has been programmed for an open wet equipment wash. This area has a floor drain and “bedpan washer” type hand held washer.

Labs areas are located closer to the loading zone entrance and are programmed back to back to share utilities and mechanical items. The flooring is a washable epoxy and the walls are a washable surface as well. Ceilings will be a cleanable lay in ceiling as it was determined the lay in ceiling system would be more appropriate to control the acoustic environment and allow for seasonal cleaning.

Offices spaces are programmed as an open floor plan to allow for maximum flexibility. By removing the hard office walls this will allow for better light flow and communication. To improve natural lighting on the common isle linear sky lighting is proposed. Small coordination offices are available for private meetings that are not large enough to use the conference rooms.

The Marine Enforcement Unit Suite is attached to the Marine Permit office. This allows for direct outside access, keeps the unit self-contained, and allows them to provide quick assistance to the Marine Permit office if the need arises. This location off the main entrance will allow for proper oversight of who is entering and exiting the main building.

Public spaces inside the building are very similar to the current occupied space with a lobby, large conference room and access to the Marine Permit office. In addition, accessible toilets and a vending machine have been programmed into the public space.

The large conference room will be programmed with additional electrical outlets at a higher wall position for projectors, charging of electronic devices, and other items used for training. Accessed directly off of the conference room will be a storage space to allow for direct storage options of commonly used items.

The administration space is divided into two areas. The first area will house administration offices, a small enclave, and the second area will house a remote library which will act as a second small conference room and central storage point for Agency books.



Common areas in the building such as the kitchen and lunch room are located away from the work areas adjacent to the large conference room on the secure side of the building. This allows for a second private egress out of the large conference room.

The Pole Barn Program

A new pole barn would be added to accommodate the service and winter storage of trailered boats, equipment and miscellaneous gear that may require drying out. 3 un-conditioned bays will be attached to one oversized heated bay which will contain a full size garage bay, work bench and 4 field equipment storage cages. The heated bay will also have hot and cold water for washing down equipment and oversized electrical service for any future needs. The bays will be 12'-0" clear height (with overhead doors open) with the exception of the 1 conditioned bay that will have 15'-0" clear height for oversized boats on trailers. All bays will have overhead and wall mounted electrical service for minor repairs and battery tending.





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8 April 2015, T/a Project #227.04.22
Client #: 320310/CR2

New York State Division of Environmental Conservation Bureau of Marine Resources Headquarters
- Page 31



12 APPENDIX D - COST ESTIMATES



DEC MARINE RESOURCES HEADQUARTERS 13-160
 KINGS PARK, NEW YORK
 TRUDEAU ARCHITECTS, PLLC
 PROGRAM STUDY ESTIMATE - REVISED 9/4/2014

PROJECT SUMMARY		TOTAL COST
OPTION 1 - B1 RENOVATION		
• RENOVATIONS	\$13,435,000	
• SITework	<u>\$1,074,000</u>	
TOTAL - OPTION 1 - B1 RENOVATION		\$14,509,000
OPTION 2 - NEW CONSTRUCTION		
• NEW BUILDING	\$14,019,000	
• SITework	\$1,074,000	
• SITE UTILITIES	<u>\$632,000</u>	
TOTAL - OPTION 2 - NEW CONSTRUCTION		\$15,725,000

ESTIMATE NOTES / ASSUMPTIONS:

- ESTIMATE BASED ON PROGRAM DESIGN PLANS AND ARCHITECTURAL NARRATIVE RECEIVED ON JULY 23, 2014 FROM TRUDEAU ARCHITECTS.
- PROGRAM DESIGN PLANS AND NARRATIVES FOR SITework, UTILITIES, PLUMBING, FIRE PROTECTION, HVAC AND ELECTRICAL SYSTEMS NOT AVAILABABLE AT TIME OF ESTIMATE.
- NEW YORK STATE PREVAILING WAGE RATES FOR SUFFOLK COUNTY.
- CONSTRUCTION START AUGUST 2016; COMPLETION NOVEMBER 2017; MID-POINT MARCH 2017.
- NORMAL WORKING HOURS AND CONDITIONS;
NO PREMIUM FOR A CONDENSED CONSTRUCTION SCHEDULE IS INCLUDED.
- ENTIRE PROJECT BEING BID AT ONE TIME.
- SINGLE PRIME CONTRACT (COMPETITIVELY BID).
- PREMISES TO BE VACANT DURING CONSTRUCTION.
- ESTIMATE EXCLUDES:**
 - ROCK EXCAVATION, IF REQUIRED
 - HAZARDOUS MATERIALS REMEDIATION INCLUDING ASBESTOS ABATEMENT (IF APPLICABLE)
 - SOFT COSTS (FINANCING, DESIGN FEES, ETC.)
 - CONSTRUCTION CONTINGENCY (OWNER CHANGE ORDER RESERVE)
 - FURNITURE, FIXTURES AND EQUIPMENT (FF&E)
 - BUILT-IN LAB CASEWORK AND LAB EQUIPMENT
 - DEEP FOUNDATION SYSTEM



DEC MARINE RESOURCES HEADQUARTERS

13-180

KINGS PARK, NEW YORK

TRUDEAU ARCHITECTS, PLLC

PROGRAM STUDY ESTIMATE - REVISED

B1 RENOVATION

FINAL DRAFT

3/9/2015

SUMMARY	TOTAL MATERIAL	TOTAL LABOR	TOTAL COST	BLDG \$ / GSF	% OF TOTAL
DIVISION 2 - DEMOLITION	\$71,000	\$327,000	\$398,000	\$11.16	2.96%
DIVISION 3 - CONCRETE	\$59,000	\$110,000	\$170,000	\$4.77	1.27%
DIVISION 4 - MASONRY	\$44,000	\$249,000	\$293,000	\$8.22	2.18%
DIVISION 5 - METALS	\$25,000	\$31,000	\$56,000	\$1.57	0.42%
DIVISION 6 - WOOD AND PLASTICS	\$41,000	\$50,000	\$91,000	\$2.55	0.88%
DIVISION 7 - THERMAL & MOISTURE PROTECTION	\$409,000	\$528,000	\$937,000	\$26.28	6.97%
DIVISION 8 - OPENINGS	\$180,000	\$90,000	\$270,000	\$7.57	2.01%
DIVISION 9 - FINISHES	\$331,000	\$552,000	\$883,000	\$24.77	6.57%
DIVISION 10 - SPECIALTIES	\$87,000	\$44,000	\$130,000	\$3.65	0.97%
DIVISION 13 - SPECIAL CONSTRUCTION	\$38,000	\$43,000	\$80,000	\$2.24	0.60%
DIVISION 14 - CONVEYING SYSTEM	\$15,000	\$15,000	\$30,000	\$0.84	0.22%
DIVISION 21 - FIRE PROTECTION	\$26,000	\$70,000	\$96,000	\$2.69	0.71%
DIVISION 22 - PLUMBING	\$392,000	\$464,000	\$856,000	\$24.01	6.37%
DIVISION 23 - HVAC	\$1,538,000	\$1,731,000	\$3,269,000	\$91.69	24.33%
DIVISION 26 - ELECTRICAL	\$798,000	\$834,000	\$1,632,000	\$45.77	12.15%
SUB-TOTAL	\$4,054,000	\$5,138,000	\$9,191,000	\$257.78	68.41%
GENERAL CONDITIONS	8%		\$735,000	\$20.61	5.47%
SUB-TOTAL			\$9,926,000	\$278.40	73.88%
OVERHEAD AND PROFIT	7%		\$695,000	\$19.49	5.17%
SUB-TOTAL			\$10,621,000	\$297.89	79.05%
ESCALATION (MID-POINT 3/2017)	10%		\$1,062,000	\$29.79	7.90%
SUB-TOTAL			\$11,683,000	\$327.68	86.96%
DESIGN CONTINGENCY	15%		\$1,752,000	\$49.14	13.04%
TOTAL - B1 RENOVATION - CONSTRUCTION		35,654 SF*	\$13,435,000	\$376.82	100.00%

* 28,629 SF occupied after renovation



DEC MARINE RESOURCES HEADQUARTERS 13-160

KINGS PARK, NEW YORK

TRUDEAU ARCHITECTS, PLLC

PROGRAM STUDY ESTIMATE - REVISED **NEW BUILDING** 9/4/2014

SUMMARY	TOTAL MATERIAL	TOTAL LABOR	TOTAL COST	BLDG \$ / GSF	% OF TOTAL
DIVISION 3 - CONCRETE	\$243,000	\$423,000	\$666,000	\$23.37	4.75%
DIVISION 4 - MASONRY	\$177,000	\$894,000	\$1,071,000	\$37.58	7.64%
DIVISION 5 - METALS	\$567,000	\$204,000	\$771,000	\$27.05	5.50%
DIVISION 6 - WOOD AND PLASTICS	\$36,000	\$43,000	\$79,000	\$2.77	0.56%
DIVISION 7 - THERMAL & MOISTURE PROTECTION	\$308,000	\$438,000	\$745,000	\$26.14	5.31%
DIVISION 8 - OPENINGS	\$218,000	\$98,000	\$313,000	\$10.98	2.23%
DIVISION 9 - FINISHES	\$273,000	\$477,000	\$750,000	\$26.32	5.35%
DIVISION 10 - SPECIALTIES	\$67,000	\$34,000	\$101,000	\$3.54	0.72%
DIVISION 13 - SPECIAL CONSTRUCTION	\$38,000	\$43,000	\$80,000	\$2.81	0.57%
DIVISION 21 - FIRE PROTECTION	\$57,000	\$114,000	\$171,000	\$6.00	1.22%
DIVISION 22 - PLUMBING	\$371,000	\$428,000	\$798,000	\$28.00	5.89%
DIVISION 23 - HVAC	\$1,310,000	\$1,310,000	\$2,620,000	\$91.93	18.89%
DIVISION 28 - ELECTRICAL	\$713,000	\$713,000	\$1,425,000	\$50.00	10.16%
SUB-TOTAL	\$4,378,000	\$5,217,000	\$9,590,000	\$336.49	68.41%
GENERAL CONDITIONS 8%			\$767,000	\$26.91	5.47%
SUB-TOTAL			\$10,357,000	\$363.40	73.88%
OVERHEAD AND PROFIT 7%			\$725,000	\$25.44	5.17%
SUB-TOTAL			\$11,082,000	\$388.84	79.05%
ESCALATION (MID-POINT 3/2017) 10%			\$1,108,000	\$38.88	7.90%
SUB-TOTAL			\$12,190,000	\$427.72	86.95%
DESIGN CONTINGENCY 15%			\$1,829,000	\$64.18	13.05%
TOTAL - NEW BUILDING CONSTRUCTION		28,500 SF	\$14,019,000	\$491.89	100.00%



13 APPENDIX E - PLANNING AND DESIGN SCHEDULE

Planning and Design Schedule							
Option 1 Reconstruction of existing building							
	Start						End
Feasibility study		4 months					Sept 2014
Establish final design parameters			1 month				Sept 2014
Establish final budget				2 months			Nov 2014
SEQR					8 months		July 2015
Design & Bid					14 months		Nov 2015
Construction						12 months	Nov 2016
Option 2 Building a new structure							
	Start						End
Feasibility study		4 months					Sep 2014
Establish final design parameters			1 month				Sep 2014
Establish final budget				2 months			Nov 2014
SEQR					12 months		Nov 2015
Design & Bid					16 months		Feb 2016
Construction						14 months	Apr 2017



14 APPENDIX F - EXISTING FACILITY PHOTOS

Current Main Entrance to Bureau:



Comments: Lack of wayfinding for users; difficult to find in the evening due to a lack of lighting from the road.

Current small conference room



Comments: Size is correct, no vending machine or bottles water available to users.



Typical large office



Comment: In many units, desks-to-space is at the maximum ratio. Units have no space to meet informally as a group or unroll documents or specimens for review. Multiple offices are using hallways for storage or review spaces.

Existing Finfish Lab



Comment: The existing lab can be upgraded to work more efficiently with storage spaces.



Current Shellfish lab



Current Shellfish Lab



Comment: Main entrance area of Shellfish lab is used for lab functions and staging area for morning ice chest setup.



Current Shellfish Lab



Comment: Example of Autoclave and incubator.

Current Shellfish Lab





Current basement long term storage



Comment: Current storage density is too high; future designs should allow access to all materials without requiring moving other items first.



15 APPENDIX G - KINGS PARK BUILDING 1 FACILITY PHOTOS



Existing main entrance



Existing site landscape and large trees



Existing EPDM roof, note the multiple insulation failures



Existing slate roof damage



Existing location of parking for building, this would also be the area of parking expansion.



Existing water and mold found on second floor at areas of roof leaks. UPDATE: The existing owner reports that this area has continued to leak, but some furniture and soft goods have been removed.



Typical existing bedroom space



Typical damage from vandalism, removed plumbing fixtures and accessories. In many areas exposed pipes have been removed on the second floor.



16 APPENDIX H - SPACE PROGRAMING BREAKDOWN

DEC Marine Resources Headquarters Space Requirements

DEC MRH Requested SF	New Building SF	Reno. B1 SF	Organizational Department	Organizational Group on Drawings	Unit Name/Function	SF Space Allocations by Staff				Total Net SF	Total Gross SF
						115	90	64	48		
	695	625	Shellfish Unit	Office Spaces	Shellfish Sanitation			9	2	672	1,075
	770	625	Shellfish Unit	Office Spaces	Shellfish Stock Management & Assessment			4	2	352	563
	560	570	Shellfish Unit	Office Spaces	Shellfish Inspection Unit			5		320	512
128	135	130	Shellfish Lab Area	Shellfish Lab	Stamp-in / Receiving					-	-
120	150	125	Shellfish Unit	Shellfish Lab	Supervisors Office		1			90	144
510	1,173	635	Shellfisheries Offices	Shellfish Lab	Staff & Records / Shellfish Microbiology Lab			2	4	320	512
180	180	215	Shellfish Lab Area	Shellfish Lab	Mouse Bioassy					-	-
120	120	120	Shellfish Lab Area	Shellfish Lab	Mouse Area					-	-
266	260	280	Shellfish Lab Area	Shellfish Lab	Plankton / Plate Count					-	-
	1,070	1,030	Shellfish Lab Area	Shellfish Lab	Wet Lab (Primary Lab shellfish)					-	-
448	450	555	Shellfish Lab Area	Shellfish Lab	Biotoxin Extraction					-	-
196	196	196	Shellfish Lab Area	Shellfish Lab	Vibrio Lab					-	-
190	190	233	Shellfish Lab Area	Shellfish Lab	Hazardous Waste Room					-	-
1,050	350	450	Shellfish Lab Area	Shellfish Lab	Contam Room					-	-
216	500	561	Shellfish Lab Area	Shellfish Lab	Preparation Room					-	-
185	224	185	Shellfish Lab Area	Shellfish Lab	Washers / Sterilizers Mechanical Room					-	-
171	215	210	Shellfisheries Offices	Shellfish Lab	Storage Room					-	-
320	310	335	Shellfish Lab Area	Shellfish Lab	Cold Room / Incubators / Remote Power					-	-
										-	-
576	540	690	Finfish Lab	Finfish Lab	Finfish Lab Benchroom					-	-
90	95	120	Finfish Lab	Finfish Lab	Finfish Lab Sample Lab Storage					-	-
90	95	120	Finfish Lab	Finfish Lab	Finfish Lab Darkroom					-	-
576	540	585	Finfish Lab	Finfish Lab	Finfish Lab Exam Lab					-	-
150	190	190	Finfish Lab	Finfish Lab	Finfish Lab Freezers Storage					-	-
500	510	520	Direction/Policy/Special Projects	Office Spaces	Marine Permit Office, counter, with a window, STC 55			4	1	304	486
1,500	1,500	1,500	Support Space	Public Spaces	Large Conference Room sub dividable into 2 spaces walls to have a STC 55 min. connecting to via secure door to kitchen/lounge					-	-
200	200	200	Support Space	Public Spaces	Conference rm Media/storage room for 12 tables, 60 chairs storage cabinets for paper goods locked door					-	-
350	360	300	Support Space	Lab Spaces	Small Conference Room 2 (secure) STC 55 min					-	-
	185	190	Direction/Policy/Special Projects	Administration	Directors Suite (secure)	1				115	184
350	360	620	Direction/Policy/Special Projects	Administration	Library (Central location)					-	-
	314	315	Direction/Policy/Special Projects	Administration	Directors Suite (secure) Cordination / Administration			3		192	307
	249	265	Direction/Policy/Special Projects	Administration	Administration / Special Projects		1	1		154	246
	100	120	Direction/Policy/Special Projects	Administration	Ocean & Great Lakes			1		64	102
	104	130	Direction/Policy/Special Projects	Administration	Marine Resources Database Management			1		64	102
400	415	460	Support Space	Office Spaces	Kitchen/Employee Eating Break room seating for 20 (16x25)					-	-
600	600	500	Support Space	Public Spaces	Lobby with seating and display area for customers also vending (water)					-	-
	34	50	Support Space	Public Spaces	Lobby storage closet for ice removal and janitorial supplies					-	-
150	150	150	Support Space	Office Spaces	Mailroom/Large Copier Room					-	-
150	150	100	Support Space	Lab Spaces	Service/Computer Room					-	-
50		130	Support Space	Office Spaces	Janitor Closet					-	-
50	56	55	Support Space	Office Spaces	Stationary Supply Storage Room					-	-
150	150	230	Marine Enforcement Unit	Office Spaces	Dept. of Law Enforcement Secure Lockup/Evidence Room attached to MEU					-	-
	615	860	Marine Enforcement Unit	Office Spaces	Marine Enforcement Unit		1	3	1	330	608
250	390	390	Support Space	Unit Storage Space	Marine Equipment Service Shop (Heated Bay 4)					-	-
	890	960	Finfish & Crustaceans	Office Spaces	Finish Investigations Unit		1	5	3	554	886
	385	440	Finfish & Crustaceans	Office Spaces	Diadromous Fish Unit			2	2	224	358
	570	540	Finfish & Crustaceans	Office Spaces	Crustaceans Unit			3	3	336	538
	475	390	Finfish & Crustaceans	Office Spaces	Fisheries Mgmt. and Cord			3	1	240	384
	410	640	Finfish & Crustaceans	Office Spaces	Fishery Disasters			4		256	410
	415	460	Finfish & Crustaceans	Office Spaces	Map Storage and Viewing room					-	-

DEC Marine Resources Headquarters Space Requirements

DEC MRH Requested SF	New Building SF	Reno. B1 SF	Organizational Department	Organizational Group on Drawings	Unit Name/Function	SF Space Allocations by Staff				Total Net SF	Total Gross SF
						115	90	64	48		
	100	220	Marine Habitat Protection	Office Spaces	Marine Habitat Protection			1		64	102
	415	445	Marine Habitat Protection	Office Spaces	Marine Habitat Protection Marine Monitoring & Assessment			4		256	410
	315	345	Marine Habitat Protection	Office Spaces	Marine Habitat Protection Costal Resiliency Planning & Assesment			3		192	307
	250	290	Marine Habitat Protection	Office Spaces	Marine Habitat Protection Access unit		1	1		154	246
420			Support Space	Office Spaces	Enclaves for each units (included in each unit sf)					0	0
150	130	150	Support Space	Office Spaces	Custodial Staging Room (* basement in reno)					-	-
150		150	Support Space	Office Spaces	Supply room for Custodial (*basement in reno)					-	-
1,000	1,000		Support Space	Long Term Storage	Record Storage Room (*basement in reno)					-	-
125	128	128	Marine Enforcement Unit	Unit Storage Space	Field Equipment Storage 8'x16' Marine Enforcement Unit (Cage 1)					-	-
125	128	128	Finfish & Crustaceans	Unit Storage Space	Field Equipment Storage 8'x16' Finfish Office (Cage 2)					-	-
125	128	128	Marine Habitat Protection	Unit Storage Space	Field Equipment Storage 8'x16' Marine Habitat Protection (Cage 3)					-	-
125	128	128	Shellfisheries	Unit Storage Space	Field Equipment Storage 8'x16' (Cage 4)					-	-
	215	205	Support Space	Lab Spaces	Bathroom male (secure side) 1urinal, 2 toilets, 2 lavs					-	-
	215	205	Support Space	Lab Spaces	Bathroom female (secure Side) 3toilets, 2 lav					-	-
	166	154	Support Space	Public Spaces	Public Bathroom male (not secure) 1 urinal, 1 toilet, 2 lav					-	-
	170	154	Support Space	Public Spaces	Public Bathroom female (not secure) 2 toilets, 2 lavs					-	-
	121	90	Support Space	Lab Spaces	Locker room male attached to bathroom (secure side) ADA shower					-	-
	121	90	Support Space	Lab Spaces	Locker room female attached to bathroom (secure side) ADA shower					-	-
		95	Support Space	Lab Spaces	Unisex Bathroom / family changing room (not secure)					-	-
			Exterior		Assigned exterior storage for marine equipment and boats					-	-
			Exterior		Assigned Impound area in parking lot with fence					-	-
	40	-	Shellfish Lab Area		Mech room for labs (* located in basement in reno)					-	-
	210	100	Support Space		Mechanical room(s) building					-	-
	-	90	Support Space		Elevator					-	-
	320	200	Support Space		Storage Cages					-	-
		420	Support Space		Future Expansion					-	-
	90		Support Space		Wet Equipment Wash					-	-
	5,644	5,649			Circulation outside of units .25%					-	-
12,502	28,629	28,864	Totals			1	5	59	19	5,253	8,405

Total employees 5
84 master total staff

New Building SF	Reno. B1 SF	Organizational Department
4,025	4,290	Shellfish Lab Area
1,388	845	Shellfisheries Offices
1,460	1,705	Finfish Lab
1,822	2,160	Direction/Policy/Special Projects
6,613	5,938	Support Space
893	1,218	Marine Enforcement Unit
3,273	3,558	Finfish & Crustaceans
1,208	1,428	Marine Habitat Protection
2,175	1,945	Shellfish Unit



17 APPENDIX I - HVAC / ELECTRICAL CONSULTANT RECOMMENDATIONS

HVAC SYSTEMS

- All existing HVAC equipment and piping will be removed in their entirety
- A central plant to generate chilled water and heating water will be constructed within the Basement
- The heating plant will consist of three 1000 MBH natural gas condensing type boilers with dedicated primary pumps. Combustion air intake will be through a grade-level areaway and flue gas vent will be through a new common vent flue riser up to the roof
- Heating water secondary distribution will be through a duplex, parallel operation, VFD-equipped, pump set
- Terminal heating equipment will be selected for a maximum hot water supply temperature of 160°F with a minimum 20°F delta at design conditions to ensure the supermajority of operating hours are in condensing mode
- Hot water reset based on outdoor air temperature will be provided
- The chilled water plant will consist of two 150 ton capacity dual circuit chillers
- Heat rejection will be to two grade-mounted cooling towers with condenser water piping arranged for duplex, headered condenser water pumps
- Chilled water distribution will be through a duplex, parallel operation, VFD-equipped pump set
- Terminal cooling equipment will be selected for a chilled water supply temperature of 43°F and a minimum 14°F range
- Chilled water reset will not be used
- Administrative and support spaces will be served by central recirculating type, variable air volume air handlers located in the Basement
- Each AHU will be equipped with pre heat and cooling coils, a minimum MERV 13 filter bank, and an airside economizer
- The AHU will distribute 55°F air (seasonal variation upward is possible) to variable air volume boxes arranged to serve zones comprised of adjacent spaces with similar exposure, occupancy and other load characteristics
- Each VAV box will be equipped with a reheat (tempering) coil sized to meet the design heating load of each space assuming 55°F entering air



- Heating only cabinet heaters will be provided in vestibules and other high load spaces
- Central 100% outdoor air variable volume air handling units for laboratory service will be located in the Basement
- Each laboratory AHU will be equipped with pre heat, cooling and reheat coils and a HEPA filter bank
- Each laboratory AHU will be served by a dedicated gas-fired steam humidifier
- The laboratory AHU will distribute 55°F air (seasonal variation upward is possible) to the labs through “constant volume” boxes matched and controlled in unison with similar boxes at the fume hoods to maintain appropriate relative space pressurization levels
- Centralized zone reheat coils for the lab spaces would be provided along with 4-pipe recirculating, ceiling-mounted fan coils to account for localized variations in load and outdoor air flow
- All outdoor air intakes and relief air outlets for the administrative AHU would be through areaways with ducts arranged for use of heat pipe coils for energy recovery
- Outdoor air for laboratory AHU would be from air intakes at the Roof
- Laboratory exhaust would be through several roof-mounted fans, with one fan serving multiple fume hoods. These units may be remote from AHU air intakes.
- A glycol-based run-around coil system would be used for energy recovery for the laboratory outdoor air loads
- Air distribution for all spaces will be via ceiling-mounted air terminals
- All supply, outdoor air, and administrative area return and relief duct will be galvanized sheet metal. Fume hood exhaust duct will be stainless steel
- All HVAC piping greater than 2” diameter will be Schedule 40 steel, Type L copper may be used for 2” diameter and less
- All insulation shall meet E088
- Each lab shall have an independent thermostat. Administrative and support areas may have a single common thermostat per zone, final number of zones will be determined during a design phase.
- All central plant equipment, VAV boxes, and laboratory FCU shall be networked to a DDC type building management system, complete with central graphical user interface and remote (outside) access

PLUMBING SYSTEMS



GENERAL

- The existing site water main and service entrance is adequate
- The existing site sanitary drainage system is sufficient provided acid-waste or other hazardous items that may be generated in a laboratory environment are disposed at designated sinks and diverted through appropriate neutralizing basins
- No-hub cast-iron drainage piping is recommended for sanitary, laboratory and storm drainage services. Acid waste piping should be HDPE or PVC
- A full coverage fire sprinkler system will be provided from the existing fire service main

LABORATORY SPACES

- Domestic cold water for laboratory fixture will be taken from the house domestic cold water main at a single take-off point and equipped with an RPZ-type backflow preventer
- The laboratory domestic cold water (LDCW) will be routed to all laboratory fixtures and a dedicated, duplex set of indirect water heaters from which laboratory domestic hot water (LDHW) will be obtained and distributed
- Pumped recirculation of LDHW will be provided to ensure its ready dispensing upon opening of a laboratory fixture
- Laboratory fixture faucets will contain integral backflow preventers
- Local water purification units to produce the grade of purified water necessary for laboratory functions will be installed in each lab and fed from the LDCW system
- LDCW, LDHW, and LDHR piping will be Type L copper with soldered joints
- Distribution of purified water will be through HDPE piping having appropriate corrosion resistant characteristics
- Local vacuum pumps and laboratory gas cylinders will be used. Vacuum pumps will be portable and bench-mounted. Appropriate gas cylinders for each lab space will be mounted within the lab support space. Distribution piping will be appropriate for the service
- A central duplex compressor system with redundant dryer/filter assembly will be located in the Basement for laboratory usage. Distribution will be via Type L copper with brazed joints
- Emergency showers and eye wash stations will be supplied with tempered water via local mixing valves and connected with the LDCW, LDHW, and LDHR piping



- Laboratory floor drains will be equipped with trap primers

OTHER SPACES

- The domestic cold water (DCW) will be taken from the existing site main and distributed to all waste-using devices in non-laboratory spaces
- Domestic hot water (DHW) will be obtained from a dedicated duplex set of indirect water heaters and distributed to all waste-using devices in non-laboratory spaces
- Pumped recirculation of DHW will be provided to ensure its ready dispensing upon opening of a fixture

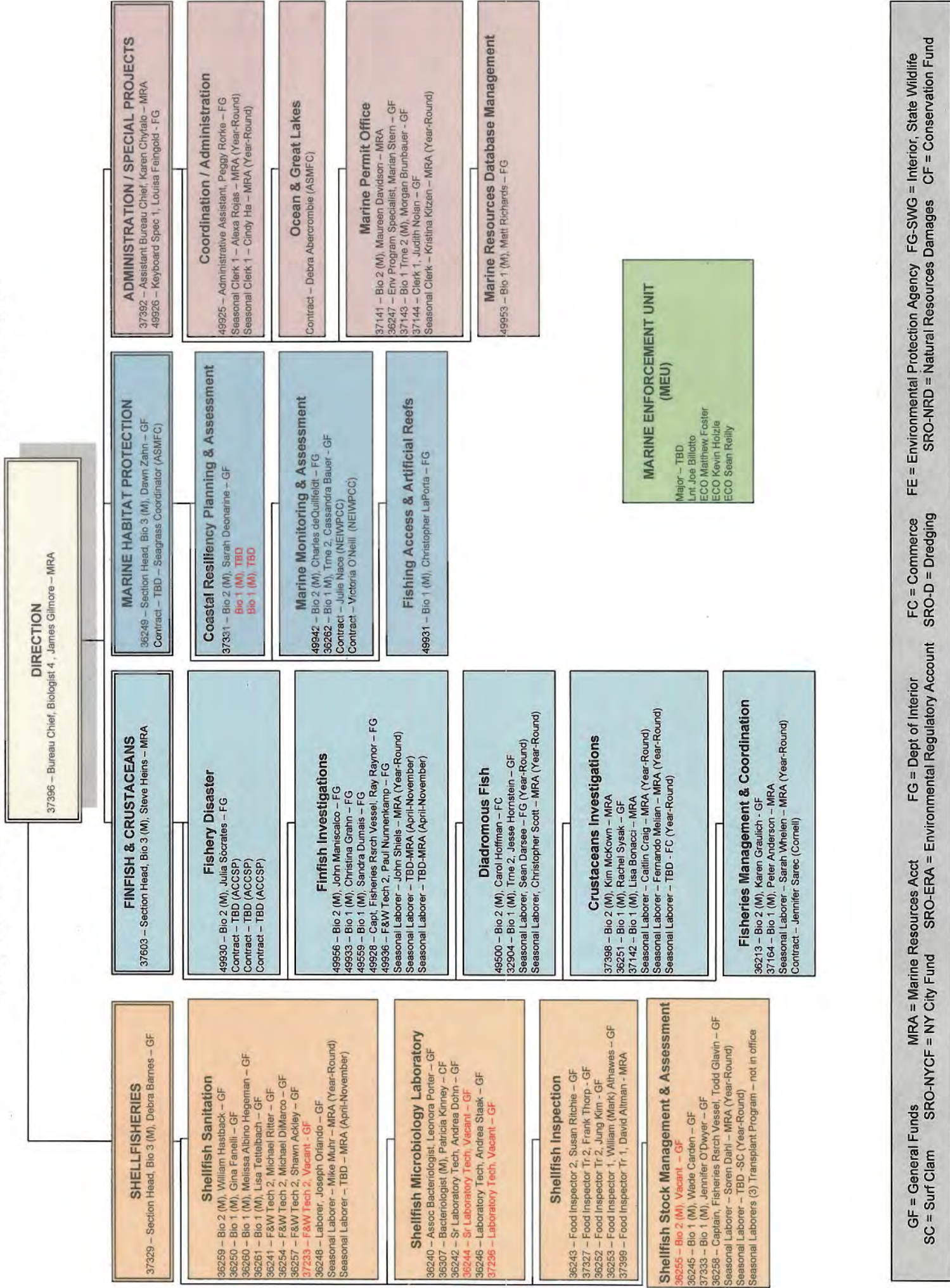
ELECTRICAL SYSTEMS

- The existing power supply and switchgear appear sufficient, though all distribution systems require replacement to accommodate the floor plan changes
- A building ground grid system should be provided and connected to a bus grounding bar installed in each laboratory module to ensure positive grounding for laboratory instruments
- Dedicated, local UPS should be provided in each laboratory and sized to serve the equipment within requiring power conditioning and/or uninterrupted power
- A 250 kw natural gas generator will be provided at grade along with an automatic transfer switch located in the Switchgear Room to serve loads requiring standby power
- Normal power distribution panel boards and standby power distribution panel boards with associated feeders and branch circuits will be located throughout the building on at least a per wing/per floor basis
- Receptacle and data drop locations will be coordinated with expected furniture and equipment layouts
- A full-coverage fire and smoke alarm system connected to a DEC monitoring center will be provided
- Overhead lighting fixture type will be lay-in type high efficiency fluorescent selected and arranged to achieve typical design lighting levels for the spaces served. Occupancy sensors will be used for on/off control
- Task lighting fixtures with manual on/off switches mounted on desk of laboratory top will supplement overhead lighting



18 APPENDIX J - BUREAU OF MARINE RESOURCES ORGANIZATION CHART DECEMBER 18, 2013 UPDATE

BUREAU OF MARINE RESOURCES ORGANIZATION CHART – APRIL 2, 2014



GF = General Funds MRA = Marine Resources Acct FE = Dept of Interior FC = Commerce FE = Environmental Protection Agency FG-SWG = Interior, State Wildlife
 SC = Surf Clam SRO-NYCF = NY City Fund SRO-ERA = Environmental Regulatory Account SRO-D = Dredging SRO-NRD = Natural Resources Damages CF = Conservation Fund



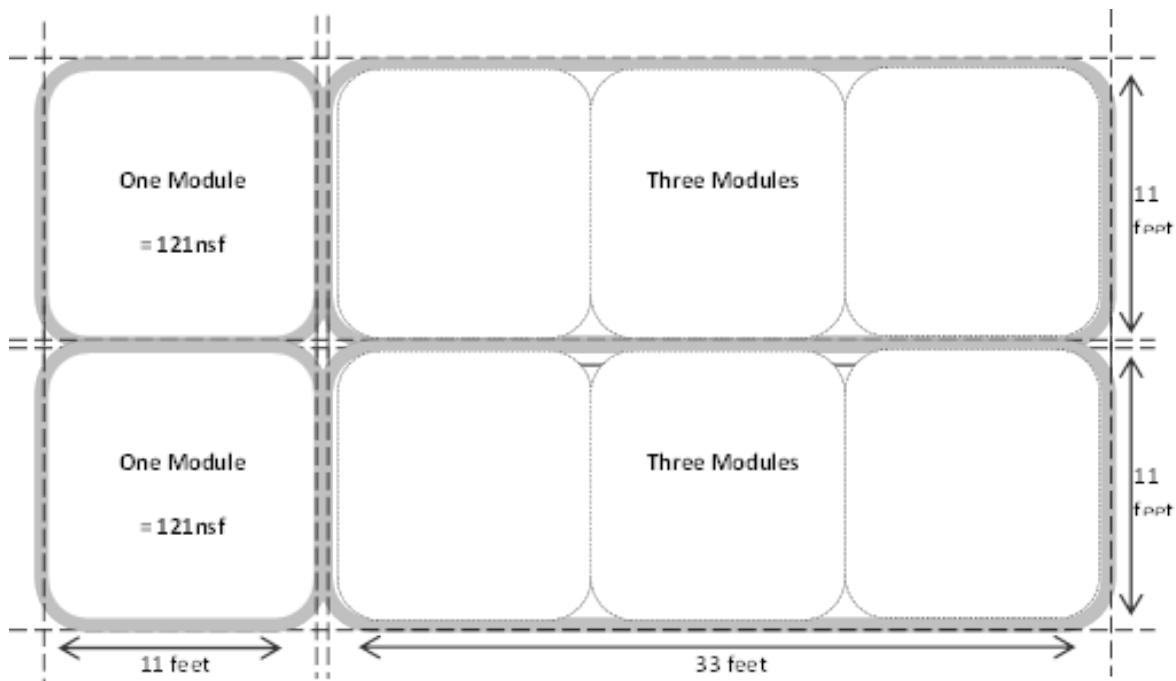
19 APPENDIX K - LAB CONSULTANT LAB LAYOUTS AND PRODUCT DATA

Note this lab information is based on increased staffing levels that were not approved for the final report. Further some spaces outlined below were deleted from the final program including the Molecular labs.

DASNY Shellfish Lab Design Narrative Modular Planning

Laboratory buildings are ideally organized by using a standard square foot area, or module, that accommodates multiple program requirements and works with the desired structural system on a building floor plate. The module length and width are sized to accommodate safe lab practices, metrics of casework, structural design and mechanical infrastructure. The module not only establishes a uniform grid for locating demising walls, columns, windows and other elements, but is also a tool for future expansion or contraction of labs without major building modifications. Essentially creating a set of building blocks ideally sized to fit together in any configuration.

Modular planning typically comes in many shapes and sizes from 10' x 10' to 12' x 12' including combinations in-between. The module can also be adjusted to work with existing conditions like a structural grid of 20' x 24'. It is also a very good planning tool, as in this case, to test the validity of a proposed program, develop a concept and generate a cost model. For this report, we are suggesting a module of 11'-0" x 11'-0" (121nsf) that would yield a structural bay of 22' x 33'. This planning module will work for all laboratories, support spaces, offices, and public use spaces that have been selected. This module was selected because it provides sufficient circulation space within the laboratories to accommodate the staff and the scientific methods of the laboratory. In the end we believe this approach enhances the opportunities for good laboratory design.

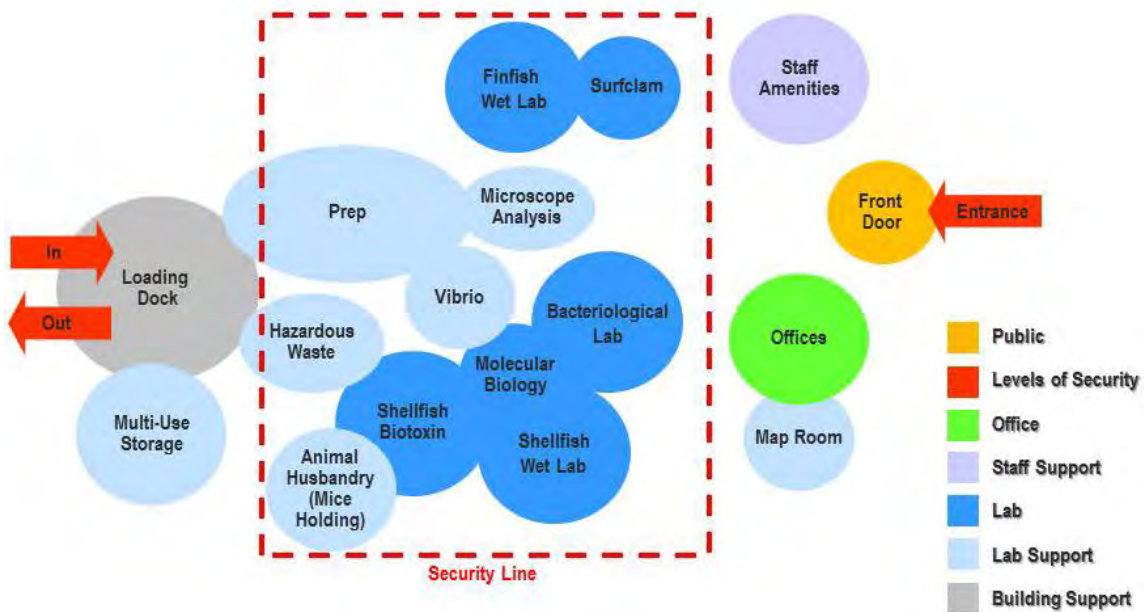


The sizes and performance characteristics of the laboratory spaces will be well-defined in the detailed programming phase following the acceptance of this report. The module size, of 121 net square feet, defined in the report, will also be carried through into the design development phase. Multiples of a single module will be linked together creating

larger spaces such as office suites, receiving areas, corridors and analytical testing laboratories. Even though laboratories will evolve in specific room configurations from this phase through the design phases; modular planning will allow the design team to preserve the amount of programmed square footage, space functions, and manage the project costs and schedule.

Utilizing this approach of modular planning allows for conceptual planning of the building to occur. This bubble diagram provides a start to address the conceptual planning ideas while illustrating the critical adjacencies between the functional spaces. The proposed concept of the flow goes something like: New samples come in through the loading dock, are received and some preliminary accessioning occurs, then the sample could go on to the lab for further accessioning or to temporary storage until the lab is ready to receive it. Once in the proper lab the sample is inventoried & tagged for processing through the scientific methods within the lab, with access to general lab support to assist in the sample process and access to specialized support to assist in the analysis. Provide proximity to office and office support to meet the needs of the staff.

Adjacency Diagram



The individual space planning sheet, produced using the planning module, can be configured in a concept plan allowing for both a design solution and maintaining the critical adjacencies.

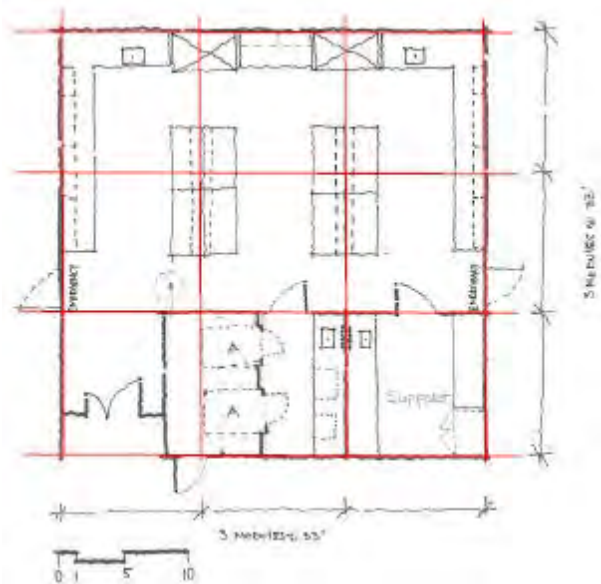
Laboratory benches and equipment should be organized along planning modules, either parallel or perpendicular to the grid lines. Utility distribution should accommodate uniform management of electrical and piped utilities at the ceiling plane for utility drops or connections along the grid. The goal is to design a highly flexible and adaptable laboratory area for future changes in the agency's priorities, processes, and equipment. Building occupants often arrange movable equipment and flexible work stations to meet

their current needs, thus access to standardized electrical, voice and data outlets should be universal.

Laboratory environments should be provided with safe and adequate access and egress, consistent with applicable building codes and good laboratory safety practices. To promote good personal hygiene and contamination controls, staff should enter and exit through lab entry doors located along the corridor, equipped with hand-wash sink, lab coat rack, and other personal protective equipment (ppe).

Laboratory staff should circulate in and between laboratories and laboratory support spaces through main internal aisles (ghost corridors) that connect to specialized space. This allows the staff to move hazardous materials and product from space to space within each functional unit and allows for the secure transfer of evidence within secured spaces.

The following planning strategies have been utilized for this project and are illustrated in the individual space planning sheets. Windows are indicated in plan at the exterior to allow natural light into certain laboratory areas. There is a rhythm to the windows and exterior walls to allow for fixed casework along the exterior wall with fume hoods and sinks in between the windows. The interior walls that are perpendicular to the exterior wall are of standard drywall construction with fixed casework. This wall also has a door opening in it allowing for lab to lab connection via a ghost corridor path of travel. The next interior wall runs parallel to the exterior wall and intersects the other interior walls. This dimension of two modules deep and varying module quantities wide, defines the main lab space and is adjacent to lab support space and then to the corridor.

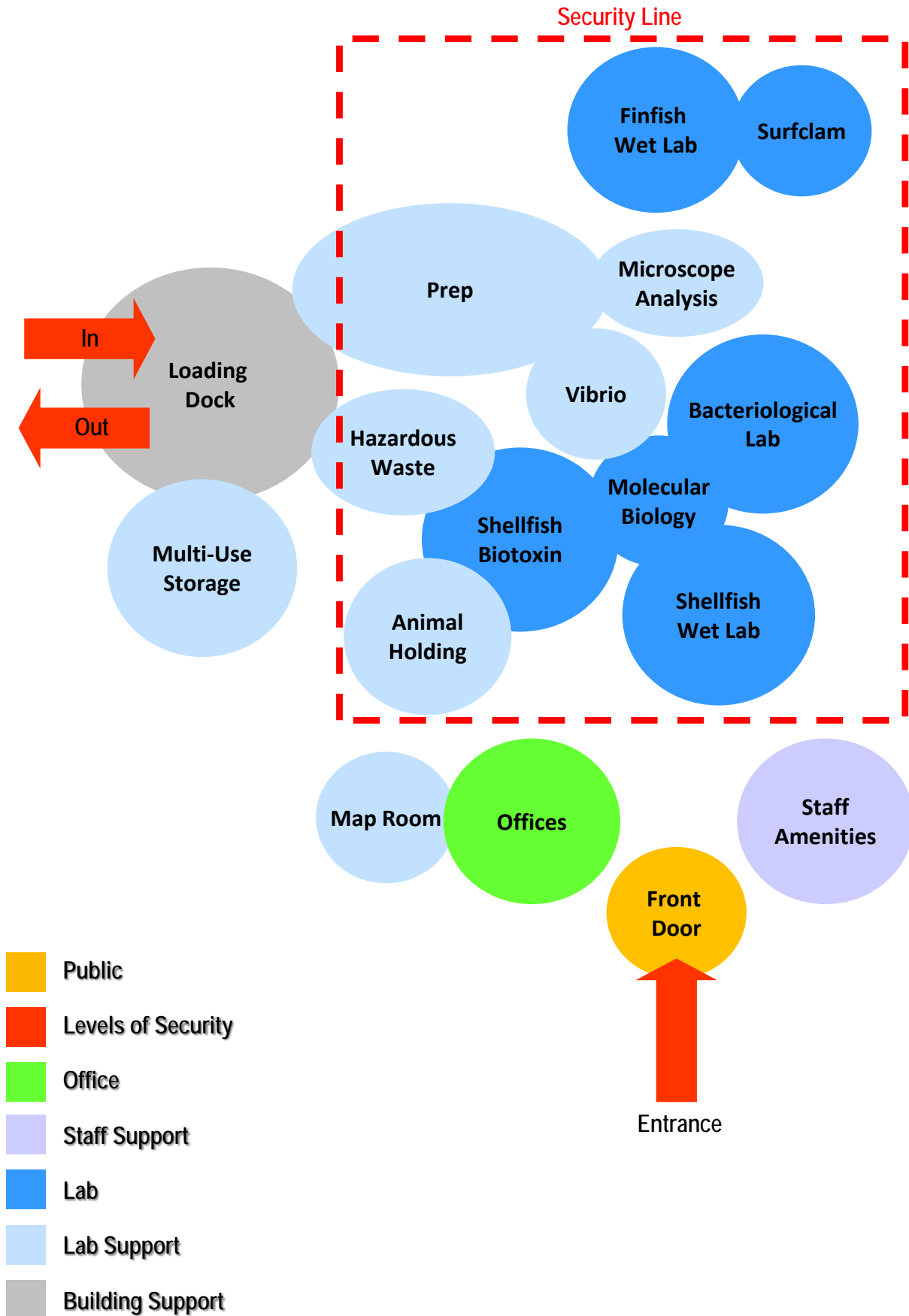


Supporting the main lab space is the lab support space of one module deep and varying module quantities wide, and is located between the main lab and the corridor. Demising walls may fall on the module line or may not to help facilitate the function of the space. This zone allows for access into the main lab from the corridor.

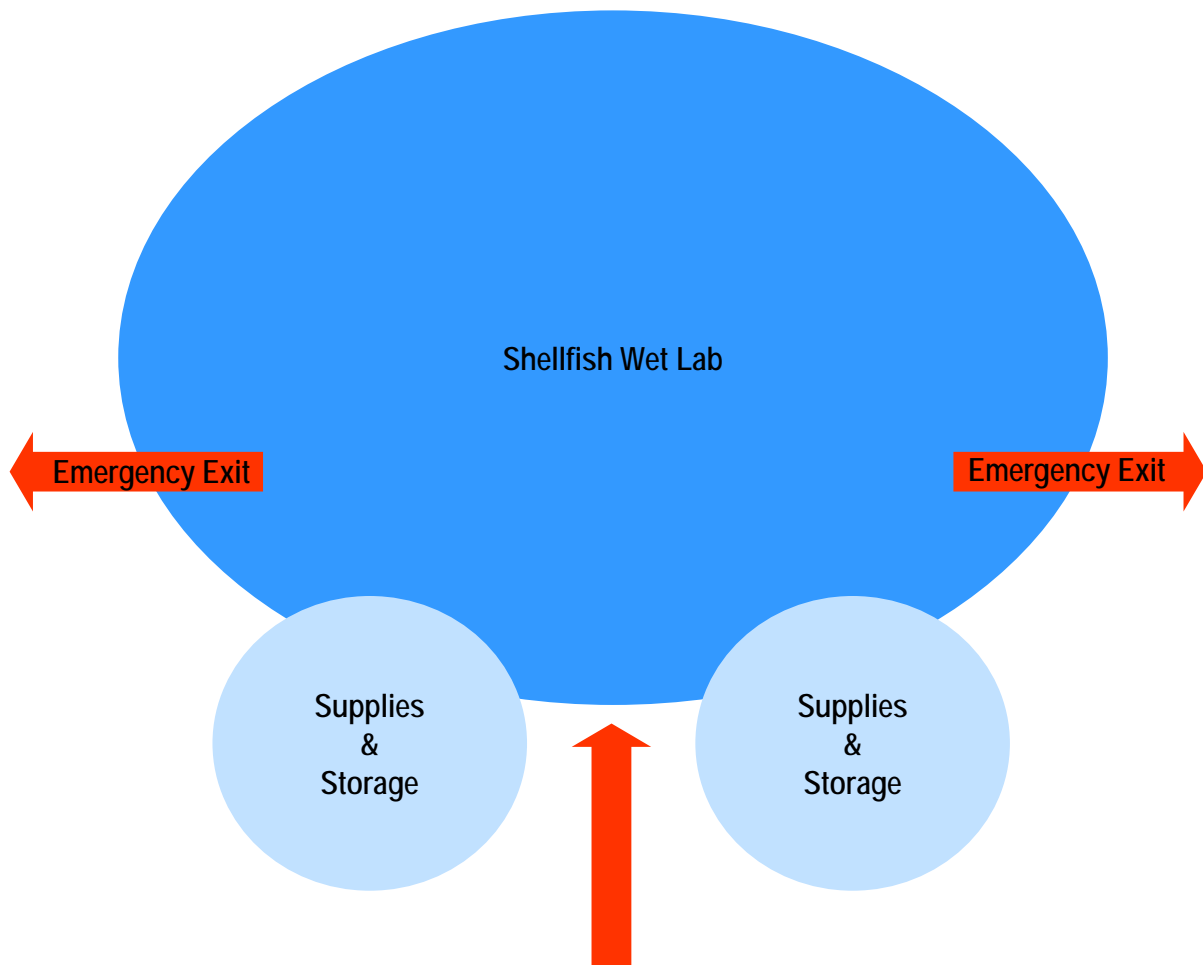
Laboratory & Lab Support Space

- Fixed perimeter wood base cabinets (50% drawers, 40% cupboards + 10% knee openings), 75% wood framed glass wall cabinets and 25% adjustable metal wall mounted shelving
- Steel construction (5'-0" typical width) chemical fume hood with poly resin interior lining including steel constructed acid (ventilated) and flammable storage cabinets.
- Epoxy resin countertops, backsplash and side splash with a drop-in single bowl poly resin lab sink with hot & cold water mixing fixture including deionized water fixture
- Stainless steel countertops, backsplash and side splash with an integral single bowl stainless steel lab sink hot & cold water hose spray mixing fixture including deionized water fixture and drain board
- Overhead service carriers are steel construction suspended over island benches fitted out with electrical, data, services, task lights and snorkels
- Movable island benches (tables) of steel construction and adjustable in height with under counter wood base cabinets on casters (50% drawers, 40% cupboards + 10% knee openings), 100% adjustable metal shelving mounted on vertical uprights
- Interior lab walls drywall to structure, paint, applied vinyl base with interior windows between occupied space and corridor
- Lab doors are hollow metal door & frame, 3'-0" active leaf with vision panel and lever hardware & 1'-0" inactive leaf w/ top & bottom locking pins
- VCT floor finish
- Ceiling construction is 2x4 lay-in suspended acoustical ceiling tile with reflective properties at 10'-6" above finished floor
- Pendant mounted direct / in-direct light fixtures
- Safety showers, eye/face-washes and drench hoses are required to meet the ANSI Z358.1 requirement and must be certified. Eye/face wash and drench hose are available in deck or wall-mounted styles. Recessed emergency body showers will be installed throughout the lab areas, some of which will be the combination unit with eyewash to meet accessibility requirements and located along the path of egress, near the exit door
- Health Emergency Lab Panels (HELP) will also be installed next to the recessed Emergency Shower & Eyewash combination units. These are centrally located recessed panels equipped with fire extinguishers, safety blankets, MSDS manuals and safety goggles
- Electrical & data devices are built into the extruded aluminum raceway at the perimeter laboratory furniture located just above the backsplash
- Equipment needs are identified on the individual design sheets

Adjacency Diagram

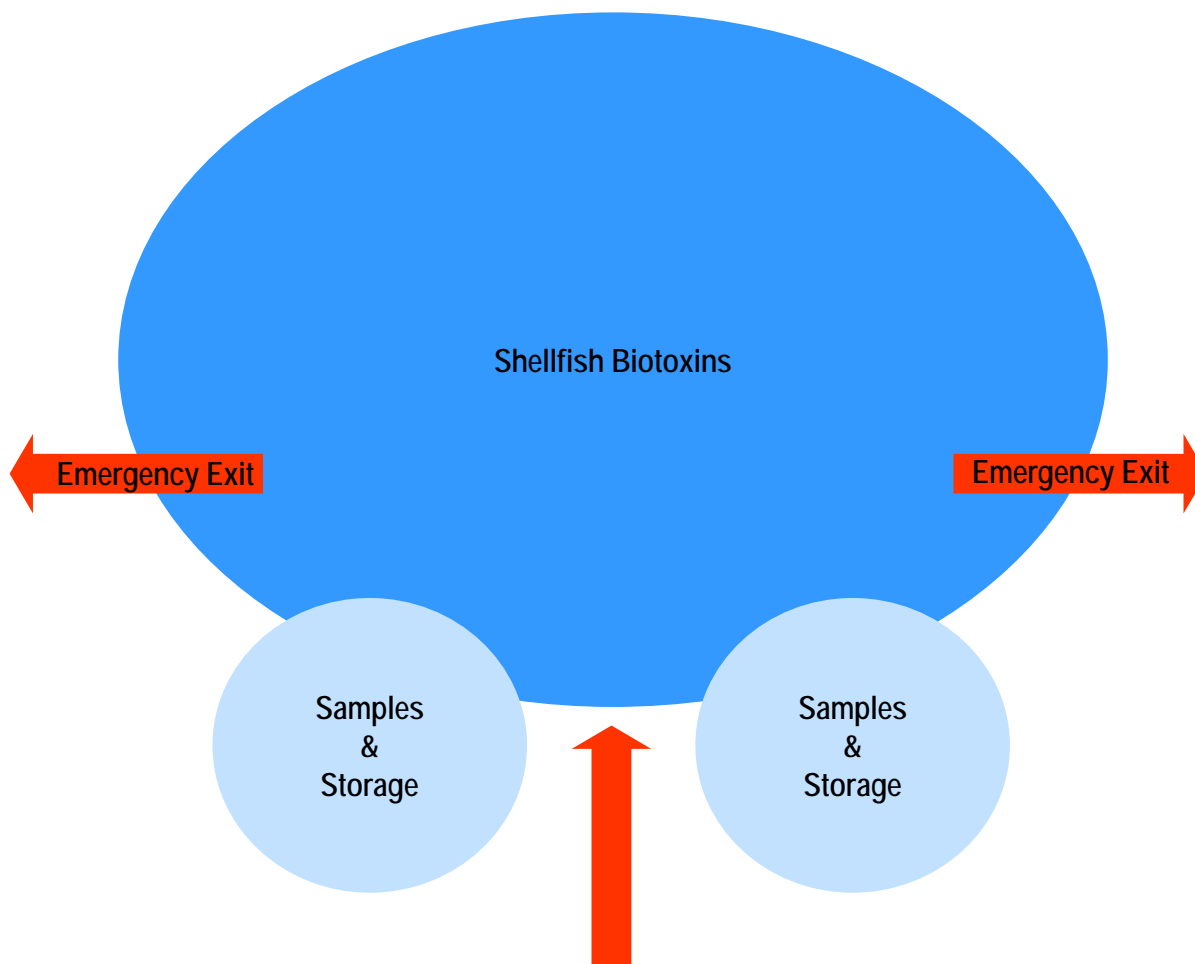


Shellfish Wet Lab



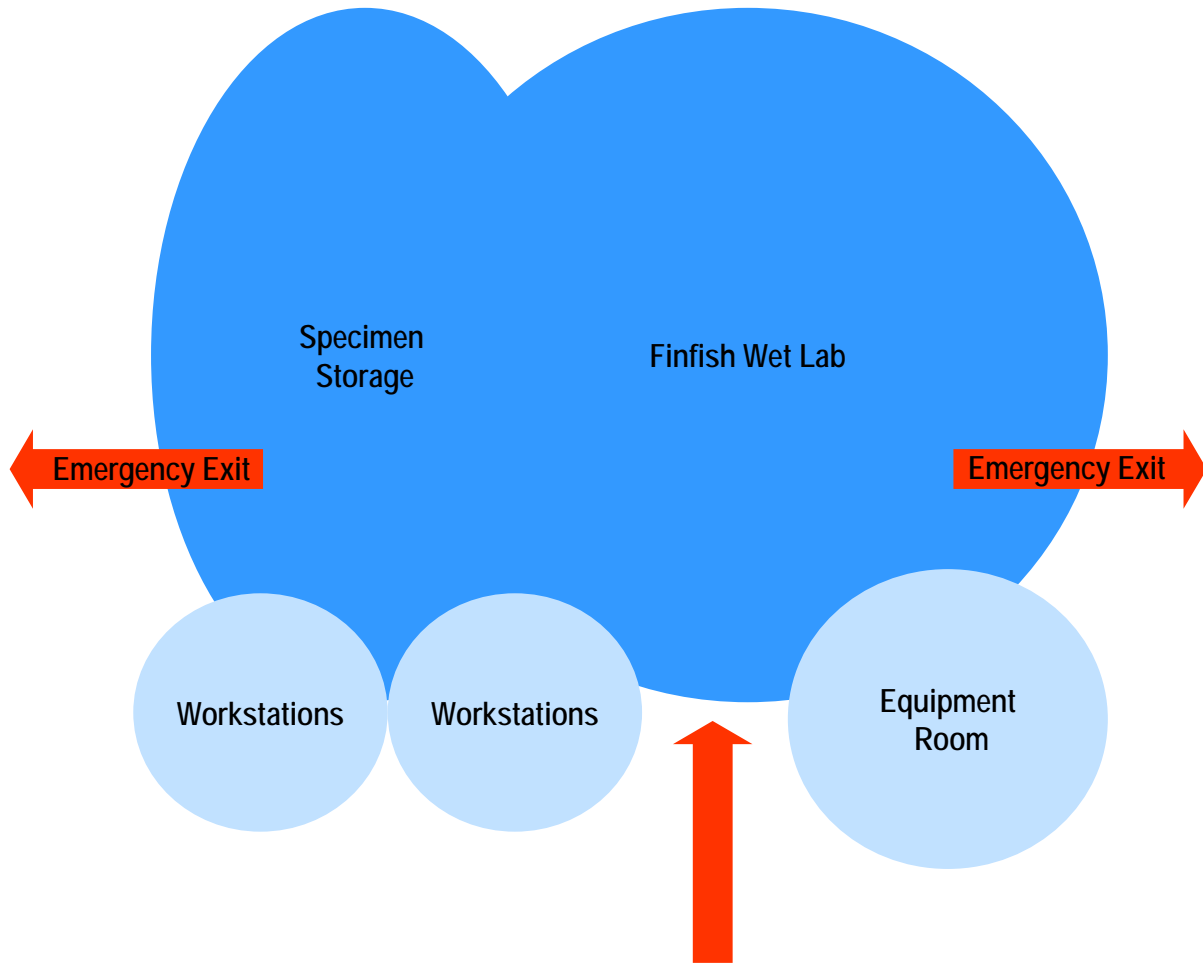
- Public
- Levels of Security
- Office
- Staff Support
- Lab
- Lab Support
- Building Support

Shellfish Biotoxins



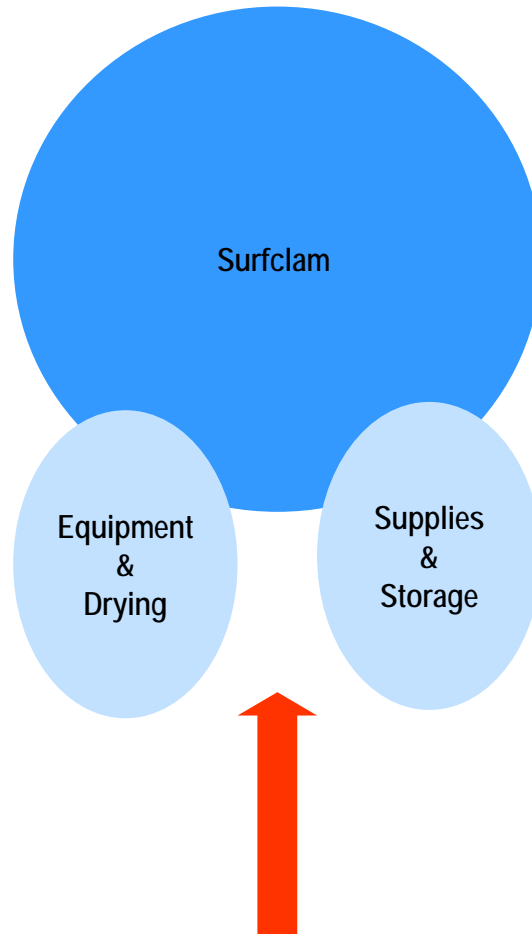
- Public
- Levels of Security
- Office
- Staff Support
- Lab
- Lab Support
- Building Support

Finfish Wet Lab



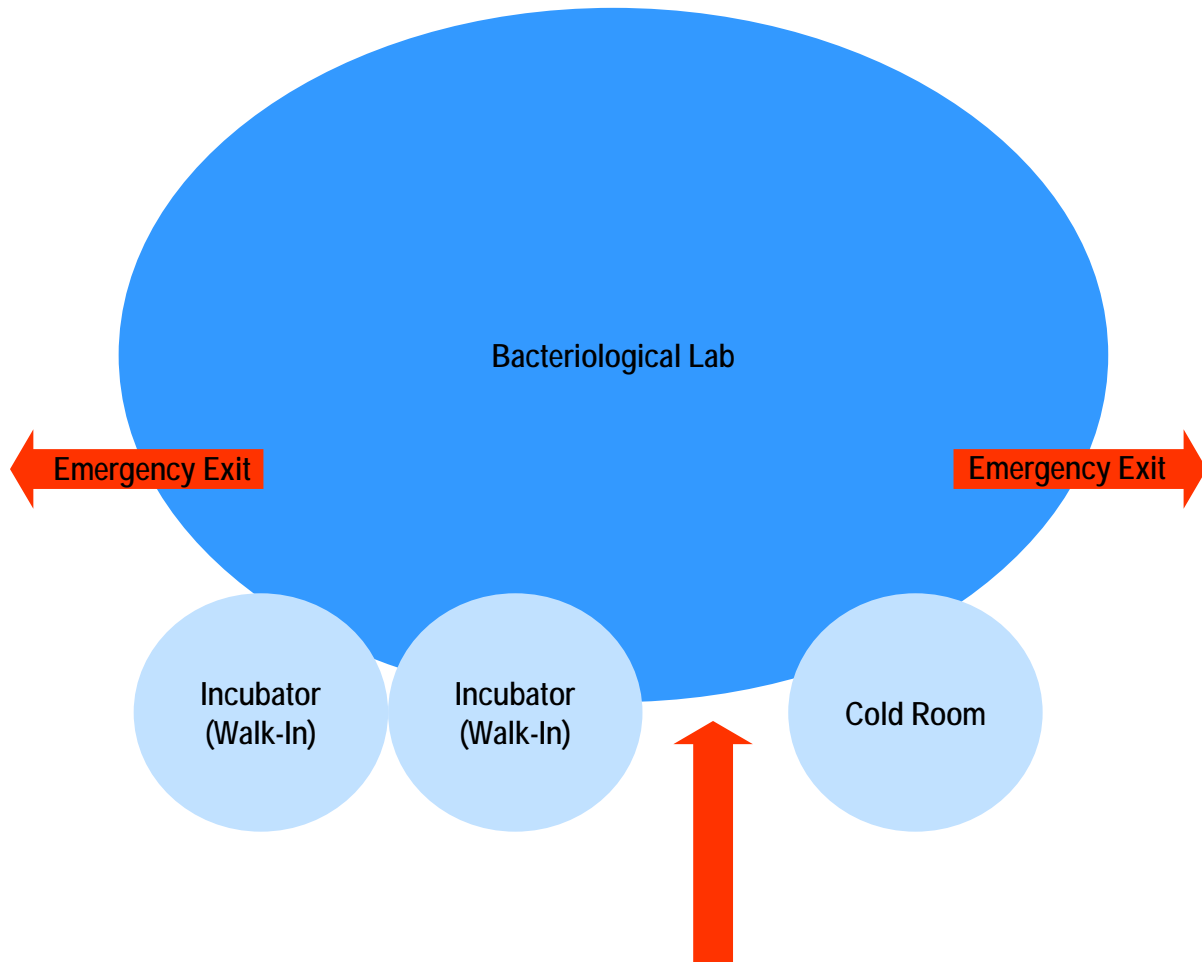
- Public
- Levels of Security
- Office
- Staff Support
- Lab
- Lab Support
- Building Support

Surfclam



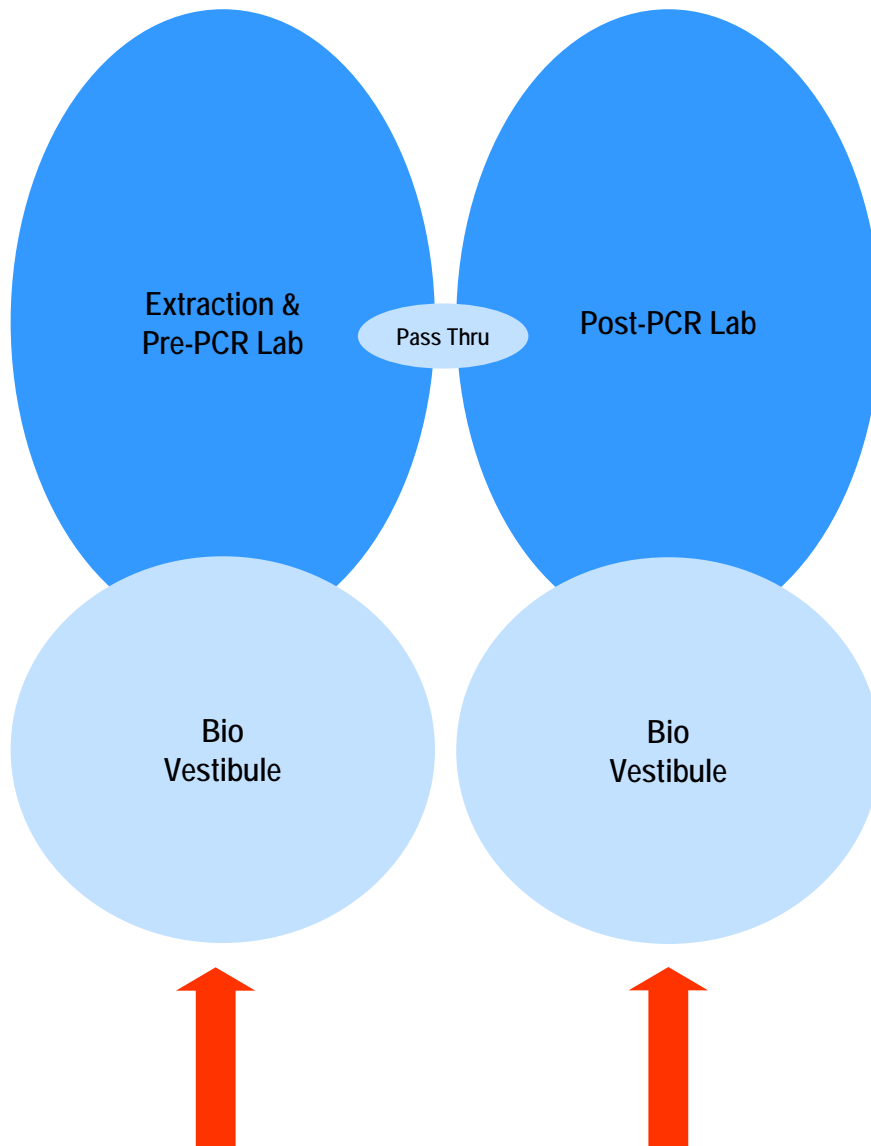
-  Public
-  **Levels of Security**
-  Office
-  Staff Support
-  **Lab**
-  **Lab Support**
-  Building Support

Bacteriological Lab



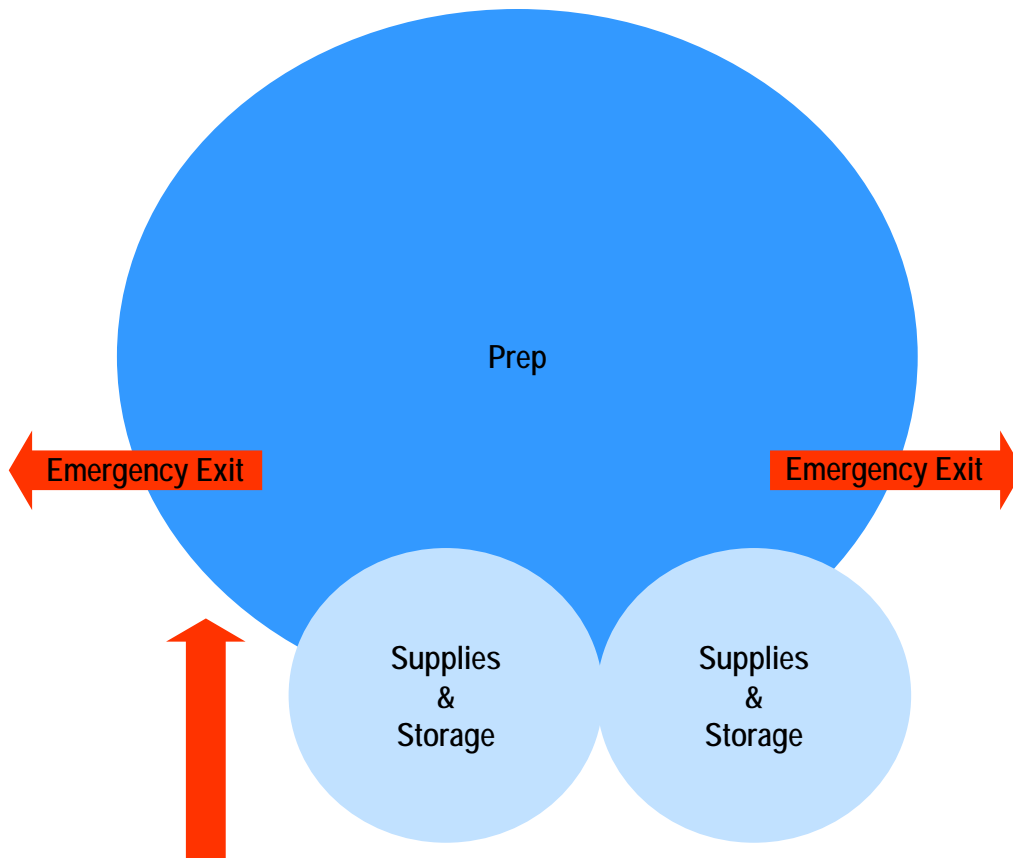
- Public
- Levels of Security
- Office
- Staff Support
- Lab
- Lab Support
- Building Support

Molecular Biology



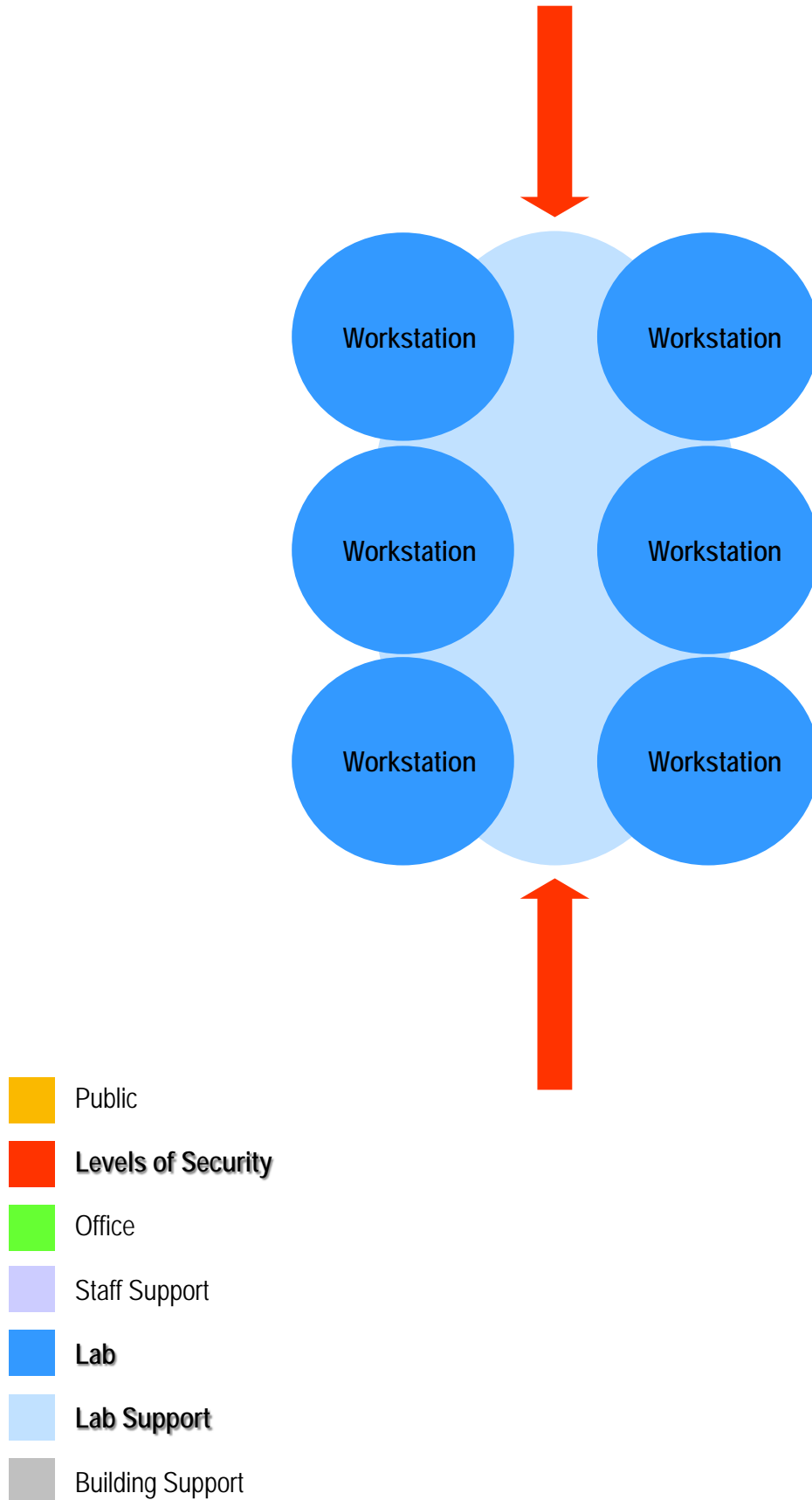
- Public
- Levels of Security
- Office
- Staff Support
- Lab
- Lab Support
- Building Support

Prep

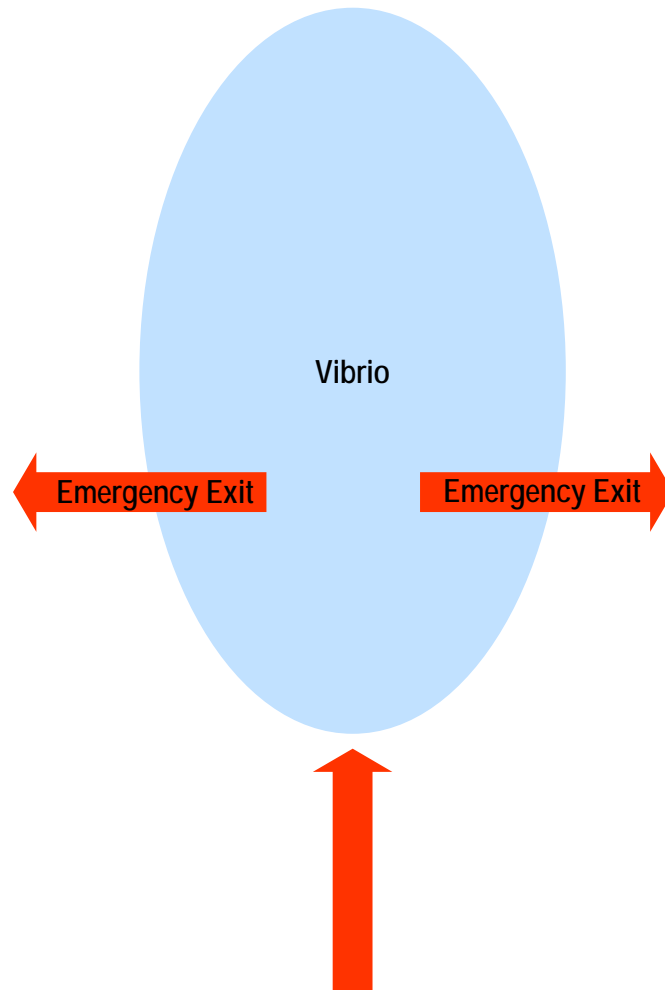


- Public
- Levels of Security
- Office
- Staff Support
- Lab
- Lab Support
- Building Support

Microscope Analysis

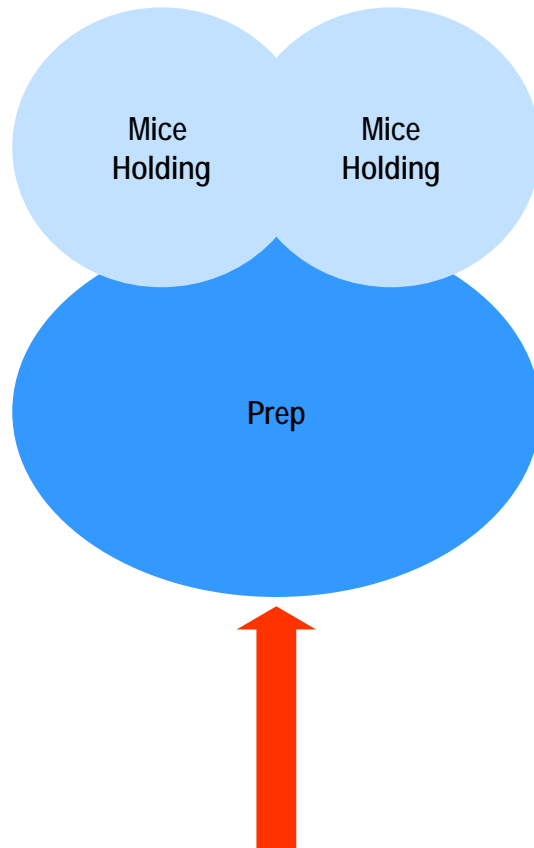



Vibrio



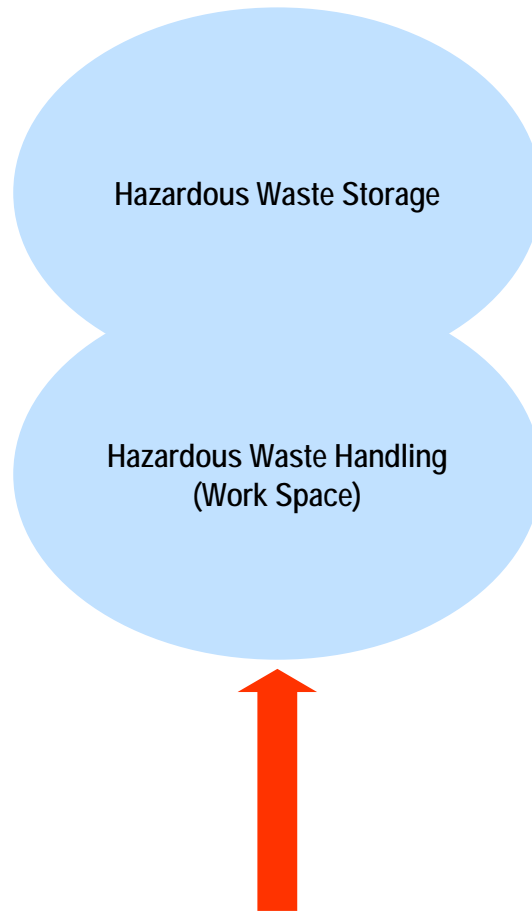
- Public
- Levels of Security**
- Office
- Staff Support
- Lab
- Lab Support
- Building Support

Animal Holding



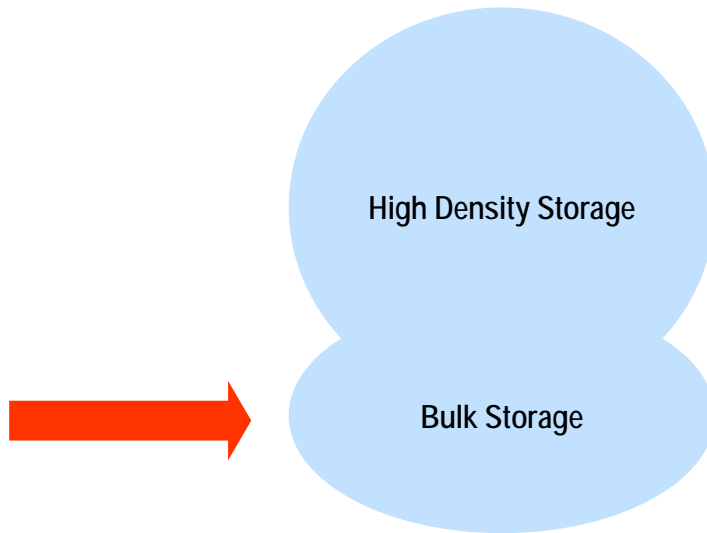
-  Public
-  **Levels of Security**
-  Office
-  Staff Support
-  **Lab**
-  **Lab Support**
-  Building Support


Hazardous Waste



-  Public
-  **Levels of Security**
-  Office
-  Staff Support
-  **Lab**
-  **Lab Support**
-  Building Support

Multi-Use Storage



-  Public
-  **Levels of Security**
-  Office
-  Staff Support
-  **Lab**
-  **Lab Support**
-  Building Support

Shellfish Wet Lab – (12) Modules / 1,452 Sq.Ft.

6 Staff Members

Description

The **Shellfish Wet Lab** is the initial processing space for incoming specimens. Sinks and floor drainage for shucking and processing large volumes of shellfish will be provided, with workspace to accommodate 6 full time staff. Direct or near access to the cold room is required, along with emergency access to the water main. Storage space for coolers, sample bottles and other supplies will be included, as well as infrastructure to support an ice machine.

Equipment

- | | | |
|---------------------------|---------------------------------|-----------------------------|
| -Ice machine | -Small Vacuum (2) | -Metal Cab – Locked RT Cult |
| -Fume Hoods (2) | -Mop/Bucket/Wet floor sign (6) | -Metal Rack– Samplebaskets |
| -Acid/Flammable Cab (2) | -Drench hose (2) | -File Cabinet– Large (2) |
| -Eyewash / Safety Shower | -Mats (2) | -Lab Coat Rack |
| -Vortex Mixer | -Shredder (2) | -Trash Cans (8) |
| -Balance | -QC eraser board | -Metal Carts (9) |
| -Temperature Monitors (8) | -Halogen lamps (6) | -Step Stool |
| -Metal Storage Cabs (6) | -APC Back-ups (8) | -Shredder |
| -Sample storage racks (6) | -Small Incubator/Stand | |
| -Coat racks | -Blender Base | |
| -Sample board (2) | -Storage Cabinets 3’x2’x7’T (9) | |

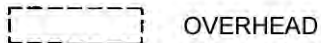
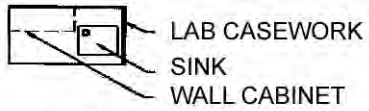
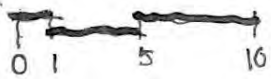
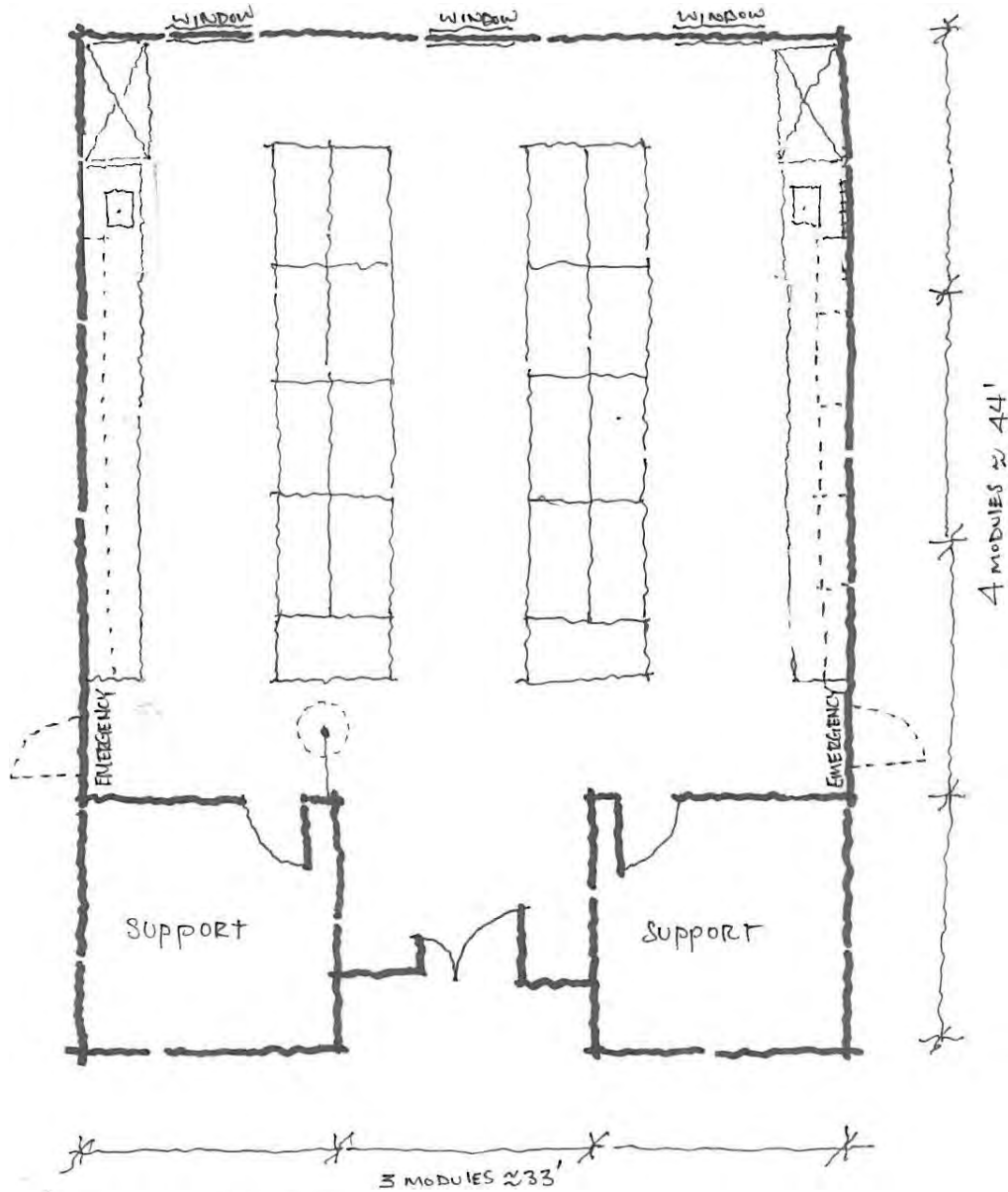
Room Visualization



Typical Laboratory Space Configuration

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Shellfish Biotoxins – (12) Modules / 1,452 Sq.Ft.

6 Staff Members (February to November)

Description

The **Biotoxins Lab** features bench space for 6 employees, equipment, and storage cabinets. Additional space is provided for storage rooms, as well as an extraction area with sinks, floor drains and a fume hood. Fume hoods and exhaust system must meet specific requirements. Gas Supply is required.

Equip

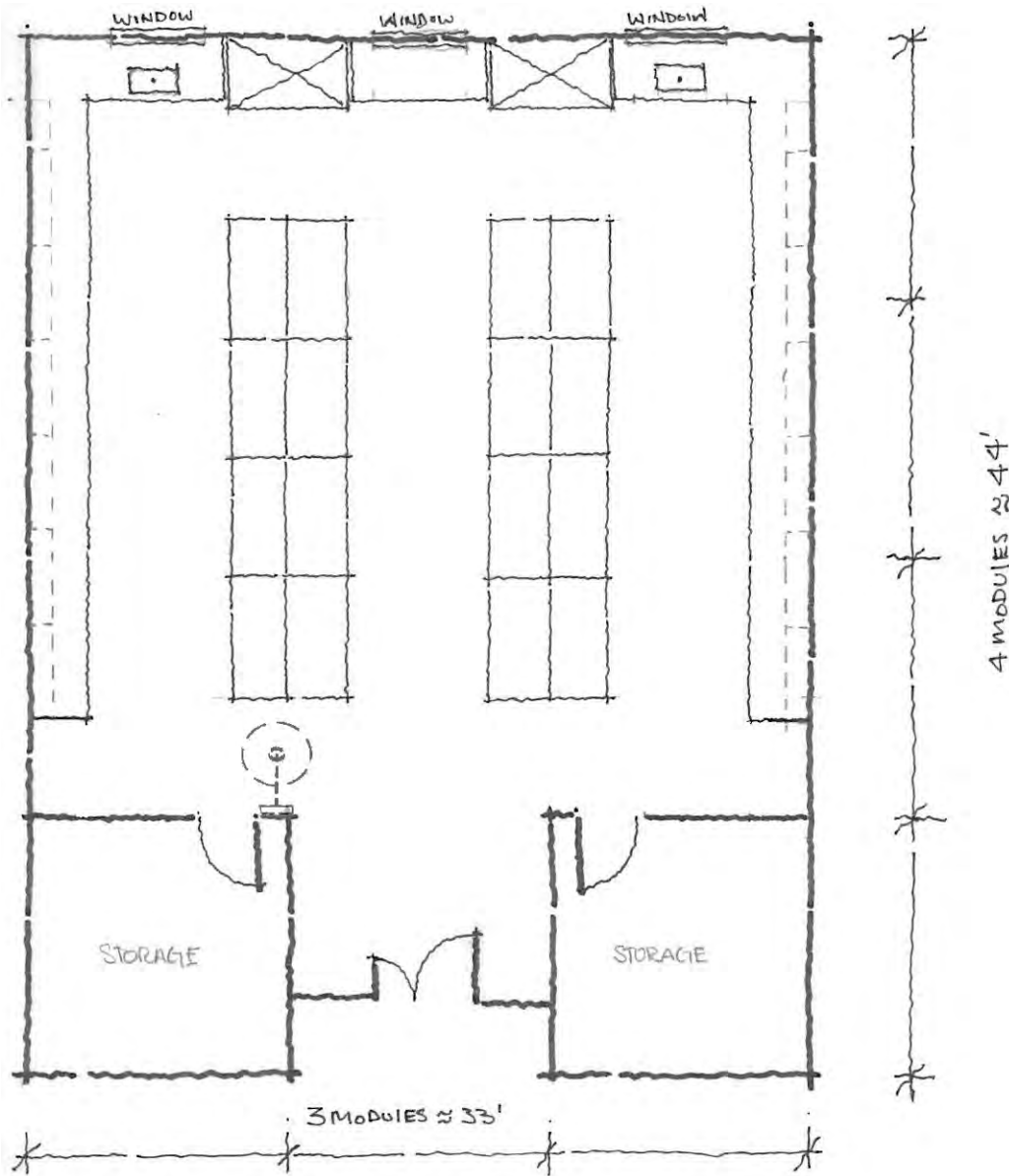
- Balances (6)
- Centrifuges (2)
- Stir plates (6)
- Fume Hood (2)
- FH Exhaust (2)
- Acid / Flammables Cabinet (2)
- Eye Wash / Safety Shower (1)

Room Visualization



Typical Laboratory Space Configuration

Room Diagram



This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Finfish Wet Lab – (12) Modules / 1,452 Sq.Ft.

8 Staff Members

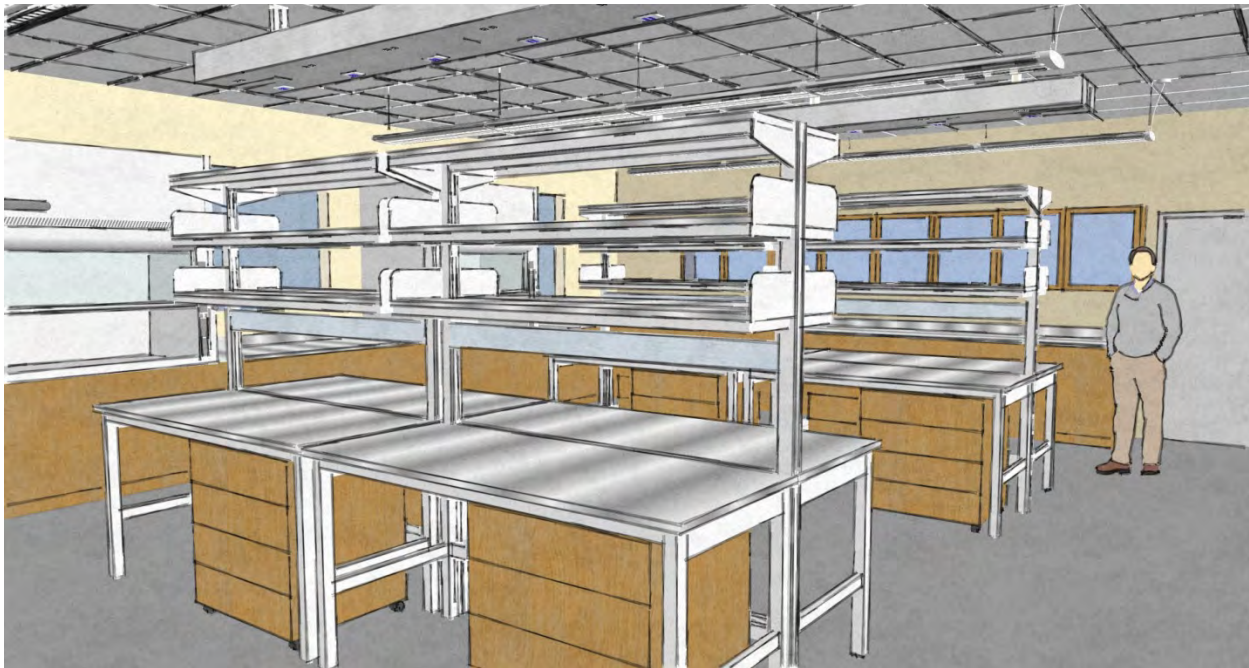
Description

The **Finfish Wet Lab** includes work stations for up to 8 microscopes, 7 balances, separate bench space for other analytical equipment, 2 “wet bench” stations with large sinks for fish processing, a long bench for specimen processing, floor space for various equipment and storage space for various supplies and equipment. A separate processing space is needed for large fish (up to 7’ in length). Storage space is required to accommodate at least 10- 60-quart coolers/totes and 20 5-gallon buckets, with specialty storage is included for acids/flammables. Additional closet style storage for supplies, field gear and ppe. The lab requires sufficient ventilation to control fish smells from spreading to other spaces.

Equipment

-Horizontal -70°C Freezer (2)	-Table-top oven (2)	-Carver presses (2)
-Stand-Up -20°C Freezer	-50-60 quart ice chests (10)	-Table top saws
-Refrigerator	-5-gallon buckets (20)	-Benchtop vise
-Ice Machine	-Large garbage style pails (5)	
-Fume Hood (2)	-Microscopes (8)	
-Eye Wash / Emergency Shower	-Balances (7)	
-Flammable/Acid Storage Cab (2)	-Microfiche scale readers (2)	

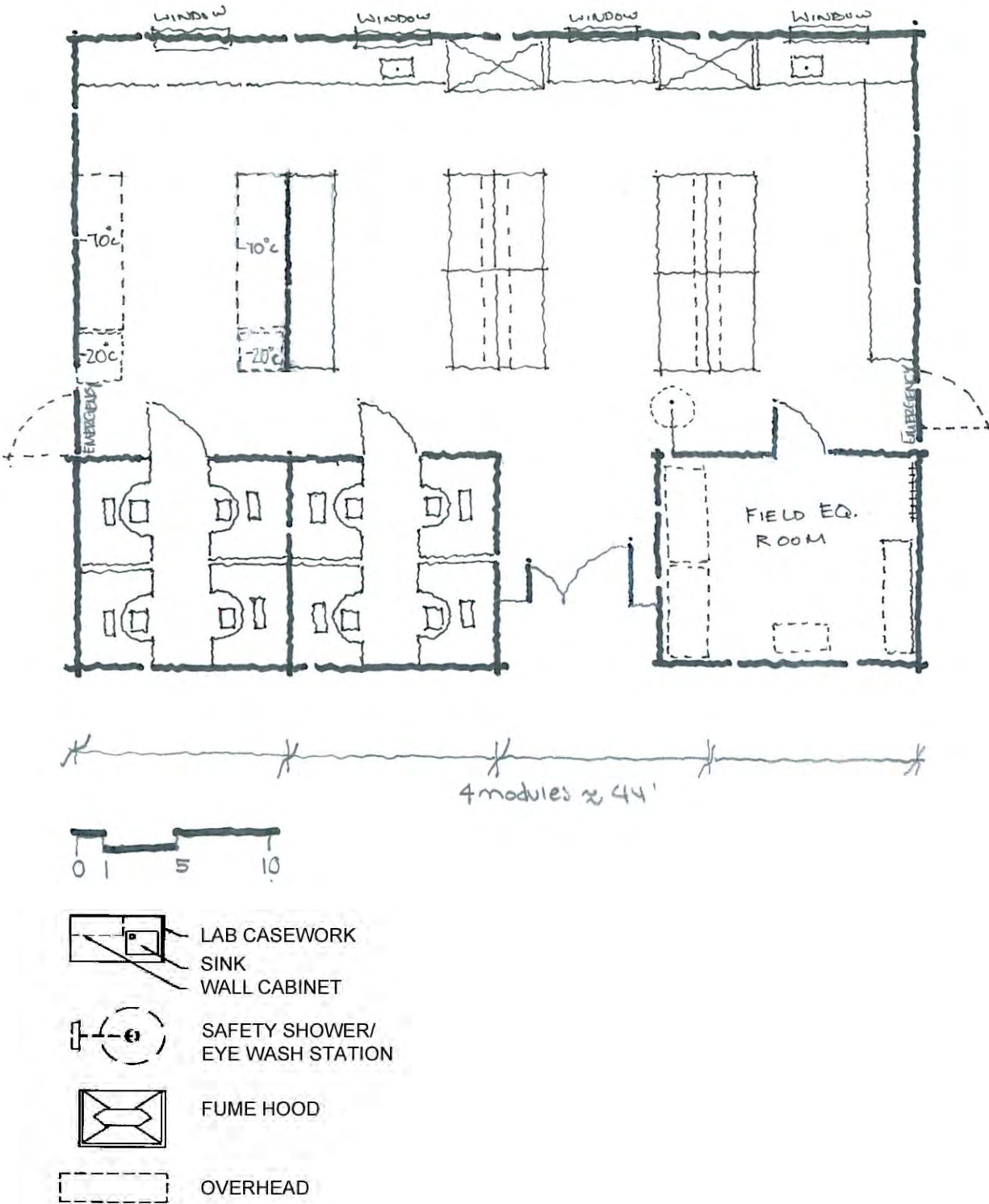
Room Visualization



Typical Laboratory Space Configuration

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Surfclam – (6) Modules / 726 Sq.Ft.

Description

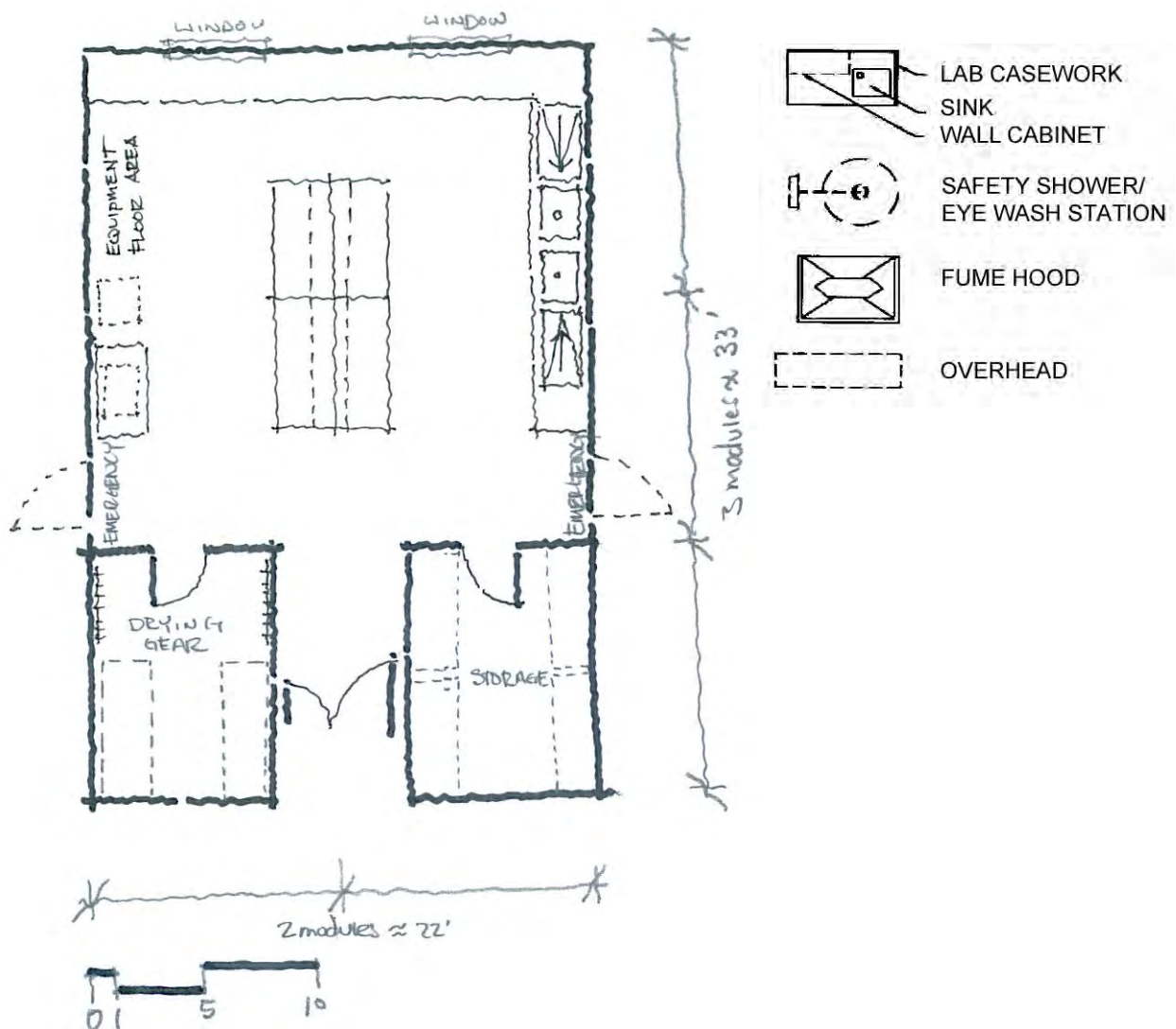
The **Surfclam** space contains all processes related to processing and storing clam specimens from field surveys. Processing space will include a large table for drying and labeling clams, bench space for ageing (which includes space for a saw and a microscope), and a wet bench with a large work sink for cleaning specimens and gear. Storage space is required to contain clam specimens in freezers, as well as various processing equipment and supplies, and field gear and supplies, including a drying area for gloves and other gear.

Equipment

-Table top saw (clam cutting)	-Microscope	-3'-4' Racks (4)
-Ice Machine	-Equipment drying cabinet (2)	

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Bacteriological Lab – (12) Modules / 1,452 Sq.Ft.

6 Staff Members

Description

The **Bacteriological lab** accommodates a minimum of 6 year-round employees at bench stations, analyzing bacteria content of specimen samples. In addition to the workstations, a station is allocated to receipt and processing of samples entering the lab, with additional bench space for equipment. Also required are two walk-in incubators, each measuring one module, and a cold room totalling two modules. The cold room will require precise yet easily adjustable temperature controls. Services include potable water sinks, floor drains, gas supply system (which includes service to Prep Room, Fume Hoods and Sanitation Water Room). Dedicated ventilation system, with thermostat and fan controlled by lab employees. Equipment ambient temperature requirements observed.

Equipment

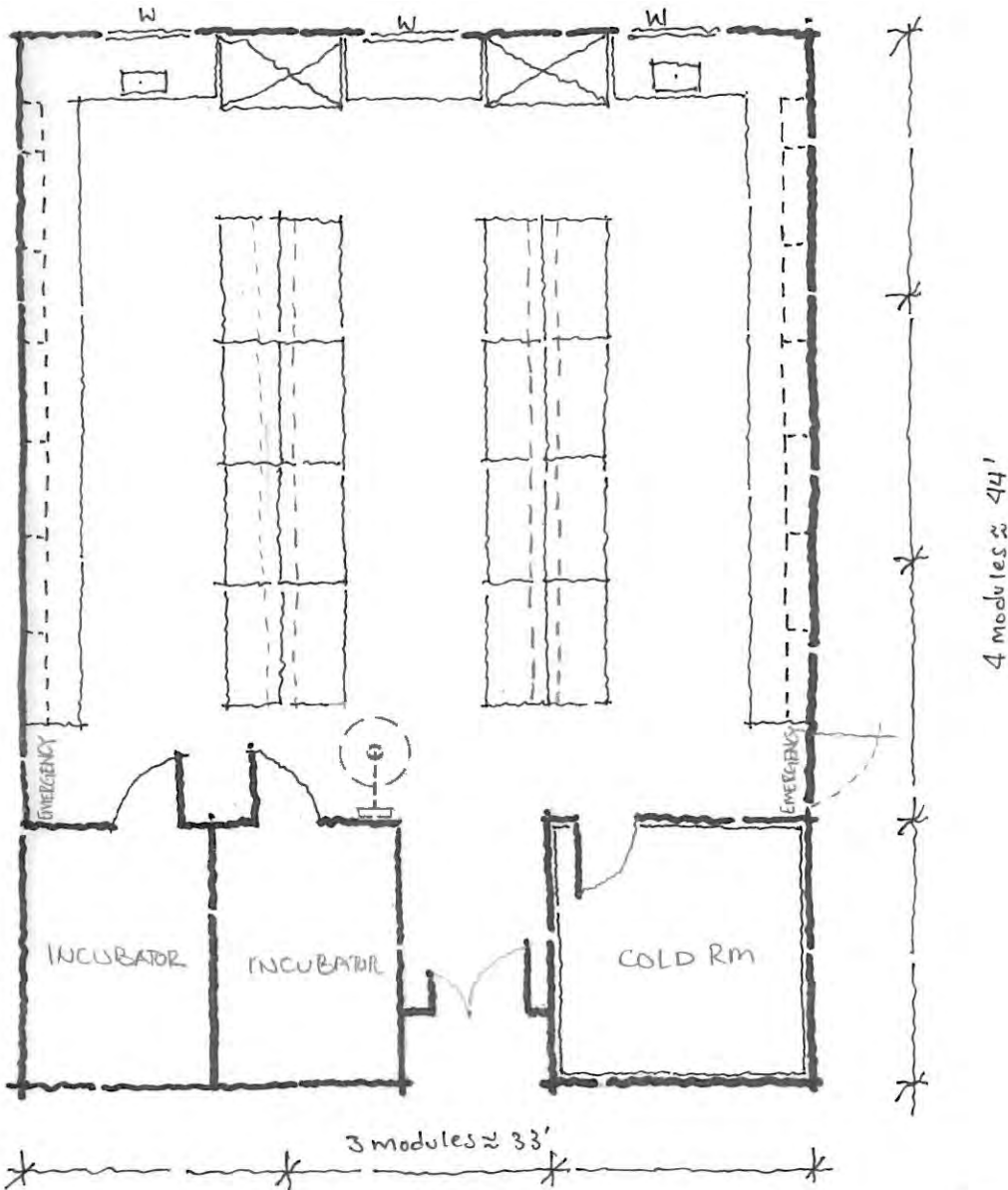
- Walk-in Incubators (2)
- Walk-in Cold Room
- Water baths 44.5°C (9)
- Colony Counter
- Stainless Steel Racks (11)
- Incubator Temp Monitor (2)
- Flammable Cabinet (2)
- Flammable Cab. Exhaust Fan (2)
- Fume Hood (2)
- Eye Wash / Safety Shower

Room Visualization

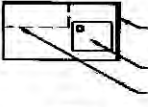
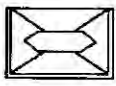



Typical Laboratory Space Configuration

Room Diagram



This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.

-  LAB CASEWORK
SINK
WALL CABINET
-  SAFETY SHOWER/
EYE WASH STATION
-  FUME HOOD
-  OVERHEAD

Molecular Biology – (4) Modules / 484 Sq.Ft.

2 Staff Members

Description

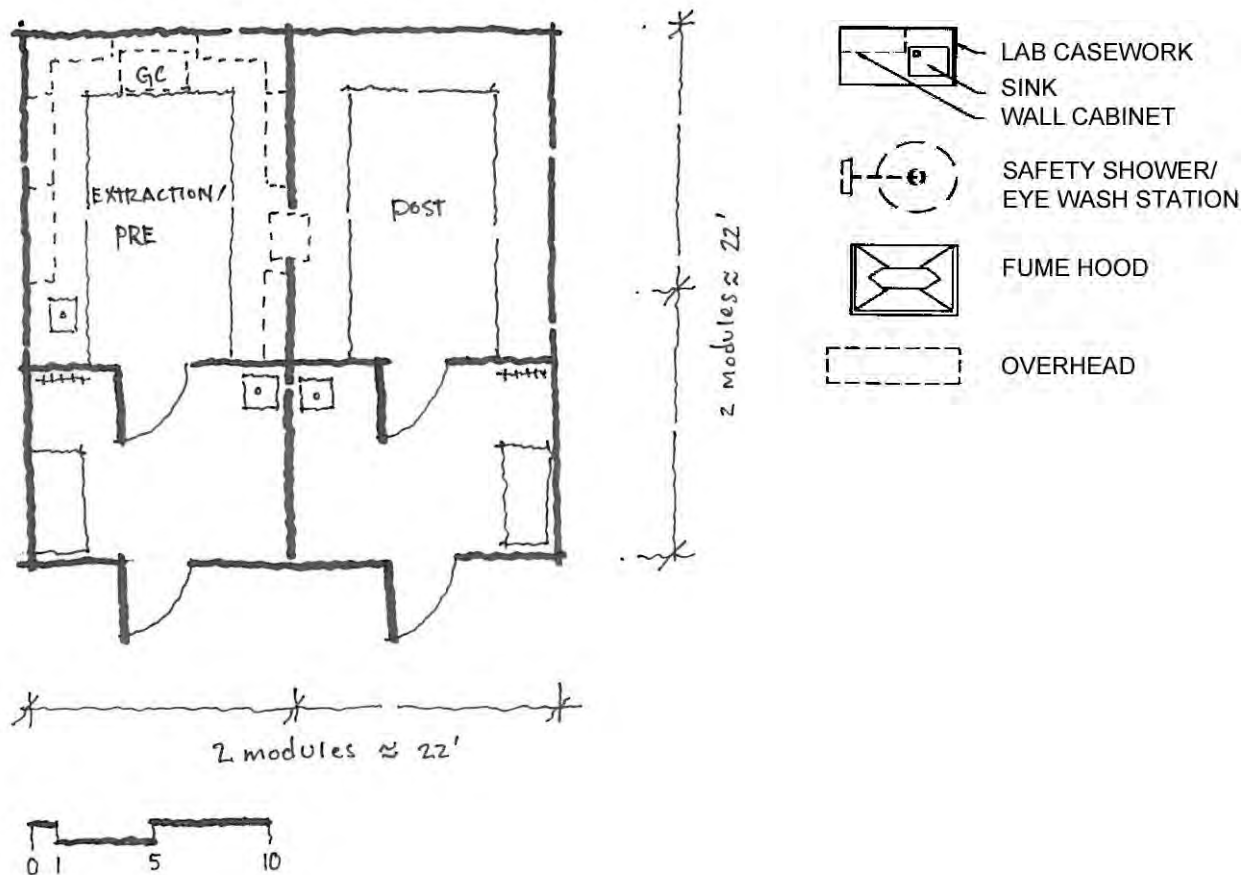
The **Molecular Biology lab** is split into two spaces, Pre-PCR and Post-PCR. In addition to bench space and prep space for 2 full time staff members, the lab will house specialized equipment, including Laser Chromatograph, Mass Spectrometer, and Gas Chromatograph, as well as other PCR equipment. Sinks and floor drains are required.

Equipment

- Laser Chromatograph
- Mass Spectrometer
- Gas Chromatograph
- PCR Thermal Cyclers (2)

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Prep – (9) Modules / 1,089 Sq.Ft.

4 Staff Members

Description

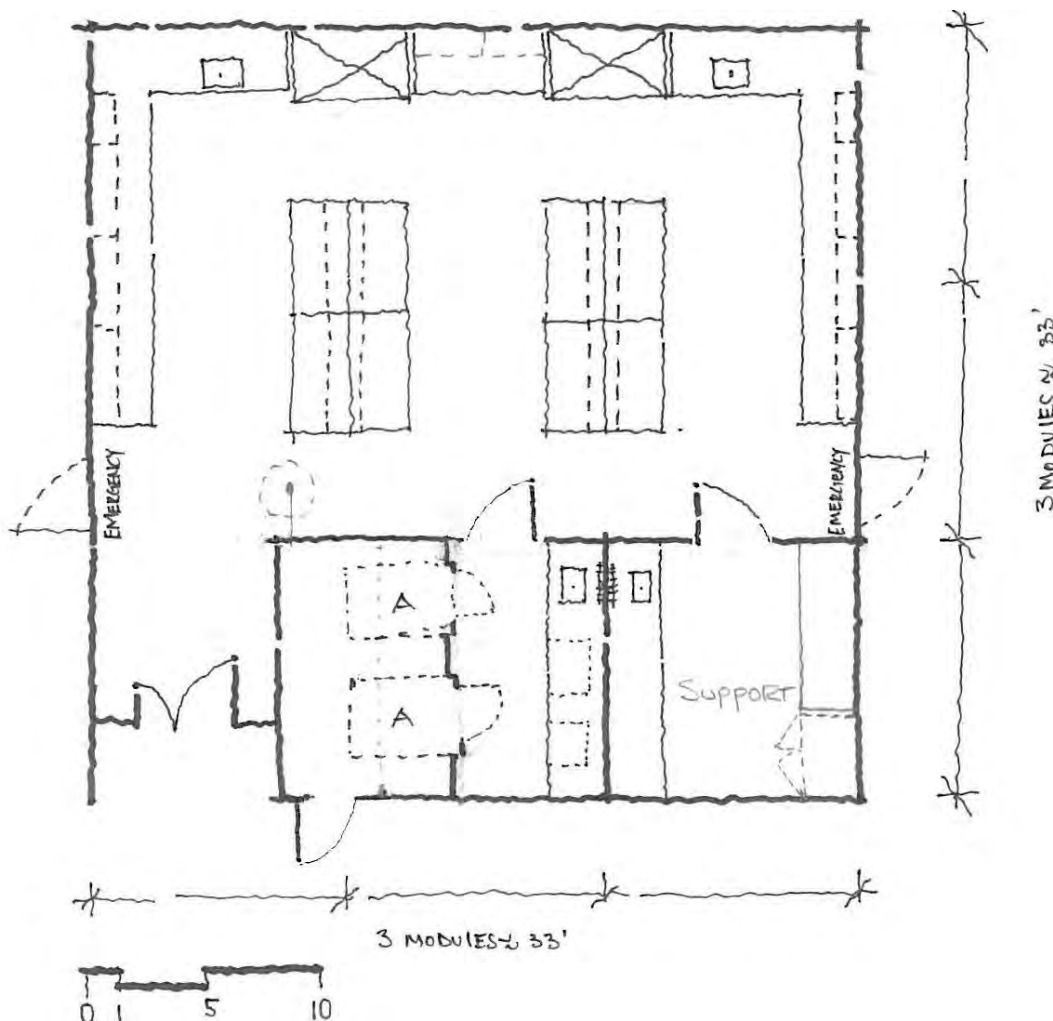
The **Prep** space serves multiple labs, with systems including: Laboratory and glasswash water systems, with filtration for both DI and Distilled water. Exhaust system to remove excess moisture and heat. Gas supply system. Autoclaves with exhaust system. Fume hood with exhaust system. Standard epoxy resin counter tops. Sinks and floor drains.

Equipment

-Dry heat oven	-PH meter	-Acid/Flammable Cab (2)	-Conductivity meter	-Stool
-Stir plates	-Glassware washer	-DI Filter Canisters (2)	-Autoclaves (2)	-Under Ctr Light
-Sterilizer (121C)	-Fume Hood (2)	-Auto Pipettor Machine (3)	-Eye Wash / SS	-Magnify Lamp
-Centrifuge (Ref)	-Water Bath	-Hot Plates (8)	-Blender Base	-Fan (Free Stand)
-Fluorometer	-Gas Burner System	-Double Sink & Drain Bd	-Peg Drying Rack (2)	-Mat
-Drench Hose	-Tall Storage Cabinet	-Mop/Bucket/Wet Sign	-Plastic Cart	-Lab Bench 11'x30"
-Overhead Glass Front Cabinets, 35' x 12" x 30"		- Overhead Glass Front Cabinets, 12' x 12" x 30"		

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Microscope Analysis – (1.5) Modules / 182 Sq.Ft.

6 Staff Members, (February to November)

Description

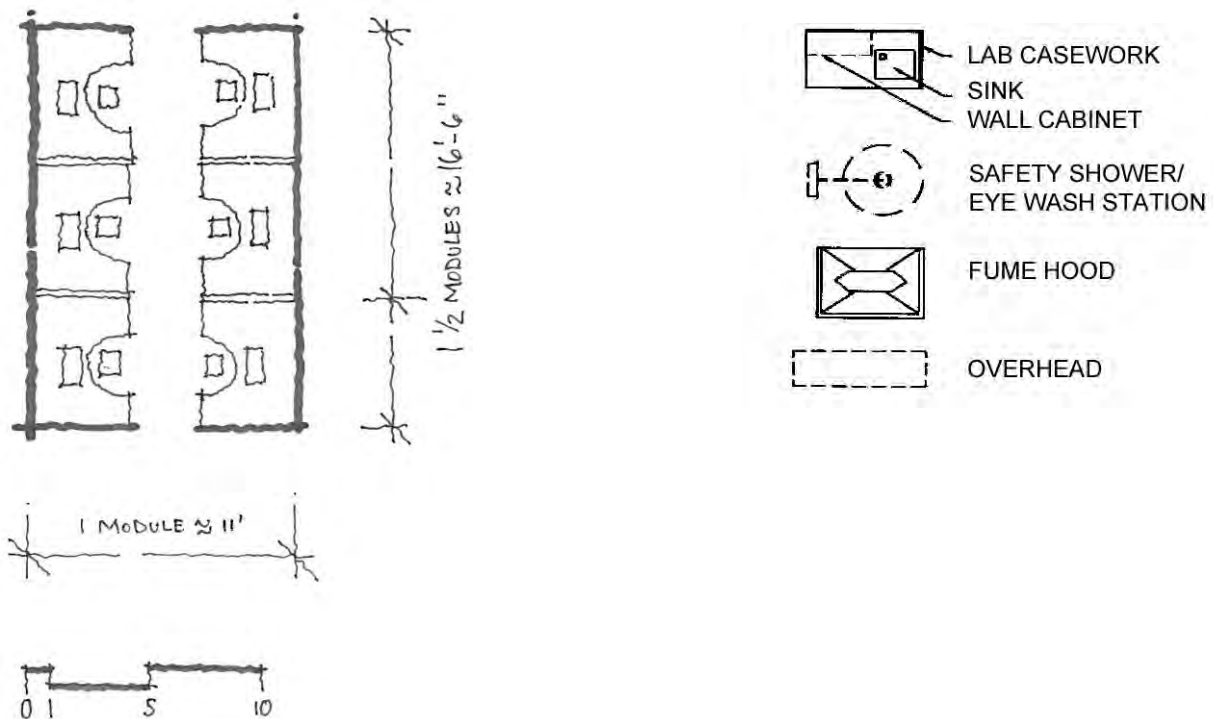
Microscope Analysis provides bench space for a staff of 6, and storage space for required supplies. A sink and floor drain are also required.

Equipment

- Microscopes (6)

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Vibrio – (3) Modules / 363 Sq.Ft.

4 Staff Members (May to November)

Description

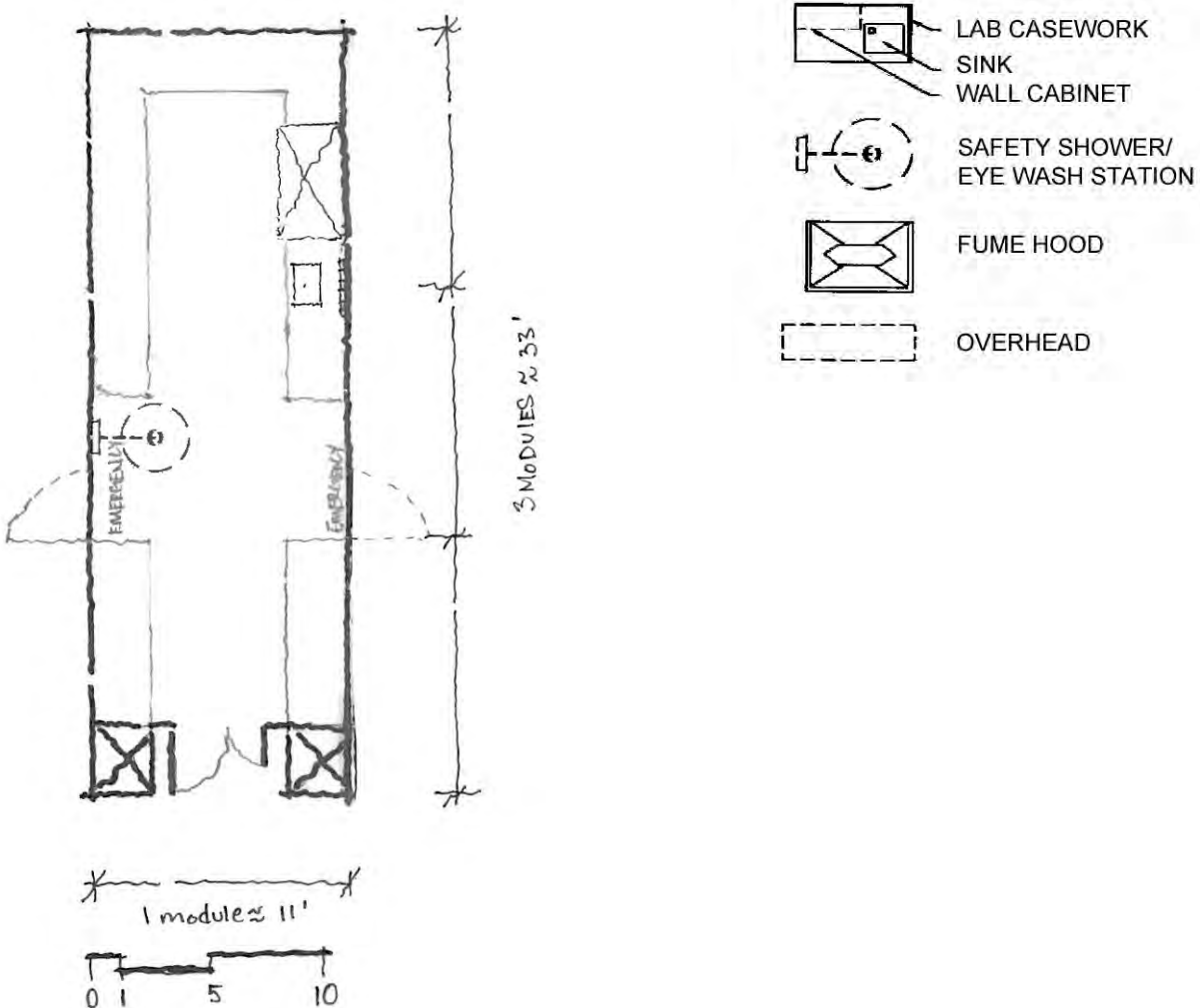
The **Vibrio lab** provides bench space for 4 staff members and required equipment, as well as glassware and supply storage. A fume hood with specific exhaust requirements is included. The lab requires a gas supply system, sinks and floor drains.

Equipment

-Waterbaths (2)	-Fume hood	-Orbital shaker	-Camera Equip	-Vortex Mixer	- Conductivity Meter
-Microwave	-Acid cabinet	-Hot plates (2)	-Freezer	-Computers (3)	-TV Monitor Microscope
-Rotator	-Shaker bath (2)	-Digital micros (3)	-Glassware Rack	-Printer	-Digital Camera (3)
-Balance (4)	-Hot air oven	-Microscopes (3)	-Colony Counter	-Eyewash / SS	-Swift Microscopes (3)
-File Cab Large	-File Cab Small	-Desk Lamps (3)	-Metal Stor Rack	-Trash Cans (4)	-DO/Conductivity/Salinity
-Lab Bench, 30"H, 52 Linear Feet					

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Animal Holding – (4) Modules / 484 Sq.Ft.

3 Staff Members, (April to November)

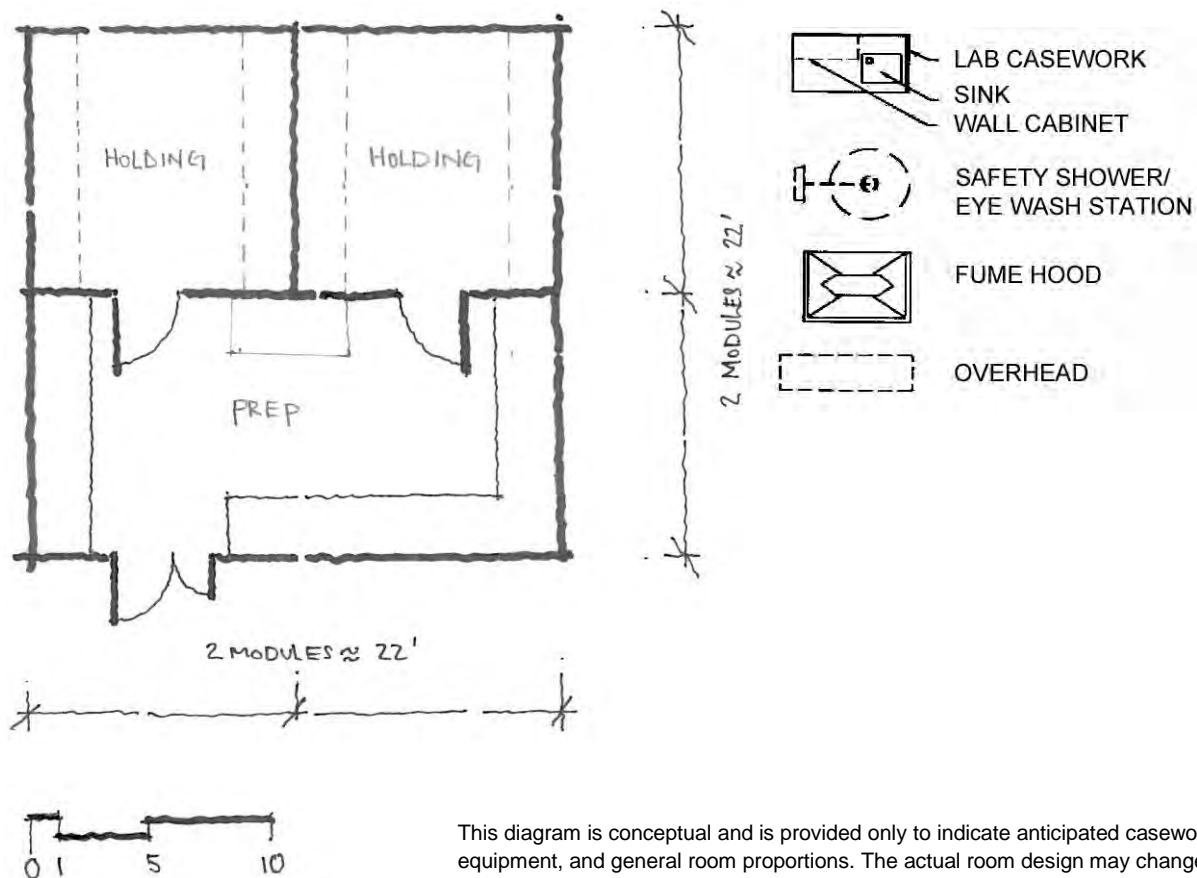
Description

Animal Holding provides working space for a minimum of 3 employees, and has two holding rooms for live mice. Low stress requirements must be observed for the mice, which necessitates a quiet and ventilated environment, with limited vibration. Work space will include storage for supplies, sinks, and a CO2 tank setup for disposal of mice.

Equipment

- CO2 Tank
- 3'-4' Racks (8)

Room Diagram



This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.

Hazardous Waste – (3) Modules / 363 Sq.Ft.

Description

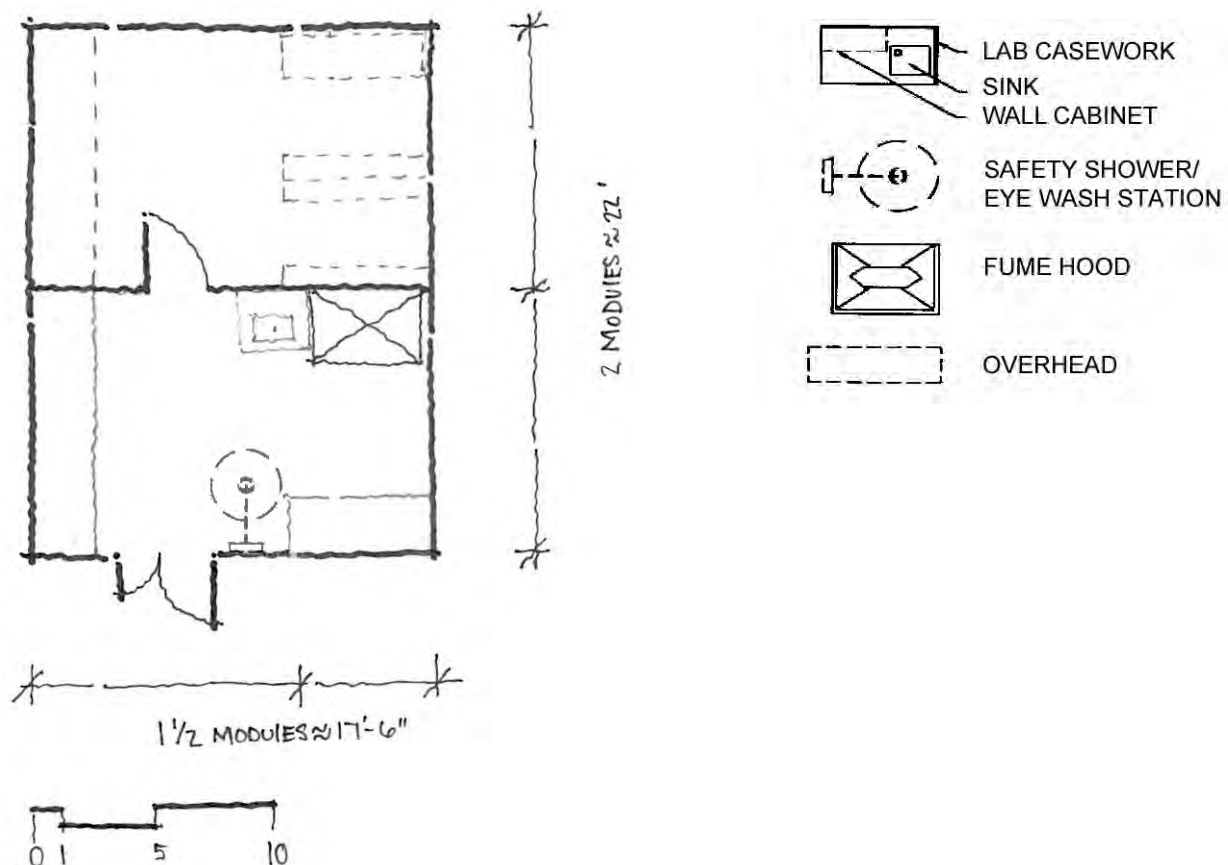
The **Hazardous Waste** room is a support space, without accommodation for regular full time staff. Must be locked for security, and for toxin and pathogen control. Space is split into two parts, one module for storage, and a working area totalling one module. A fume hood with ventilation designed specifically for chemical waste will be provided in the work area, as well as at least one freezer for animal waste.

Equipment

- Fume Hood
- Acid/Flammables Cabinet
- Eye Wash / Safety Shower
- 3'-4' Racks (4)

Room Diagram

This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.



Multi-Use Storage – (4) Modules / 484 Sq.Ft.

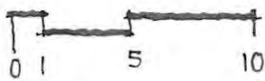
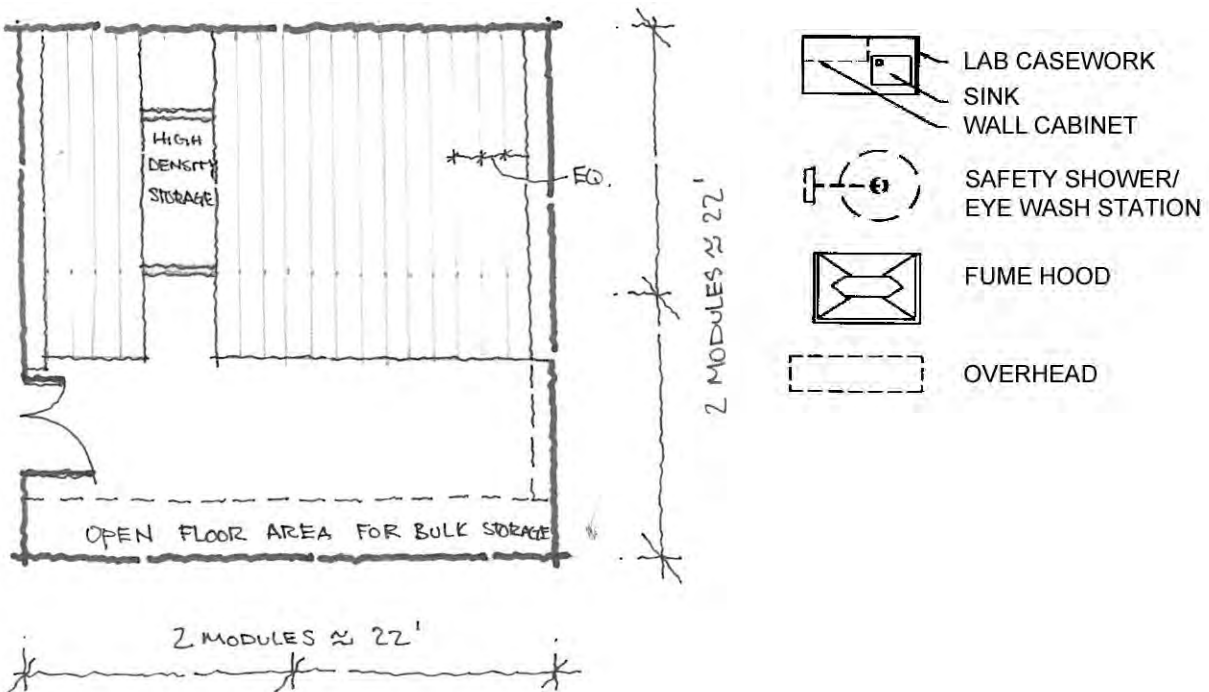
Description

(No staffing) **Multi-use Storage** space, including supply cabinets, media component cabinets, acid cabinet, fume cabinet, refrigerator and freezer, and storage for personal protective equipment. Supply storage provided for glassware, paper goods, sample bottles, pipets, etc. Fume cabinet for volatiles requires a specific exhaust system. At least one refrigerator and freezer for extract and other chemical storage.

Equipment

- Refrigerator
- Freezer
- Chemical Storage (6)
- High Density Storage Unit

Room Diagram



This diagram is conceptual and is provided only to indicate anticipated casework, equipment, and general room proportions. The actual room design may change.

NYS Bureau of Marine Resources

Space & Item	Equipment Item	Construction Item	Total Room Area (ft2)	Construction Cost Range		Equipment						
				Low End	High End	Quantity	Budget Price	Total	Furnish & Install	Existing	New	
Shellfish Wet Lab				1,452	\$ 580,800	\$ 726,000						
Ice Machine	x					1	\$5,000	\$5,000	OFOI		x	
Fume Hood		x				2					x	
Acid/Flammable Cabinet		x				2					x	
Eyewash / Safety Shower		x				1					x	
Vortex Mixer	x					1	\$100	\$100	OFOI	x		
Balance	x					1	\$100	\$100	OFOI	x		
Temperature Monitors	x					8	\$100	\$800	OFOI	x		
Metal Storage Cabinets	x					6	\$1,000	\$6,000	OFOI		x	
Sample Storage Rack	x					6	\$1,000	\$6,000	OFOI		x	
Coat Racks	x					1	\$100	\$100	OFOI	x		
Sample Board	x					2	\$1,000	\$2,000	OFOI		x	
Small Vacuum	x					2	\$100	\$200	OFOI	x		
Mop/Bucket/Wet Floor Sign	x					6	\$100	\$600	OFOI	x		
Drench Hose		x				2				x		
Mats	x					2	\$100	\$200	OFOI	x		
Shredder	x					2	\$500	\$1,000	OFOI		x	
QC Eraser Board	x					1	\$100	\$100	OFOI	x		
Halogen Lamps	x					6	\$100	\$600	OFOI	x		
APC Back-ups	x					8	\$100	\$800	OFOI	x		
Small Incubator/Stand	x					1	\$500	\$500	OFOI	x		
Blender Base	x								OFOI		x	
Storage Cabinets - 3'x2'x7' tall (9)						9	\$1,000	\$9,000	OFOI	x		
Metal Storage Cabinet - locked with RT cultures									OFOI	x		
Metal Storage Rack for sample baskets									OFOI	x		
File Cabinet large (2)	x					2	\$500	\$1,000	OFOI	x		
Lab Coat Rack		x									x	
Trash Cans	x					8	\$100	\$800	OFOI	x		
Metal Carts						9	\$100	\$900	OFOI	x		
Step stool	x								OFOI	x		
Shredder	x								OFOI	x		
Shellfish Biotoxins				1,452	\$ 580,800	\$ 726,000						
Fume Hood		x				2					x	
FH Exhaust		x				2					x	
Balances	x					6	\$2,500	\$15,000	OFOI	x		
Centrifuges	x					2	\$5,000	\$10,000	OFOI	x		
Stir Plates	x					6	\$1,000	\$6,000	OFOI	x		
Acid/Flammable Cabinet		x				2					x	
Eyewash / Safety Shower		x				1					x	
Bacteriological				1,452	\$ 580,800	\$ 726,000						
Fume Hood		x				2					x	
Walk-in Incubators	x					2	\$20,000	\$40,000	CFCI		x	
Walk-in Cold Room	x					1	\$50,000	\$50,000	CFCI		x	
Water Baths 44.5°C	x					9	\$1,000	\$9,000	OFOI	x		
Colony Counter	x					1	\$50,000	\$50,000	OFOI	x		
Stainless Steel Racks (11)	x					11	\$1,000	\$11,000	OFOI	x		
Incubator Temp Monitor	x					2	\$2,000	\$4,000	CFCI		x	
Flammable Cabinet		x				2					x	
Flammable Cab. Exhaust Fan		x				2					x	
Eyewash / Safety Shower		x				1					x	
Finfish Wet Lab				1,452	\$ 580,800	\$ 726,000						
(-70 C) Deep Freezer	x					2	\$4,000	\$8,000	OFOI		x	
(-20 C) Freezer	x					1	\$3,000	\$3,000	OFOI		x	
Refrigerator	x					1	\$3,000	\$3,000	OFOI		x	
Ice Machine	x					1	\$500	\$500	OFOI	x		
Fume Hood		x				2					x	
Eye Wash / Emergency Shower		x				1					x	
Flammable / Acid Storage Cabinet		x				2					x	
Table - Top Oven	x					2	\$5,000	\$10,000	OFOI		x	
50 - 60 quart Ice Chests	x					10	\$100	\$1,000	OFOI		x	
5-gallon buckets	x					20	\$5	\$100	OFOI		x	
Large garbabe style pails	x					5	\$10	\$50	OFOI		x	
Microscopes	x					8	\$10,000	\$80,000	OFOI		x	
Balances	x					7	\$3,000	\$21,000	OFOI		x	
Microfiche scale readers	x					2	\$10,000	\$20,000	OFOI		x	
Carver Presses	x					2	\$8,000	\$16,000	OFOI		x	
Benchtop Vises	x						\$500	\$0	OFOI		x	
Prep				1,089	\$ 435,600	\$ 544,500						
Dry heat oven	x					1	\$5,000	\$5,000	OFOI		x	
Stir plates-Balance	x					1	\$100	\$100	OFOI	x		
Sterilizer (121C)	x					1	\$10,000	\$10,000	OFOI		x	
PH meter	x					1	\$100	\$100	OFOI	x		
Glassware washer		x				1					x	
Fume Hood w/ Acid Cabinet		x				1					x	
Conductivity meter	x					1	\$100	\$100	OFOI	x		
Autoclaves		x				2					x	
Eye Wash / SS Station		x				1					x	
Siemens Filter Canisters for DI system	x					2	\$250	\$500	OFOI	x		
Automatic Pipettor Machine	x					3	\$250	\$750	OFOI	x		
Centrifuge- Refrigerated	x						\$500	\$0	OFOI	x		
Water bath	x								OFOI		x	
Hot Plates (8)	x					8	\$100	\$800	OFOI	x		
Blender Base	x						\$100	\$0	OFOI	x		
ThermaZyme Fluorometer Unit	x						\$500	\$0	OFOI	x		
Gas Burner System	x						\$100	\$0	OFOI	x		
Double Sink/Drain Board Unit		x								x		
Peg Board Drying Rack (2)		x				2				x		
Drench Hose (1)		x				1				x		
Storage Cabinet tall	x					1	\$100	\$100	OFOI	x		
Mop/Bucket/Wet Floor Sign	x						\$100	\$0	OFOI	x		
Plastic Cart	x						\$100	\$0	OFOI	x		
Stool	x					1	\$100	\$100	OFOI	x		
Under the Counter Light	x					1	\$100	\$100	OFOI	x		
Magnify Lamp	x					1	\$100	\$100	OFOI	x		
Free Standing Fan	x						\$100	\$0	OFOI	x		
35'x12'x30" Overhead Glass Front Cabinets		x								x		
12'x12'x30" Overhead Glass Front Cabinets		x								x		
11 linear foot 30" lab cabinet/bench top		x								x		
Mat	x						\$100	\$0	OFOI	x		

Space & Item	Equipment Item	Construction Item	Total Room Area (ft2)	Construction Cost Range		Equipment								
				Low End	High End	Quantity	Budget Price	Total	Furnish & Install	Existing	New			
Molecular Biology			484	\$	193,600	\$	242,000							
Laser Chromatograph	x						1	\$250,000	\$250,000	OFOI			x	
Mass Spectrometer	x						1	\$250,000	\$250,000	OFOI			x	
Gas Chromatograph	x						1	\$250,000	\$250,000	OFOI			x	
PCR –Thermal Cyclers	x						2	\$15,000	\$30,000	OFOI			x	
Pass Thru Box	x						1	\$10,000	\$10,000	CFCI			x	
Animal Holding			484	\$	193,600	\$	242,000							
CO2 Tank	x						1	\$1,000	\$1,000	OFOI			x	
3'-4' Racks		x					8	\$1,000	\$8,000	OFOI			x	
Hazardous Waste			363	\$	145,200	\$	181,500							
Fume Hood		x					1						x	
Acid Cabinet		x					1						x	
Eye Wash / SS Station		x					1						x	
3'-4' Racks	x						4	\$1,000	\$4,000	OFOI			x	
Multi - Use Storage			484	\$	193,600	\$	242,000							
Refrigerator	x						1	\$3,000	\$3,000	OFOI			x	
Freezer	x						1	\$3,000	\$3,000	OFOI			x	
Chemical Storage	x						6	\$1,000	\$6,000	OFOI			x	
High Density Storage Unit		x					1	\$30,000	\$30,000	CFCI			x	
Microscope Analysis			182	\$	72,800	\$	91,000							
(6) Microscope	x						6	\$10,000	\$60,000	OFOI			x	
Surfclam			726	\$	290,400	\$	363,000							
Table top saw (clam cutting)	x						1	\$3,000	\$3,000	OFOI			x	
Ice Machine	x						1	\$4,000	\$4,000	OFOI			x	
Microscope	x						1	\$10,000	\$10,000	OFOI			x	
Equipment drying cabinet	x						2	\$1,000	\$2,000	OFOI			x	
3'-4' Racks	x						4	\$1,000	\$4,000	OFOI			x	
Vibrio			363	\$	145,200	\$	181,500							
Waterbaths	x						2	\$1,000	\$2,000	OFOI			x	
Fume hood		x					1						x	
Orbital shaker	x						1	\$200	\$200	OFOI	x			
Camera Equip	x						1	\$2,000	\$2,000	OFOI			x	
Vortex Mixer	x						1	\$100	\$100	OFOI	x			
Microwave	x						1	\$100	\$100	OFOI	x			
Acid cabinet		x					1						x	
Hot plates (2)	x						2	\$100	\$200	OFOI	x			
Conductivity Meter	x						1	\$100	\$100	OFOI			x	
Computer	x						3	\$100	\$300	OFOI	x			
Rotator	x						1	\$2,000	\$2,000	OFOI			x	
Shaker bath	x						2	\$100	\$200	OFOI	x			
Digital micros (3)	x						3	\$500	\$1,500	OFOI	x			
Balance (2)	x						2	\$1,000	\$2,000	OFOI			x	
Hot air oven	x						1	\$200	\$200	OFOI	x			
Misc Micros (7)	x						7	\$10,000	\$70,000	OFOI			x	
Colony Counter	x						1	\$500	\$500	OFOI	x			
Eyewash / Shower		x					1						x	
Glassware Rack		x					1	\$100			x			
Printer	x						1	\$100	\$100	OFOI	x			
Balance	x						2	\$100	\$200	OFOI	x			
Freezer	x							\$400	\$0	OFOI	x			
Microscope	x						3	\$500	\$1,500	OFOI	x			
Digital camera	x						3	\$100	\$300	OFOI	x			
Swift Microscopes	x						3	\$500	\$1,500	OFOI	x			
TV Monitor Microscope	x							\$100	\$0	OFOI	x			
DO/Conductivity/Salinity Meter	x							\$100	\$0	OFOI	x			
File Cabinet large (1)	x						1	\$100	\$100	OFOI	x			
File Cabinet small (1)	x						1	\$100	\$100	OFOI	x			
Desk Lamps (3)	x						3	\$100	\$300	OFOI	x			
Metal Storage Rack	x						1	\$100	\$100	OFOI	x			
Trash Can (4)	x						4	\$100	\$400	OFOI	x			
52 linear foot 30" high lab cabinet/bench top		x					1						x	
Total Estimate Cost			9,983	\$	3,993,200	\$	4,991,500							

LABORATORY EQUIPMENT MATRIX GENERAL NOTES:

- A OFOI Basis-of-Design Products: Manufacturer's products named in the Laboratory Equipment Matrix, including make, model number or other description, form the Basis-of-Design to establish significant qualities related to type, function, dimension, in-service performance, utilities, physical properties, appearance and other characteristics. Final product selections may vary. New OFOI equipment information listed on the matrix is an example only; final selection to be made by the owner
- B Existing Laboratory Equipment: Information is based on Owner-furnished information. Dimensions, Electrical, Piped Utility, and Environmental Control information is approximate. Contractor shall field verify and coordinate requirements for existing equipment to be reused.
- C Contractor-Furnished Items: Refer to Specification Sections indicated for Contractor Furnished items.
- D Owner-Furnished Items: Contractor shall verify products with the Owner. Refer to Project Manual Division 1 Section "Summary" for information concerning Owner- Furnished Products.
- E Manufacturer's product data information is furnished for reference only. Manufacturer's product information is subject to change without notice.
- F In case of discrepancy between Laboratory Equipment Matrix information and manufacturer's product information, the manufacturer's information shall govern. Notify Architect of discrepancies and obtain clarification.
- G Existing items marked OFCI shall be relocated by the contractor.



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2 December 2014, T/a Project #227.04.22
Client #: 320310/CR2

DEC Marine Resources Laboratory Revised Equipment List Updated 3/10/2014

New York State Division of Environmental Conservation Bureau of Marine Resources Headquarters

219 Forts Ferry Road

Latham, NY 12110

518 785 5851

www.truarchs.com

SHELLFISH LABORATORY EQUIPMENT LIST - REVISED 3/10/14

<u>ITEMS</u>	<u>VENDOR</u>	<u>MODEL</u>	<u>UNIT COST</u>	<u>QTY</u>	<u>COST</u>
<u>STAMP-IN RECEIVING ROOM</u>					
Ice machine (needs sound proofing to make less than 80 decibels)				1	
chair	Staples	22650R	\$40	1	\$40.00
Storage Cabinet (3'x2'x7'/sliding doors)				1	
<u>SANITATION LABORATORY</u>					
Walk- In Cold Room (needed range 0-4°C/interior 9'x9'x9')			\$30,000	1	\$30,000.00
Stainless Steel Rack System for Cold Room (take existing system)				0	\$0.00
Ramp for Cold Room				1	
Walk-In Incubator (0-60°C, Uniformity ± 0.3°C, 52"wx96"dx88"h)			\$40,000	2	\$80,000.00
Stainless Steel Rack System for Incubator (18 shelves total/3 sections)				2	
Incubator Temperature Monitor/Recorder			\$4,000	2	\$8,000.00
Media Table (4'x8'x 30"h) Epoxy Resin Surface	?			1	\$1,500.00
Storage Cabinet (3'x2'x7'/sliding doors)				8	
Water Bath Temperature Monitor (C°)	Supco	CR87JC	\$366	3	\$1,098.00
Drench Hose (at each sink)	Watersaver	EW1020	\$268	4	\$1,072.00
Mats (sink 2x3)	Wearwell	#419	\$92.10	4	\$369.00
Blender Base (2 speeds/timer)	Waring	7010S	\$508	2	\$1,016.00
File Cabinet (legal/26.5" deep/5 drawer)	Staples	21921	\$380	2	\$760.00
Trash (round) Cans (at islands)	Rubbermaid	FG294700	\$25	8	\$200.00
Metal Welded Carts (500 lb capacity)	Lakeside	422	\$243	4	\$972.00
Lab Bench Chairs (anti-microbial/spider base)	Paramount	WB571122	\$112	6	\$672.00
Water Baths (5-99°C/120V) Model 270	ThermoScientific		\$2,900	3	\$8,700.00
Clock (electric)			\$33	1	\$33.00
Clock (battery)			\$23	1	\$23.00
<u>STORAGE ROOM (Sterile Supplies)</u>					
Industrial Heavy Duty Shelving System (~45 linear ft/24x36x84)			\$182	15	\$2,730.00
<u>PREP ROOM/CONTAM ROOM</u>					
Sterilizer (121°C, 20"x20"x38")	Buxton Medical Equip. Corp		\$55,000	2	\$110,000.00
Exhaust System For Sterilizers/Washers				1	
Glassware Washer	Buxton Medical Equip. Corp		\$35,000	2	\$70,000.00
Glassware Washer (Custom Holders)	Buxton Medical Equip. Corp			1	
Plumbing & EVOQUA (previously Siemens) DI Canister Sys.			\$3,000	1	\$3,000.00
pH Meter (ATC probe, KCL probe)		?	\$800	1	\$800.00
Conductivity Meter (ATC probe, Cell Constant K=1.0)		?	\$800	1	\$800.00
Eye Wash/SS Station	Water Saver	SS909HFC	\$861	1	\$861.00

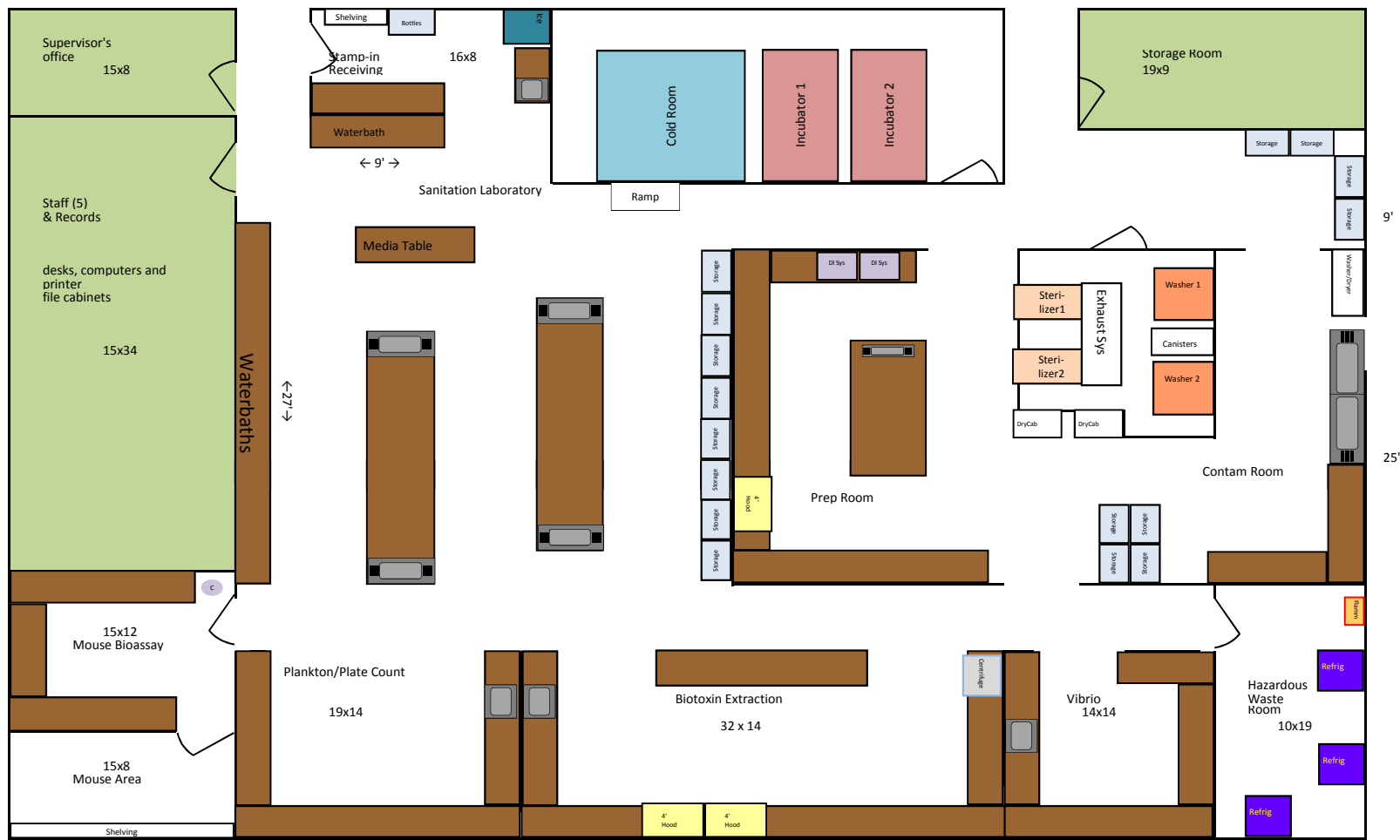
PREP ROOM/CONTAM ROOM - Continued						
Gas Burner System (2 burners)					1	
Drying Rack (wall/epoxy resin/30"x30")	nclabs.com	DW-100	\$298		2	\$596.00
Sink Drench Hose	Watersaver	EW1020	\$268		1	\$268.00
Storage Cabinet (3'x2'x7'/sliding doors)					8	
Mop/Bucket Wringer/Wet Floor Sign	?	?	\$250		1	\$250.00
Chair (stool)	Graingers	44N706	\$59		1	\$59.00
Chair (cushion)	Graingers	5NWJ1	\$37		1	\$37.00
LED Under the Counter Lights (24"x2")	Graingers	SL24-20L-35K	\$155		6	\$930.00
Mat	Wearwell	#419	\$92.10		2	\$184.20
Clock (battery)			\$23		1	\$23.00
Glassware Drying Cabinets (~8' tall)	Nor-Lake	NSWC211SSS/0	\$6,400		4	\$25,600.00
Clothing Washer (large capacity)	Kenmore	25102	\$425		1	\$425.00
Clothing Dryer (gas)	Kenmore	75102	\$510		1	\$510.00
Laboratory Grade Water System	Sartorius		\$8,600		2	\$17,200.00
Epoxy Resin Table Under Lab Grade Water Systems					1	
Plumbing & EVOQUA (previously Siemens) DI Canister Sys.			\$3,000		1	\$3,000.00
Hood (4'/additional outlets)	?		\$6,000		1	\$6,000.00
Hood Exhaust System					1	
HAZARDOUS WASTE/MATERIAL ROOM (LOCK)						
Freezer Large (mice/20.1 cu.ft/frost free)	Whirlpool	EV200NZTQ	\$750		1	\$750.00
Refrigerator (NO FRILLS/frost free)	?		\$550		1	\$550.00
Chemical Storage (flammable/30 Gal)	Justrite	?	\$600		1	\$600.00
Exhaust System for Chemicals					1	
VIBRIO LAB						
Vortex Mixer - LSE	Corning	6775	\$395		1	\$395.00
Chair (high back, rolling, no arms/blue)	Corcraft	ECO Value	\$173		1	\$173.00
Balance (0.001g sensitivity/320g)	Mettler	11144929	\$1,680		1	\$1,680.00
BIOTOXIN EXTRACTION LAB						
Hood (4'/additional outlets)	Lab Crafters		\$6,000		2	\$12,000.00
Hood Exhaust System					2	
Balance (0.01g, 6200g)	Sartorius	ED6202S	\$2,016		1	\$2,016.00
Stirrer / Hot Plates 120V	Corning	PC-220	\$363		2	\$726.00
Acid Cabinet	Justrite	24140	\$1,642		1	\$1,642.00
Eyewash/Safety Shower	Water Saver	SS909HFC	\$861		1	\$861.00
Chair (stool)	Graingers	44N706	\$59		2	\$118.00
Chair (cushion)	Graingers	5NWJ1	\$37		2	\$74.00
Blender Base (timer)	Waring	7010S	\$356		2	\$712.00
Vortex Mixer - LSE	Corning	6775	\$395		1	\$395.00
Water Bath (19.5L, 120V, general purpose)	ThermoScientific	#2841	\$1,032		1	\$1,032.00

PHYTOPLANKTON ROOM									
Chair (high back, rolling, no arms)				Corcraft	ECO Value	\$173	3		\$519.00
Flow CAM				Fluid Imaging Technologies			1	Quote	\$90,640.00
MOUSE LAB - Low Tech/Dark/Quiet (LOCK)									
Wire Racks for Cages (stainless steel/wheels)				Graingers			1		\$900.00
Exhaust System							1		
Mouse Cages (Tecniplast/121C/17x10.5x6)				Fisher Sci.	1264C00SU	cs of 10	1	bid	\$300.00
Mouse Cage Accessories				Fisher Sci.				bid	\$750.00
MOUSE BIOASSAY LAB (LOCK)									
CO2 Tanks							1		
Clock (battery)						\$23	1		\$23.00
Drafting Chairs (nonfabric/footrest/armless/5h use)				Staples	25091	\$100	2		\$200.00
Exhaust System							1		
MISCELLANEOUS									
File Cabinet (legal/26.5" deep/5 drawer)				Staples	21921	\$380	6		\$2,280.00
Chairs #814268				Staples	18897-CC	\$80	6		\$480.00
Desk Supervisor 72x29.5x30/Castle Oak				Corcraft	F013072D0	\$477	1		\$477.00
Desk Lab Tech 60x29x30/Putty				Corcraft	F5057	\$498	1		\$498.00
Book Shelf Supervisor (metal/5 shelf/putty)				Staples	HS72ABCL	\$240	2		\$480.00
Steam Boiler for Glassware Washers/Sterilizers							1		
									\$498,999.20
Notes:									
1. We don't know if any of the East Setauket lab benches and storage cabinets are useable.									
2. We don't know if the two-4 ft East Setauket hoods are useable.									
3. Our two East Setauket Buxton Sterilizers will be used as a credit towards two new units.									
4. Our two East Setauket Buxton Glassware Washers will be used as a credit towards two new units.									

DRAFT Shellfish Laboratory

5' Aisle width required by law

1 square = 1 foot



1 square = 1 foot

90' x 62' includes green office areas
Area DOES NOT include 6" interior wall and 8" exterior wall widths

Date: 3/4/14

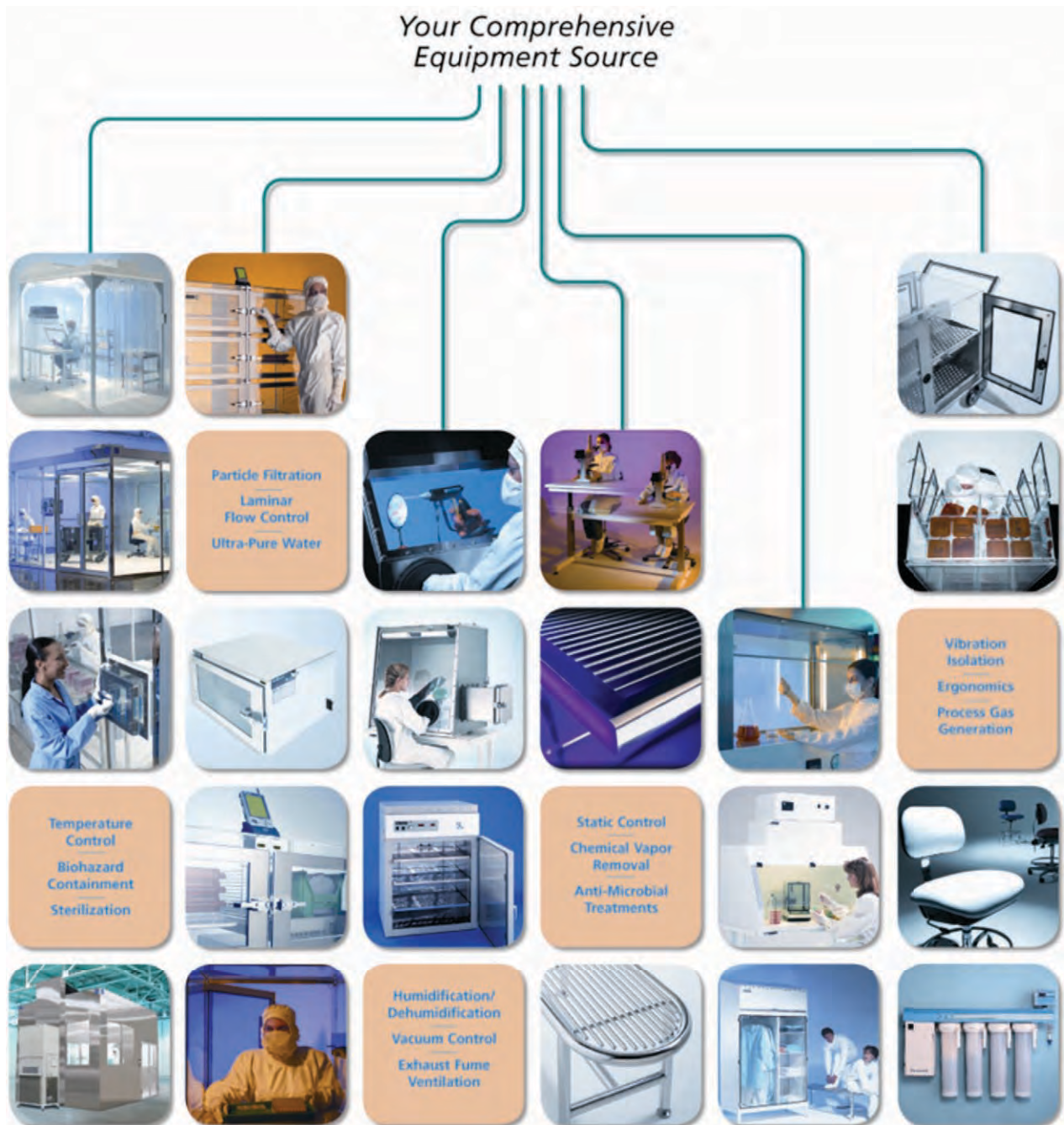


Quick-Start Operating Guide

Document No. 1800-07

Pass-Through Chamber

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Pass-Through Chamber

Proprietary Notice

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Terra Universal makes no warranties applying to information contained in this manual or its suitability for any implied or inferred purpose. Terra Universal shall not be held liable for any errors this manual contains or for any damages that result from its use.

Safety Notice

A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death. The following symbols are intended to call your attention to two levels of hazard involved in operation.



CAUTION

Cautions are used when failure to observe instructions could result in significant damage to equipment.



WARNING

Warnings are used when failure to observe instructions or precautions could result in injury or death.

The information presented here is subject to change without notice.

1.0 Introduction

This manual provides information on installing and operating Terra Universal's Pass-Through Chamber.

To ensure optimal performance and long life for your product, please adhere to the guidelines for installation, operation and maintenance laid out in the manual.

2.0 Description

Terra Universal's Pass-Through Chamber allows easy transfer of materials without contamination. The modular panel mounting system allows installation at any modular clean room location, and keeps particle counts low by elimination unnecessary personnel entry.

An optional mechanical interlock minimizes the risk of cross contamination. This device allows only one door at a time at one time thus minimizes the amount of "dirty" air that can enter the cleanroom.



CAUTION:

For doors with mechanical interlocks:

Prior to opening either door, it is imperative that the operator checks to see that the opposite door is fully shut. Do not yank, rattle or apply excessive force to the doors. Attempting to force open a door while the mechanical interlock is engaged will result in damage to the unit.





3.0 Installation

1. Make a cut-out in the wall 1/2" larger than the height and width of the pass-through chamber. The perimeter of this opening should be lined with a rigid support material (wood or metal).
2. Insert the pass-through into the wall from the "clean" side until the welded mounting bracket is flush with the "clean" side wall. Secure the unit to the wall (through the screw holes provided on each edge of the framing bracket; select mounting screws compatible with your wall type).
3. To secure the "dirty room" side of the Pass-Through, slide the remaining framing bracket onto the unit with the horizontal flange pointing into the wall. Slide this flange into the wall (between the wall perimeter lining and the Pass-Through) and secure the frame flush against the wall with user-supplied fasteners.

Note: Due to not knowing, what material the pass-through chamber is getting installed in (drywall concrete, etc.) Terra Universal does not supply any fastener hardware for the mounting brackets.

4. Make sure that the control cord is connected between the optional blower unit and the Pass-Through, and insert the power cord into the blower unit. Connect the power cord to an 110VAC, 60Hz power supply.

Important Note: Review "Door Alignment" procedure below if your chamber doors are larger than 24" wide.

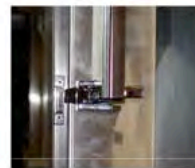
Door Alignment

Pass-through chambers being installed in a cleanroom wall must be properly aligned to ensure proper operations of the latch and the interlock mechanism

1. Align pass-through chamber so that the front door catches are centered in the corresponding catch (see photo). To align the chamber, you may need to shim one corner before bolting the mounting brackets to the wall.

2. Large chambers may include support frames with leveling feet. The feet adjacent to the cleanroom wall should be adjusted to support the chamber once the clean side door has been properly aligned.

3. Repeat this procedure for the opposite (i.e., dirty) door. Raise or lower the chamber corners until the latch engages the center of the catch. Then adjust the support frame leveling feet to retain this alignment. If your installation includes support brackets, mount these to the chamber and the wall to achieve correct door alignment (see illustration).



Door Latch Too High



Door Latch Too Low

Door Latch Correctly Centered



Optional FirmLok™ Door Interlock

When so specified, the stainless steel Pass-Through is equipped with mechanical interlocks to prevent the opening of both doors simultaneously. When one door is open, the other cannot be opened until the first one is closed. This contamination protection is accomplished with a mechanical locking mechanism.



CAUTION: To prevent damage to the Pass-through, the closed door should never forced open. Acrylic doors should not be cleaned with alcohol or other strong cleaning agents, or streaking will result.

Optional Air Shower Operation

In practice, parts are introduced from the "dirty" side into the pass-through, and the "dirty" side door is closed. The optional ULPA-filtered Air Shower starts as soon as the door is closed, drawing clean air from the "clean room" side, directing it through the nozzle located on the ceiling of the Pass-Through, and venting it through the perforated ducts located on the "dirty" side. The shower continues to run for 30 seconds after the door is closed. This time delay is set at the factory and can be changed for longer or shorter times. To change the factory settings, remove the top cover of the blower module, and adjust the timer potentiometer to the desired setting (the potentiometer is scaled in seconds). Refer to separate Operating Manual (Doc. No. 1800-78) for complete operating and maintenance instructions.

Optional Sliding Door Pass-Through

This Clean Room Pass-Through features counterweighted access doors equipped with interlocks to prevent the opening of both doors simultaneously. When one door is open, the other cannot be opened until the first one is closed. This contamination protection is accomplished with a spring-loaded mechanical locking mechanism.

1. Make a cut-out in the wall 1/2" larger than the height and width of the pass-through chamber. The perimeter of this opening should be lined with a rigid support material (wood or metal).
2. Before installing the pass-through in the wall, you must first remove the sliding door assembly from the "dirty" side of the pass-through. To remove this assembly:
 - A. Close the access door on the clean room side of the unit (this is the side that features mounting holes along the vertical edges of the rails). Make sure that the door slides all the way down into the bottom "U" channel.
 - B. Remove the rear rail assembly by opening the "dirty" side door and removing the screws from inside the chamber. There are five screws vertically arranged on each side of the chamber, and five along the bottom edge. Once the rear rail assembly is removed, you will be able to observe how the spring-loaded interlock mechanism operates. Be careful not to interfere with this mechanism as you install the unit in the wall
3. Install the pass-through in the wall by sliding it in from the "clean" side. The front rail assembly should fit flush against the clean room wall.
4. Anchor the pass-through to the wall by using the appropriate wall fasteners for your application (fasteners will depend on the type of wall in your facility). There are six 3/8" holes arranged vertically along each edge of the front rail assembly for this purpose. Fasteners should be tightened so that the rails seal tightly against the wall, eliminating gaps where particles could collect.

NOTE: Before tightening, center the pass-through chamber in the cut-out (leaving a 1/8" gap between chamber and wall cut-out) to allow positioning of the mounting frame brackets along each edge of the chamber on the "dirty" side of the wall.

5. Install the top edge facade plate to cover the top gap between the chamber and the wall on the clean side of the wall. Slide the edge plate flush against the top edge of the chamber and attach with appropriate fasteners (this plate has three #10 screw holes for this purpose).
6. Attach the mounting frame brackets on the "gray" side of the wall to cover the gaps between the edge of the chamber and the wall cut-out. For each bracket, one flange should fit inside the gap, one should fit snugly against the wall, and the other should fit snugly against the chamber. Attach each bracket to the wall. The pass-through chamber is now installed.



4.0 Warranty

Products Manufactured by Terra: Terra Universal, Inc., warrants products that it manufactures to be free from defects for a period of 12 months for parts and 90 days for labor, commencing from the date of shipment. Terra's sole responsibility is to repair or replace, at its option, any part of the product that proves defective or malfunctioning during this time limit. In some cases, components incorporated in Terra Universal products are covered by additional warranties from component manufacturers; obtain specific information from Terra sales representatives. This warranty is void if the equipment is abused or modified by the customer, is operated outside Terra's operating instructions or specifications, or is used in any application other than that for which it is specified. This warranty does not include routine maintenance or service procedures, breakage of quartz baths after 60 days, shipping damage, nor damage from misuse, intentional or unintentional abuse, neglect, natural disasters, or acts of God.

Products Manufactured by Others: Terra Universal, Inc., warrants that, to the best of its ability, Terra's representations of products that are manufactured by others reflect the manufacturer's representations, subject to change without notice. Sole warranty for these products is the original manufacturer's warranty that is passed forward to the purchaser and constitutes the customer's sole remedy for these products. Detailed warranties for distributed products are available through Terra sales representatives.

Freight Shortage or Damage: Upon receipt of any equipment from Terra Universal, Inc., customer shall immediately unpack and inspect for damage or shortage. The customer shall not accept a damaged package or a short shipment until the carrier makes a "damage or shortage" notation on both the carrier's and customer's copy of the freight bill or delivery receipt. Service title passes when the shipment is loaded, so customer is responsible for filing and collecting a freight claim. Any replacement products must be ordered and paid for separately. For Terra's "Policy and Procedures for Returning Goods," see Terra's Internet site: www.TerraUniversal.com.

Generally, customers can improve the chance of collecting on a freight claim by following these procedures: 1) formally requesting that the carrier inspect the shipment immediately upon suspecting damage or shortage to verify condition; 2) notifying the carrier upon discovery of concealed damage and requesting an inspection within 15 days of receipt, both in person or phone and following up via mail; 3) keeping the shipment as intact as possible, including retaining original packaging materials and keeping the product as close to the original receiving location as possible; 4) holding salvage for disposition by the carrier.

All Claims: Terra Universal expressly disclaims all other warranties, expressed or implied or implied by statute, including the warranties of merchantability or fitness for intended use. Terra Universal is not responsible for consequential or incidental damages arising out of the purchase or use of the products supplied by Terra Universal. Terra Universal is not liable for damage to facilities, other equipment, products, property or personnel of others, or of their agents, suppliers, or affiliated parties, which is caused or alleged to have been caused by products supplied by Terra Universal. In any event or series of events, Terra Universal's total liability for any and all damages whatsoever is limited to the lesser of the actual damages or the original invoice cost of the items alleged to have caused the damage. The customer's sole and exclusive remedy for any cause of action whatsoever is repair or replacement of the non-conforming products or refund of the actual purchase price, at the sole option of Terra Universal. All claims must be made in writing within 90 days of the date the product was shipped. Any claims not made within this time limit shall be deemed waived by the customer. Terra Universal is not responsible for any additional costs of repair caused by poor packaging or in-shipment damage during return.

Warranty Returns: All warranty returns must be authorized in advance by Terra Universal and approved under an RMA. Unless approved in advance for good reason, all returns must be in original condition, including all manuals, and must be packaged in original packaging materials. All returned goods are to be shipped to Terra Universal, freight prepaid at customer's expense. See Terra's "Policy and Procedure for Returned Goods."

*Thank you for ordering from
Terra Universal!*



FlaskScrubber® & SteamScrubber®

Laboratory Glassware Washers



Protecting your
laboratory environment
LABCONCO

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

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Made in U.S.A.



FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

OVERVIEW



Left: The FlaskScrubber Vantage Series Laboratory Glassware Washer has advanced features for monitoring and controlling contaminants, including water conductivity sensor, HEPA filtered drying and RS-232 port. The washer includes a lower spindle rack with options for an upper rack.

Inset: Upper standard open and spindle racks feature side release latches allowing racks to be easily lifted out for unloading or exchanging with another upper rack.

Flexibility, durability, maximum cleanability and energy-efficiency have been engineered in to every Labconco laboratory glassware washer.

Flexibility

Labconco offers two distinct washer types for different glassware mixes: the SteamScrubber and the FlaskScrubber. Designed primarily to hold general glassware such as beakers, utensils, test tubes, Petri dishes and BOD bottles, the SteamScrubber comes with upper and lower standard open racks that accommodate a wide variety of baskets and inserts.

Designed primarily to hold narrowneck glassware such as volumetrics and Erlenmeyer flasks, the FlaskScrubber has a lower rack with 36 spindles and may be outfitted with specialized inserts to accommodate pipets. Although the SteamScrubber and FlaskScrubber are distinct in their primary uses, the standard open racks and spindle racks are *interchangeable* making these washers more flexible and versatile than ever before. If your glassware mix currently includes both narrowneck and general glassware or changes in the future, just add the racks and inserts you need to accommodate your needs.

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

O V E R V I E W



The SteamScrubber Laboratory Glassware Washer is available in undercounter and freestanding styles. Upper and lower standard racks accommodate a variety of accessory baskets and inserts for beakers and specialized glassware.



The FlaskScrubber Laboratory Glassware Washer is available in undercounter and freestanding styles. The lower spindle rack is interchangeable with a standard rack should laboratory needs change or for laboratories with a broad mix of glassware.

Flexible cycle programs give the user control in selecting the right combination of parameters including the following:

- washing time and temperature
- steam generation
- number of total and pure water rinses
- final rinse temperature
- drying time and temperature

A keypad and LCD display allow cycle programs and parameters to be easily set or changed. Memory stores preset and user set programs for reproducible protocols.

Durability

Rugged stainless steel interior, exterior, racks and inserts withstand heavy use and reduce corrosion and contaminant build-up. Internal components such as pumps and seals are laboratory-grade, engineered for long life.

Maximum Cleanability & Drying

Laboratories that conduct sensitive research demand contaminant-free glassware. Many features work together to achieve consistent, thorough cleaning:

- Powerful pump circulates water through the washer. Rated at 96 gallons/minute (363 liters/minute) on 115 volt, 60 Hz models and 112 gallons/minute (424 liters/minute) on 230 volt, 50/60 Hz models.
- A separate pump drains the wash and rinse water to reduce risk of cross contamination between wash and drain water.
- Wash and rinse water temperature reaches 82° C (180° F) on 115 volt models and 93° C (199° F) on 230 volt models to better activate detergent, sanitize glassware and speed drying.
- Built-in steam generator produces hot vapor to penetrate and remove dried residue.
- Forced air drying ensures spot-free results. Drying temperature is programmable up to 70° C (158° F).

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

O V E R V I E W

Performance Testing

An outside analytical laboratory conducted visual cleanability studies on the FlaskScrubber Glassware Washer outfitted with various rack configurations. For the studies, a variety of six beakers and two Erlenmeyer flasks were soiled with a viscous mixture of iron oxide, motor oil, high vacuum grease, solid vegetable shortening, and paraffin wax. The appearance of the glassware was documented before and after washing and drying in the FlaskScrubber Laboratory Glassware Washer 4420431. The following photographs show remarkably clean glassware.



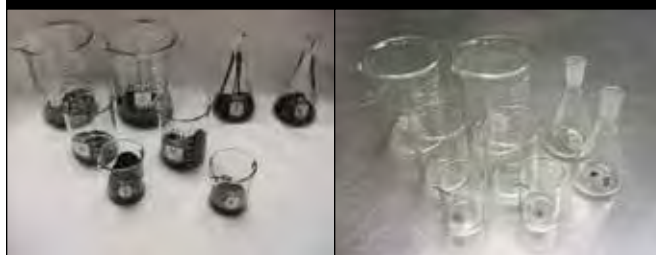
*Before washing in
FlaskScrubber with Upper
Spindle Rack 4595600 using
LabSolutions Low-Foaming
Liquid Detergent 4522000*

After



*Before washing in
FlaskScrubber with Upper
Standard Rack 4595900 using
LabSolutions Non-Foaming
Powder Detergent 4422000*

After



*Before washing in
FlaskScrubber with Upper
Spindle Rack 4595600 using
LabSolutions Low-Foaming
Liquid Detergent 4522000*

After

EPA Residue Testing

Since visibly clean glassware could still contain minute amounts of contaminants, an outside analytical laboratory tested for microscopic residue on glassware cleaned in a FlaskScrubber Laboratory Glassware Washer Model 4420431. The laboratory tested the glassware to EPA Methods 200.7, 524.2, 525.1 and 8270. Test results showed low levels, at or near the detection limits, of metals remaining in the samples. The different parameters such as detergent type, upper or lower rack, spindle or standard rack, did not affect results.

Based on results from the testing, the laboratory concluded that the FlaskScrubber is a viable option for cleaning and reuse of glassware used for trace metal, volatile organic and semi-volatile organic compounds. Results were measured as parts-per-billion and significance of the data will vary based on individual application and analysis needs. Contact Labconco at 800-821-5525 or 816-333-8811 for a copy of the full report.

Energy Efficiency & Cost Savings

Compared to hand washing, the FlaskScrubber or SteamScrubber can save on water usage. A faucet delivers approximately 3 gallons/minute of tap water. Depending on the contaminants on the glassware and type of glassware, hand washing a load of glassware could take up to 20 gallons or more. The FlaskScrubber or SteamScrubber uses as little as 13.6 gallons per load and is not dependent on the habits of the technician. The difference adds up to as much as 1664 gallons per year, saving both water and the electricity to heat it.

Labconco washers feature a delay start option to facilitate running during off-peak hours when electricity is often less expensive than during daylight hours. Aluminum-backed insulation and a fiberglass blanket surround every washer not only for quiet operation, but to retain heat inside the washer, thus conserving energy.

Take The Challenge

Labconco offers an online calculator to help you determine the cost savings you would realize by using a Labconco washer compared to hand-washing. The **Justification Worksheet** calculates the labor, electricity, water and detergent used to wash glassware by hand versus to wash in a FlaskScrubber or SteamScrubber.

Go to www.labconco.com/glassware-washing-cost-calculator to determine if a Labconco washer would save you money.

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

SELECTION GUIDE

Select the Labconco glassware washer that best suits your glassware mix and level of contamination-sensitive research.

	FlaskScrubber Vantage Series	FlaskScrubber	
Primary Application	Washing and drying primarily narrowneck glassware such as volumetric flasks. Advanced features for contamination-sensitive research.	Washing and drying primarily narrowneck glassware such as volumetric flasks.	
Electrical Configuration	208/230 volts, 50/60 Hz	115 volts, 60 Hz	208/230 volts, 50/60 Hz
Undercounter Available	convertible to undercounter	●	●
Freestanding Available	●	●	●
Freestanding to Mobile Conversion	No	Yes	
Maximum Internal Water Temperature	93° C (199° F)	82° C (180° F)	93° C (199° F)
Washing	Through Spindles & Two Wash Arms	Through Spindles & Two Wash Arms	Through Spindles & Two Wash Arms
Forced Hot Air Drying	Through Spindles & Throughout Tank	Through Spindles & Throughout Tank*	Through Spindles & Throughout Tank*
ADVANCED FEATURES:			
HEPA Filtered Drying	●		
Water Conductivity Sensor	●		
RS-232 Port	●		
Automatic Liquid Detergent Dispenser	●		
Automatic Rinse Aid Dispenser	●		
Racks Included	Lower 36-spindle rack	Lower 36-spindle rack	Lower 36-spindle rack
Viewing window with light	Standard	Optional	Optional
ACCOMMODATES OPTIONAL RACKS:			
Upper Spindle Rack	●	●	●
Lower Spindle Rack	Included	Included	Included
Upper Standard Rack	●	●	●
Lower Standard Rack	●	●	●
Lower Test Tube Spindle Rack	●	●	●
ACCOMMODATES OPTIONAL BASKETS and INSERTS:			
Utensil Holder	●	●	●
Utensil Basket	●	●	●
Bulk Tube Insert	●	●	●
Culture Tube Insert	●	●	●
Labware Inserts	●	●	●
BOD Bottle Insert	●	●	●
48-Pin Insert	●	●	●
Petri Dish Insert	●	●	●
DNA Sequencing Plate Insert	●	●	●
Tray Insert	●	●	●
Pipet Insert	●	●	●

* FlaskScrubber 33 models feature forced air drying throughout tank only.

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

SELECTION GUIDE

SteamScrubber	
Washing and drying primarily beakers and other wide-mouth or specialized glassware.	
115 volts, 60 Hz	208/230 volts, 50/60 Hz
•	•
•	•
Yes	
82° C (180° F)	93° C (199° F)
Through Three Wash Arms	Through Three Wash Arms
Throughout Tank	Throughout Tank
Upper and lower standard open racks	Upper and lower standard open racks
Optional	Optional
•	•
•	•
Included	Included
Included	Included
•	•
•	•
•	•
•	•
•	•
•	•
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•	•
•	•



Freestanding-To Mobile Conversion Kits, available for FlaskScrubber and SteamScrubber models, add portability.



The side compartment of the FlaskScrubber Vantage Series Washer houses the 99.97% efficient HEPA filter and automatic liquid detergent and rinse aid dispensers.



Pipets may be thoroughly washed and dried in FlaskScrubber and FlaskScrubber Vantage Series Washers. Pipet Inserts attach to the spindle rack to allow the interior of the pipets to be injected with water and detergent for washing followed by hot air for drying.

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

FLEXIBLE CYCLE OPTIONS

Microprocessor control allows the user to select from seven preset programs or customize two different USER SET programs. FlaskScrubber Vantage Series Washers and FlaskScrubber and SteamScrubber models for 230 volt operation have three additional preset programs (INTENSE,

Program	Unit of Measure	Selectable Set Points*	Rinse Only Factory Setting	Plastic Factory Setting	Glass Factory Setting	Glass Plus Factory Setting
Delay Start	(hr)	1-8	0	0	0	0
Wash 1 Time	(min)	None	—	5	5	5
Detergent Dispense (Vantage Series Only)	(ml)	0-40	—	20	20	20
Steam	(Yes/No)	Y N	—	N	N	Y
Wash 2 Time	(min)	1-40**	—	10	10	10
Wash 2 Temperature	(° F) (° C)	100-199*** 38-93***	—	122 50	140 60	140 60
Wash 3 Time (Vantage Series Only)	(min)	0, 10, 20, 30, 40	—	—	—	—
Wash 3 Temp (Vantage Series Only)	(° F) (° C)	100-199 38-93	—	—	—	—
Detergent Dispense (Vantage Series Only)	(ml)	0-40	—	20	20	20
Total Number of Rinses		0-6	1	2	3	3
Number of Pure Rinses		0-6	0	0	0	0
Final Rinse Temperature	(° F) (° C)	100-199† 38-93†	100 38	122 50	140 60	140 60
Rinse Time	(min)	1-30††	4	4	4	4
Rinse Aid Dispense	(ml)	0-6	—	0	0	0
Dry Time	(min)	0 or 15-250	0	15	30	30
Dry Temperature	(° F) (° C)	100-158 38-70	100 38	122 50	140 60	140 60
Total Water Consumption	(gal) (liters)	up to 27.2 up to 103	3.4 12.9	13.6 51.5	17 64.4	17 64.4
Total Factory Set Time (excluding delays to heat water and air for wash, rinse and dry cycles)	(min)		10	51	86	96

Bold numbers indicate factory preset times.

Steam adds 10 minutes to total program time. Each rinse adds 4 minutes to total program time. Rinse time increases by 1.5 minutes for each pure water rinse. Each rinse adds 3.4 gallons (12.9 liters) to total water consumption.

*Selectable set points do not apply to all programs.

**Vantage Series models select from 10, 20, 30 or 40 minutes.

***Maximum temperature is 180° F (82° C) on FlaskScrubber and SteamScrubber models for 115 volt operation.

† Maximum temperature is 140° F (60° C) for Rinse Only and Plastic Programs. Maximum temperature is 180° F (82° C) for all other programs on FlaskScrubber and SteamScrubber models for 115 volt operation.

†† Selectable on User 2 program on FlaskScrubber and SteamScrubber only.

Select from factory set and user set programs with the flexibility to easily change multiple parameters on the intuitive LCD.

LCD. Displays at-a-glance program selection or details of the program. Provides feedback during program customization.



DISPLAY SCROLL BUTTONS.

Press to scroll through the display screen.

DISPLAY. Press to change the display. When starting a cycle program, press to show the available cycle programs. When modifying program parameters, press to show program parameters that may be altered.

RUN/CANCEL. Initiates program selected. Terminates cycle in progress.

PARAMETER CHANGE BUTTONS. Press to change a set point parameter.

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

FLEXIBLE CYCLE OPTIONS

INTENSE PLUS and EXTREME). Selectable set point parameters allow the programs to be altered by the user. Parameters selected by the user are stored in memory for future recall.

Science Factory Setting	Science Plus Factory Setting	Dry Only Factory Setting	User 1 Factory Setting	User 2 Factory Setting	Intense Factory Setting	Intense Plus Factory Setting	Extreme Factory Setting
0	0	—	0	0	0	0	0
5	5	—	5	5	10	10	10
20	20	—	20	20	20	20	20
N	Y	—	N	N	N	Y	Y
20	20	—	10	10	30	30	40
158	158	—	140	180	180	180	199
70	70	—	60	82	82	82	93
—	—	—	0	0	30	30	40
—	—	—	140	180	180	180	199
—	—	—	60	82	82	82	93
20	20	—	20	20	20	20	20
4	4	—	2	2	5	5	6
0	0	—	0	0	0	0	0
158	158	—	140	180	180	180	199
70	70	—	60	82	82	82	93
4	4	—	4	4	4	4	4
0	0	—	0	0	0	0	0
40	40	60	15	15	50	50	60
140	140	140	140	140	140	140	140
60	60	60	60	60	60	60	60
20.4	20.4	0	13.6	13.6	23.8	23.8	27.2
77.2	77.2	0	51.5	51.5	90.1	90.1	103
116	126	60	62	62	150	160	190

FlaskScrubber Vantage Series and
FlaskScrubber and SteamScrubber
208/230 Volt Models only

FlaskScrubber® Vantage® Series Laboratory Glassware Washers

FEATURES & BENEFITS

For washing and drying primarily narrowneck glassware used in contamination-sensitive research.

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

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

INCLUDES Lower stainless steel spindle rack with 36 detachable spindles, 18 glassware holders, 36 height adjustment clips and 10 additional interchangeable small spindles. Large volumes of water are propelled through the spindles and into the bulb of each flask for high-powered cleaning. Tall spindles hold flasks from 50 ml to 2000 ml; small spindles from 1 ml to 25 ml.

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

Automatic rinse aid dispenser. A peristaltic pump automatically draws a programmed amount of LabSolutions Neutralizing Acid Rinse or other rinse aid during the rinse cycle. In addition, a manual-fill dispenser is located in the door.



Made in U.S.A.

Exclusive Labconco feature

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

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

Water conductivity monitoring. Sensor measures the level of dissolved inorganics such as calcium and ferrous ions in the tank water, providing validation of water cleanliness, hardness and rinsing thoroughness. Confirms that detergent, rinse aid and purified water have been properly dispensed.

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

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

HEPA-filtered forced air drying system through the spindles. Hot air is blown through the spindles to the interior of narrowneck glassware for complete dryness. No separate dryer or oven is needed. A HEPA filter, 99.97% efficient on particulates 0.3 micron, traps dust, lint and other particles in the air introduced during drying.

Attractive and durable Type 304 stainless steel sides, top, door and tank.

Versatile rack options. Spindles on the lower rack may be easily detached and plugged so that the rack may accommodate accessory inserts for a variety of beakers and specialized glassware. An optional 30-spindle upper rack increases washer capacity. Optional racks, including interchangeable Upper and Lower Standard Racks, and accessory inserts are sold separately. See pages 18 and 19.

Clear tempered safety glass viewing window with LED interior light allows observation of the cycle in progress.

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

ETL-listed. Washers carry the ETL mark signifying they are certified to UL* Standard 61010-1 and CAN/CSA C22.2 No. 61010.1.



Automatic liquid detergent dispenser. A peristaltic pump automatically draws a programmed amount of LabSolutions Liquid Detergent or other automatic washer liquid detergent during wash cycles. In addition, a manual-fill dispenser for liquid or powder detergent is located in the door.

Powerful pump recirculates water at a high rate to dislodge dried contaminants for thorough cleaning. Rated at 112 gal min (424 liters/min) on 230 Volt, 50/60 Hz.

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

RS-232 port. May be used to transmit data such as temperature, cycle phase, water level alarm and conductivity to a user-supplied computer or chart recorder.

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

*UL® is a registered trademark of Underwriters Laboratories, Inc., Northbrook, IL.

FlaskScrubber® Vantage® Series Laboratory Glassware Washers

SPECIFICATIONS & ORDERING INFORMATION



FlaskScrubber Vantage Series Laboratory Glassware Washer 4540031 is shown with Base Stand 4595500.



All models feature:

- Freestanding design, convertible to undercounter
- Lower spindle rack, of Type 304 stainless steel, with 36 detachable large spindles, 18 glassware holders, 36 clips and 10 additional interchangeable small spindles
- Water conductivity sensor with display (µs)
- Water temperature to 93° C (199° F)
- LCD information center, Display button, Run/Cancel button, scroll buttons and selection buttons to program and monitor cycles
- Pump rated at 112 gal/min (424 liters/min)
- Drain pump to evacuate over 7 gal/min (26 liters/min)
- Purified water pump to bring non-pressurized or pressurized purified water into the tank for up to six pure water rinses
- Steam generator that produces hot vapor before the WASH 2 cycle (RINSE ONLY and PLASTIC programs excluded)
- Aluminum-backed insulation and fiberglass blanket for thermal and sound insulation
- Operation at 58 decibels
- Automatic liquid detergent dispenser with peristaltic pump
- Automatic rinse aid dispenser with peristaltic pump
- Manual-fill detergent dispenser for powder or liquid detergent
- Manual-fill rinse aid solution dispenser
- HEPA-filtered forced air drying through the spindles programmable up to 250 minutes and from 38-70° C (100-158° F). HEPA filter is 99.97% efficient on particulates 0.3 micron.
- Ten factory-set cycle programs: RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, SCIENCE PLUS, INTENSE, INTENSE PLUS, EXTREME and DRY ONLY
- Two user-set cycle programs
- Alarms with display for HOT GLASS, PLEASE WAIT, WATER LOW,

OVERFLOW, LIQ DETER, RINSE AID, DRAIN FAIL and LOW TEMP. Audible alarms self cancel after one minute.

- User-set delayed start (up to 8 hours)
- Type 304, stainless steel exterior sides, top, door, tank, upper and lower wash arms
- Clear tempered safety glass viewing window
- LED interior light that illuminates when door is latched
- One-piece, stainless steel, fine mesh particle drain filter
- Four leveling feet
- 3/8" Female NPT inlet fitting for hot tap water connection
- Factory-installed drain hose and band clamp
- Two year warranty on parts and labor
- Made in the U.S.A.
- IQ/OQ available. Visit www.labconco.com or call 800-821-5525.

All models conform to:

- UL* 61010-1
- CAN/CSA C22.2 No. 61010.1
- CE Conformity Marking

All models require:


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

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

- Base Stand
- Upper Spindle Rack
- Upper and Lower Standard Racks
- Lower Test Tube Spindle Rack
- Baskets and Inserts
- Glassware Holders
- Drain Water Cooling Kit
- LabSolutions Detergents and Rinse
- ScrubberMate Cart, Glassware Carts and Carboy Caddy
- WaterPro RO Stations and accessories

Catalog #	Style	Electrical Requirements	Maximum Internal Water Temperature	Viewing Window and Light	Overall Dimensions with Door Closed	Shipping Weight
4540031	Freestanding**	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	32.2" w x 27.5" d x 34.2-36.2" h	294 lbs. (133 kg)

*UL® is a registered trademark of Underwriters Laboratories, Inc., Northbrook, IL. **Convertible to undercounter

 Exclusive Labconco feature

FlaskScrubber® Laboratory Glassware Washers

FEATURES & BENEFITS

For washing and drying primarily narrowneck glassware.

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

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

Attractive and durable Type 304 stainless steel door and tank. Free-standing models also have stainless steel sides and top.

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

INCLUDES Lower stainless steel spindle rack with 36 detachable spindles, 18 glassware holders, 36 height adjustment clips and 10 additional interchangeable small spindles.

Large volumes of water are propelled through the spindles and into the bulb of each flask for high-powered cleaning. Tall spindles hold flasks from 50 ml to 2000 ml; small spindles from 1 ml to 25 ml.

Low profile FlaskScrubber 33 undercounter models available. Minimum height of 32.9" allows installation under ADA*-height cabinetry.

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

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

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

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

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

Versatile rack options. Spindles on the lower rack may be easily detached and plugged so that the rack may accommodate accessory inserts for a variety of beakers and specialized glassware. An optional 30-spindle upper rack increases washer capacity. Optional racks, including interchangeable Upper and Lower Standard Racks, and accessory inserts are sold separately. See pages 18 and 19.

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

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

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



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

Forced air drying system. Hot air is blown into the tank to dry glassware. Except for FlaskScrubber 33 models, air is also blown through the spindles to the interior of the glassware. No separate dryer or oven is needed.

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

ETL-listed. Washers carry the ETL mark signifying they are certified to UL† 61010-1 and CAN/CSA C22.2 No. 61010.1.

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



Made in U.S.A.



Exclusive Labconco feature

*Americans with Disabilities Act

†UL® is a registered trademark of Underwriters Laboratories, Inc., Northbrook, IL.

FlaskScrubber® Laboratory Glassware Washers

SPECIFICATIONS & ORDERING INFORMATION



FlaskScrubber Laboratory Glassware Washer 4420430 includes a viewing window and light.



All models feature:

- Lower spindle rack, of Type 304 stainless steel, with 36 detachable large spindles, 18 glassware holders, 36 clips and 10 additional interchangeable small spindles
- LCD information center, Display button, Run/Cancel button, scroll buttons and selection buttons to program and monitor cycles
- Pump rated at 96 gal/min (363 liters) when operated on 115 Volts, 60 Hz and 112 gal/min (424 liters/ min) on 230 Volts, 50/60 Hz
- Drain pump to evacuate over 7 gal/min (26 liters/min)
- Purified water pump to bring non-pressurized or pressurized purified water into the tank for up to six pure water rinses
- Steam generator that produces hot vapor before the WASH 2 cycle (RINSE ONLY and PLASTIC programs excluded)
- Aluminum-backed insulation and fiberglass blanket for thermal and sound insulation
- Operation at 58 decibels
- Manual-fill detergent dispenser for powder or liquid detergent
- Manual-fill rinse aid solution dispenser
- Forced air drying into the tank programmable up to 250 minutes and from 38-70° C (100-158° F)
- Seven factory-set cycle programs: RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, SCIENCE PLUS, and DRY ONLY. All 208/230 Volt models have three additional programs for a total of ten: INTENSE, INTENSE PLUS and EXTREME.
- Two user-set cycle programs
- Programs may be locked to prevent unauthorized changes
- Alarms with display for HOT GLASS, PLEASE WAIT, WATER LOW, WATER HIGH, OVERFLOW, LIQ DETER, RINSE AID, DRAIN FAIL and LOW TEMP. Audible alarms self cancel after one minute.
- User-set delayed start (up to 8 hours)

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

All models conform to:

- UL† 61010-1
- CAN/CSA C22.2 No. 61010.1
- CE Conformity Marking (208/230 Volt models only)

All models require:

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

Standard models also feature:

- Forced air drying through the spindles

FlaskScrubber 33 models also feature:

- Minimum 32.9" height to fit under ADA*-height cabinetry

Options include:

- Standard freestanding and undercounter styles, FlaskScrubber 33 undercounter styles
- Water temperature to 82° C (180° F) on 115 Volt models and 93° C (199° F) on 230 Volt models
- Clear tempered safety glass viewing window and 25-watt interior light that illuminates when door is latched

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

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

Catalog #	Style	Electrical Requirements	Max. Water Temperature	Viewing Window and Light	Forced Air Dry Through Spindles	Overall Dimensions with Door Closed	Shipping Weight
4420320	Std. Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4420321	Std. Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4420330	Std. Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4420331	Std. Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4578120	33 Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	No	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4578121	33 Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	No	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4578130	33 Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	No	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4578131	33 Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	No	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4420420	Std. Freestanding	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	Yes	24.2" w x 27.5" d x 34.2-36.2" h	239 lbs. (108 kg)
4420421	Std. Freestanding	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	Yes	24.2" w x 27.5" d x 34.2-36.2" h	239 lbs. (108 kg)
4420430	Std. Freestanding	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	Yes	24.2" w x 27.5" d x 34.2-36.2" h	239 lbs. (108 kg)
4420431	Std. Freestanding	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	Yes	24.2" w x 27.5" d x 34.2-36.2" h	239 lbs. (108 kg)

Exclusive Labconco feature *Americans with Disabilities Act †UL® is a registered trademark of Underwriters Laboratories, Inc., Northbrook, IL.

SteamScrubber® Laboratory Glassware Washers

FEATURES & BENEFITS

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

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

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

Attractive and durable Type 304 stainless steel door and tank. Free-standing models also have stainless steel sides and top.

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

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

Low profile SteamScrubber 33 undercounter models available. Minimum height of 32.9" allows installation under ADA*-height cabinetry.

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

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

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

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

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

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

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



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

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

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

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

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

ETL-listed. Washers carry the ETL mark signifying they are certified to UL† Standard 61010-1 and CAN/CSA C22.2 No. 61010.1.

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



Made in U.S.A.



Exclusive Labconco feature

*Americans with Disabilities Act

†UL® is a registered trademark of Underwriters Laboratories, Inc., Northbrook, IL.

SteamScrubber® Laboratory Glassware Washers

SPECIFICATIONS & ORDERING INFORMATION



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



All models feature:

- Upper and lower standard open racks of Type 304 stainless steel
- LCD information center, Display button, Run/Cancel button, scroll buttons and selection buttons to program and monitor cycles
- Pump rated at 96 gal/min (363 liters) when operated on 115 Volts, 60 Hz and 112 gal/min (424 liters/min) on 230 Volts, 50/60 Hz
- Drain pump to evacuate over 7 gal/min (26 liters/min)
- Purified water pump to bring non-pressurized or pressurized purified water into the tank for up to six pure water rinses
- Steam generator that produces hot vapor before the WASH 2 cycle (RINSE ONLY and PLASTIC programs excluded)
- Aluminum-backed insulation and fiberglass blanket for thermal and sound insulation
- Operation at 58 decibels
- Manual-fill detergent dispenser for powder or liquid detergent
- Manual-fill rinse aid solution dispenser
- Forced air drying programmable up to 250 minutes and from 38-70° C (100-158° F)
- Seven factory-set cycle programs: RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, SCIENCE PLUS, and DRY ONLY. All 208/230 Volt models have three additional programs for a total of ten: INTENSE, INTENSE PLUS and EXTREME.
- Two user-set cycle programs
- Programs may be locked to prevent unauthorized changes
- Alarms with display for HOT GLASS, PLEASE WAIT, WATER LOW, WATER HIGH, OVERFLOW, LIQ DETER, RINSE AID DRAIN FAIL and LOW TEMP. Audible alarms self cancel after one minute.
- User-set delayed start (up to 8 hours)
- Type 304, stainless steel top, door, tank, upper, middle and lower wash arms. Freestanding models also have stainless steel exterior sides and top.

- One-piece, stainless steel, fine mesh particle drain filter
- Four leveling feet
- 3/8" Female NPT inlet fitting for hot tap water connection
- Factory-installed drain hose and band clamp
- Two year warranty on parts and labor
- Made in the U.S.A.
- IQ/OQ available. Visit www.labconco.com or call 800-821-5525.

All models conform to:

- UL* 61010-1
- CAN/CSA C22.2 No. 6 1010.1
- CE Conformity Marking (208/230 Volt models only)

All models require:

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

SteamScrubber 33 models also feature:

- Minimum 32.9" height to fit under ADA*-height cabinetry

Options include:

- Standard freestanding and undercounter styles, SteamScrubber 33 undercounter styles
- Water temperature to 82° C (180° F) on 115 Volt models and 93° C (199° F) on 230 Volt models
- Clear tempered safety glass viewing window and 25-watt interior light that illuminates when door is latched

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

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

Catalog #	Style	Electrical Requirements	Max. Water Temperature	Viewing Window and Light	Overall Dimensions with Door Closed	Shipping Weight
4400320	Std. Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4400321	Std. Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4400330	Std. Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4400331	Std. Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	24.1" w x 27.4" d x 34.1-36.1" h	206 lbs. (93 kg)
4578020	33 Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4578021	33 Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4578030	33 Undercounter	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4578031	33 Undercounter	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	24.1" w x 27.4" d x 32.9-34.9" h	206 lbs. (93 kg)
4400420	Std. Freestanding	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	No	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)
4400421	Std. Freestanding	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	No	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)
4400430	Std. Freestanding	115 Volts, 60 Hz, 16 Amps	82° C (180° F)	Yes	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)
4400431	Std. Freestanding	208/230 Volts, 50/60 Hz, 12 Amps	93° C (199° F)	Yes	24.2" w x 27.5" d x 34.2-36.2" h	235 lbs. (107 kg)

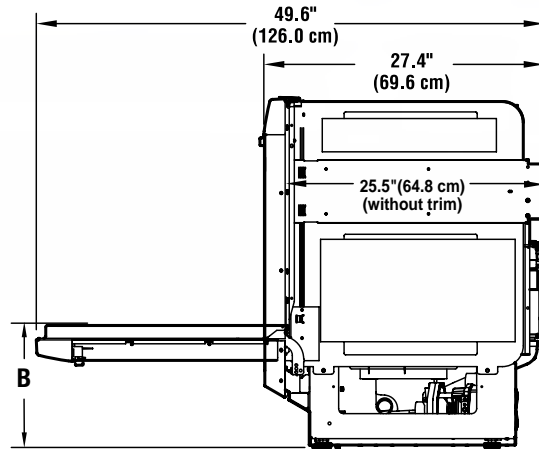
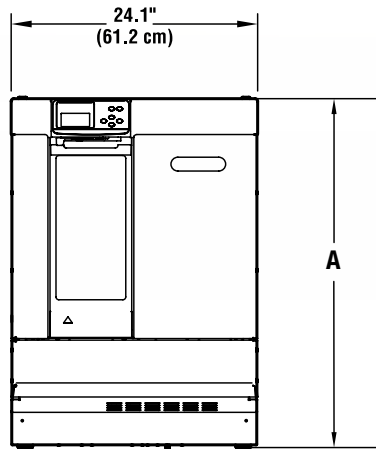
FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

DIMENSIONAL DATA

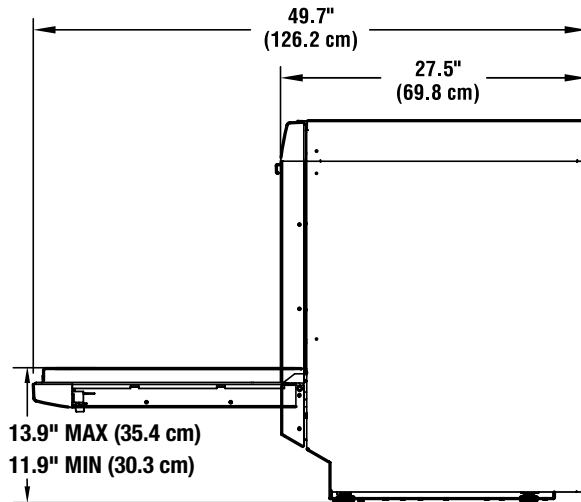
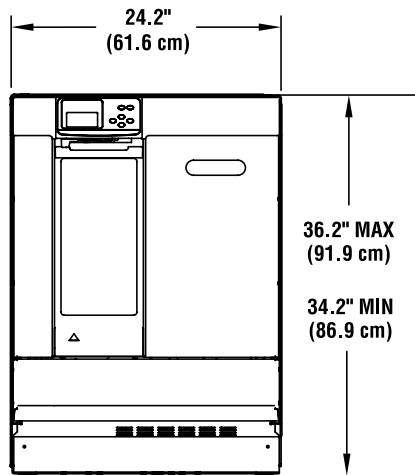
Undercounter FlaskScrubber & SteamScrubber

Style	Min. A	Max. A
Std.	34.2" (86.6 cm)	36.2" (91.7 cm)
33	32.9" (83.5 cm)	34.9" (88.7 cm)

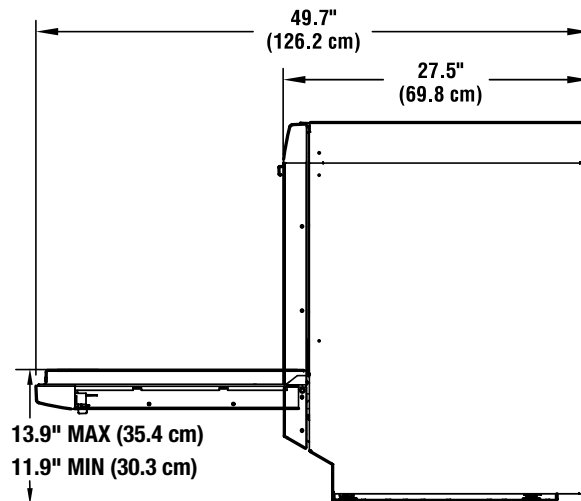
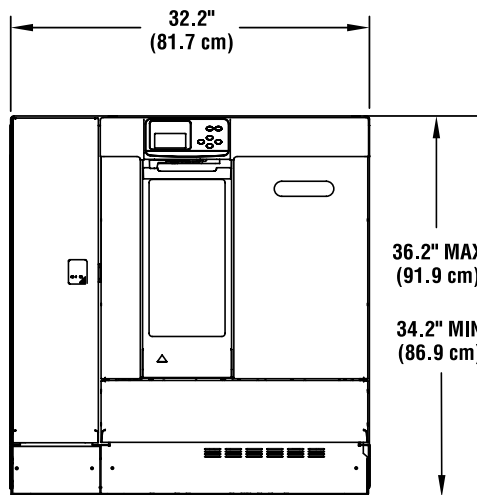
B	
Std.	11.9" (30.3 cm) - 13.9" (35.4 cm)
33	10.9" (27.8 cm) - 12.9" (32.8 cm)



Freestanding FlaskScrubber & SteamScrubber



FlaskScrubber Vantage Series*



*Freestanding model
may be converted
to undercounter

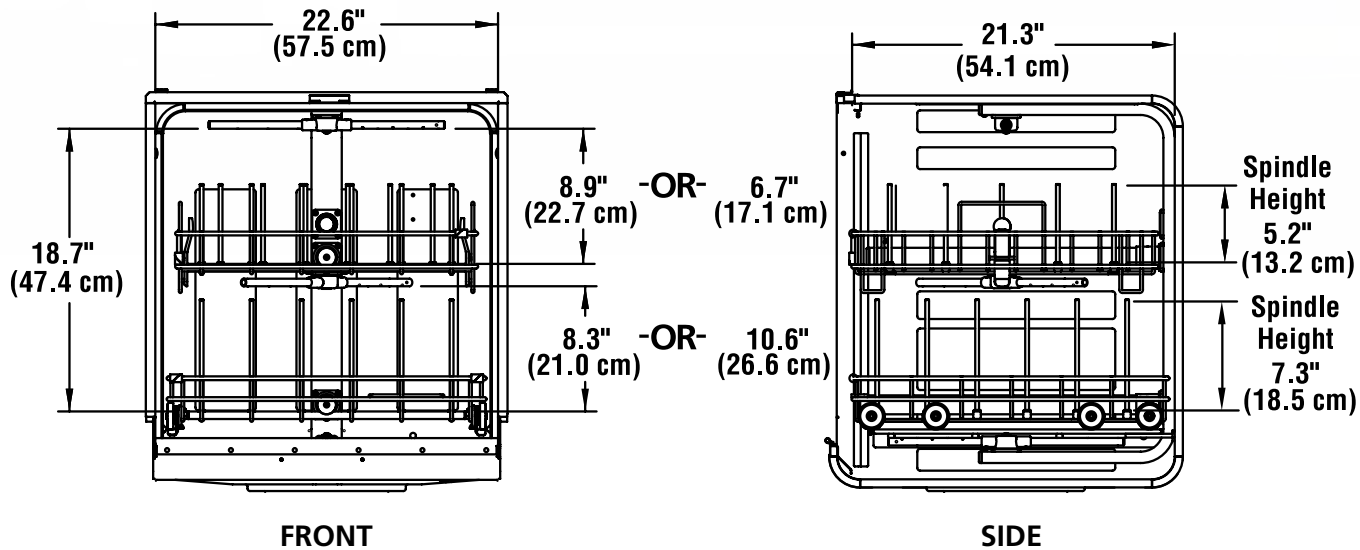
FRONT

SIDE

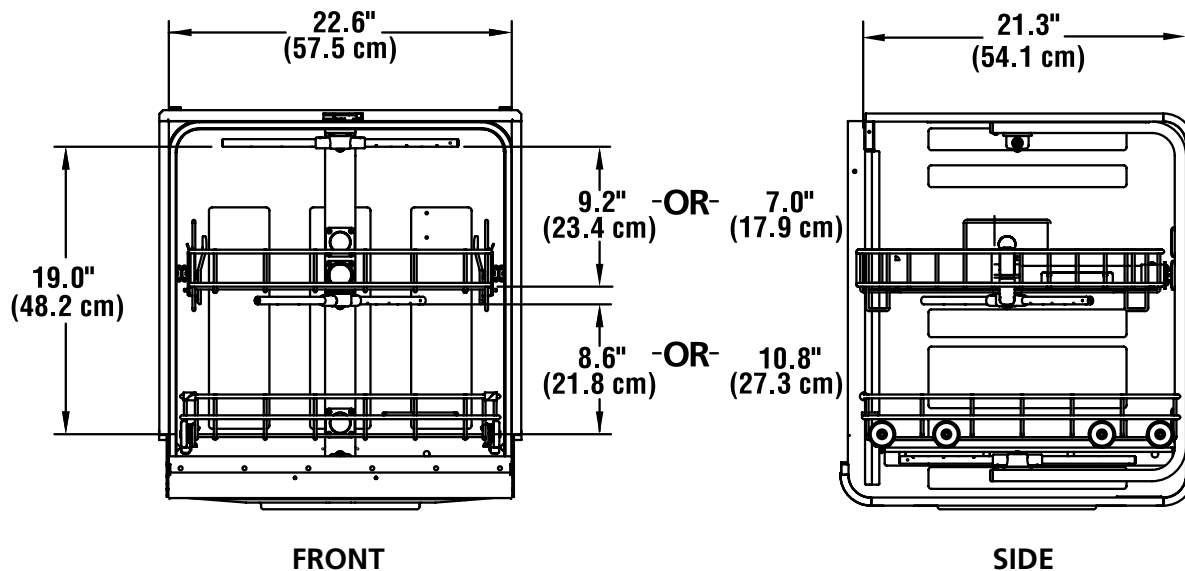
FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

DIMENSIONAL DATA

Inside Dimensions with Lower and Upper Spindle Racks (all models)



Inside Dimensions with Lower and Upper Standard Racks (all models)



FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

ACCESSORIES

Guide to Accessories

Use the icon key below to select accessories that fit your washer. Racks can accommodate a maximum of two inserts except Utensil Holders and Utensil Baskets; racks can hold a maximum of five Utensil Holders* or four Utensil Baskets.



For use in SteamScrubber



For use in FlaskScrubber



For use in FlaskScrubber Vantage Series



Fits in Upper Standard Rack



Fits in Lower Standard Rack



Fits in Lower Spindle Rack with spindles removed and plugged



Fits in Upper Spindle Rack with spindles removed and plugged



Upper Spindle Racks

Constructed of Type 304 stainless steel. Include side release latches, 30 removable spindles, 30 adjustable height clips, 10 small spindles, 15 plastic glassware holders, tool to remove spindles, 30 nylon plugs, and wash arm. Spindles

may be removed and plugged to accommodate accessory inserts (sold separately). Spindle dimensions: 5.2" high x 1/4" OD (13.2 x 0.6 cm). Overall dimensions: 20.0" w x 20.9" d x 7.2" high (51 x 53 x 18 cm). Accommodate glassware up to 8.9" high (22.6 cm).

Catalog #	Description	Shipping Wt.
4595600	Upper Spindle Rack for FlaskScrubber and FlaskScrubber Vantage Series Glassware Washers. Includes side rails for tank side wall installation. Provides direct injection cleaning and forced air drying through the spindles.	20 lbs. (9 kg)
4595800	Upper Spindle Rack for SteamScrubber Glassware Washers. Provides direct injection cleaning through the spindles.	16 lbs. (7 kg)



Lower Spindle Rack 4595700

One is included with every FlaskScrubber and FlaskScrubber Vantage Series Glassware Washer. May be used in place of the Lower Standard Rack in any SteamScrubber. Constructed of Type 304 stainless steel. Includes 36 removable spindles, 36 adjustable height clips,

10 small spindles, 18 plastic glassware holders, tool to remove spindles and 36 nylon plugs. Spindles may be removed and plugged to accommodate accessory inserts (sold separately). Spindle dimensions: 7.3" high x 1/4" OD (18.5 x 0.6 cm). Overall dimensions: 21.1" w x 21.0" d x 8.6" high (54 x 53 x 22 cm). Accommodate glassware up to 18.7" (47 cm) high without upper rack in place. Accommodate glassware up to 10.6" (27 cm) high with upper rack in place. Shipping weight 20 lbs. (9 kg).



Lower Test Tube Spindle Racks

May be used in place of the Lower Standard Rack in any SteamScrubber or the Lower Spindle Rack in any FlaskScrubber or FlaskScrubber Vantage Series Washer. Hold test tubes, vials and other laboratory glassware containers up to 10 mm in diameter. Water and detergent are injected through the spindles to clean and rinse the inside of the tubes. In addition, when used in a FlaskScrubber or FlaskScrubber Vantage Series Washer, hot air is forced through the spindles to dry the inside of the test tubes. Constructed of Type 304 stainless steel. Include 150 each spindles, 2.0" h x 1/8" OD (5 cm x 3 mm) with nylon fasteners and riser. The riser, when placed on top of the spindles, elevates tubes 3/4" (19 mm) from the bottom of the spindles to allow for proper drainage.

Catalog#	Description	Shipping Wt.
4546000	Test Tube Spindle Rack. Includes rack, 150 spindles and riser. Dimensions: 21.0" w x 21.5" d x 5.0" h (53.3 x 54.6 x 12.7 cm)	20 lbs. (9 kg)
4546001	Test Tube Spindle Rack Conversion Kit. Includes 150 spindles and riser. Requires Lower Standard Rack 4588500 (not included). Dimensions: 17.5" w x 12.7" d x 4.2" h (44.5 x 32.3 x 10.7 cm)	15 lbs. (7 kg)

Test Tube Holders

For use with Test Tube Spindle Racks. Keep tubes upright. Constructed of Type 304 stainless steel. Holders 4546200 and 4546300 are stackable so that two Holders in any combination may be installed in a Test Tube Spindle Rack at the same time for double capacity. Washers using stacked Holders can not accommodate an upper rack.



Test Tube Holder 4546200 is stacked atop Test Tube Holder 4546300 (sold separately). See page 19.

* Four Utensil Holders maximum in FlaskScrubber and FlaskScrubber Vantage Series Washers.

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

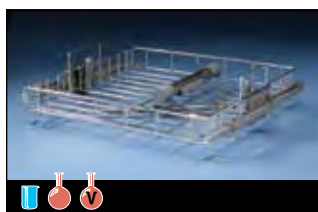
ACCESSORIES



Above left: Test Tube Holder 4546100
Above right: Test Tube Holder 4546200
Left: Test Tube Holder 4546300



Catalog#	Description	Shipping Wt.
4546100	Test Tube Holder accommodates 150 each 10-13 mm OD tubes. Dimensions: 14.3" w x 10.6" d x 6.0" h (36.2 x 27.0 x 15.2 cm).	10 lbs. (5 kg)
4546200	Test Tube Holder accommodates 75 each (7 kg) 14-20 mm OD tubes. Dimensions: 14.3" w x 10.6" d x 5.5" h (36.2 x 27.0 x 14.0 cm). When tubes are 125 mm or shorter, Holder may be stacked with either 4546200 or 4546300 (sold separately).	15 lbs. (7 kg)
4546300	Test Tube Holder accommodates 75 each 20-25 mm OD tubes. Dimensions: 14.3" w x 10.6" d x 7.3" h (36.2 x 27.0 x 18.4 cm). When tubes are 150 mm or shorter, Holder may be stacked with either 4546300 or 4546200 (sold separately).	15 lbs. (7 kg)



Upper Standard Racks

One rack is included with every SteamScrubber. May be used in any FlaskScrubber or FlaskScrubber Vantage Series. Constructed of Type 304 stainless steel. Include side release latches and wash arm. Add accessory

inserts suit your glassware mix (sold separately). Dimensions: 20.2" w x 20.9" d x 6.0" h (51 x 53 x 15 cm).

Catalog #	Description	Shipping Wt.
4595900	Upper Standard Rack for FlaskScrubber and FlaskScrubber Vantage Series Glassware Washers. Includes side rails for tank side wall installation.	16 lbs. (7 kg)
4587000	Upper Standard Rack for SteamScrubber Glassware Washers.	12 lbs. (5 kg)



Lower Standard Rack 4588500

One is included with every SteamScrubber. May be used in any FlaskScrubber or FlaskScrubber Vantage Series. Constructed of Type 304 stainless steel. Add accessory

inserts to suit your glassware mix (sold separately). Dimensions: 21.1" w x 21.0" d x 3.5" h (54 x 53 x 9 cm). Shipping weight 10 lbs. (5 kg).



Utensil Holder 4542500

For spatulas, spoons, scoops and other miscellaneous utensils. Utensils fit vertically in four compartments, 2.75" w x 3.5" d x 4.9" h (7 x 9 x 12 cm). Type 304 stainless steel. Dimensions: 10.8" w x 4.1" d x 6.6" h (27 x 11 x 17 cm). Shipping weight 4 lbs. (2 kg).



Utensil Basket 4402201

For miscellaneous labware such as stoppers, spatulas and other small lightweight items that will not pass through No. 4 mesh sides and bottom. Retainer top is required and included. Type 304 stainless steel. Dimensions: 8.0" w x 8.0" d x 4.0" h (20 x 20 x 10 cm). Shipping weight 2 lbs. (1 kg).



Bulk Tube Insert 4542100

Quick loading. For vertically-positioned test tubes. Holds up to 600 each 13 mm tubes or 244 each 20 mm tubes. Bottom, grate size 0.38" (9.5 mm), allows water to drain from inverted tubes. When insert is less than fully loaded, the divider may be adjusted to keep

tubes upright. Type 304 stainless steel. Smallest divided compartment size: 1.8" w x 8.1" d x 4.2" h (4 x 21 x 11 cm). Overall interior dimensions (without divider): 18.7" w x 8.1" d x 4.2" h (48 x 21 x 11 cm) Dimensions: 21.0" w x 8.3" d x 4.4" h (53 x 21 x 11 cm). Shipping weight 5 lbs. (2 kg).



Culture Tube Inserts

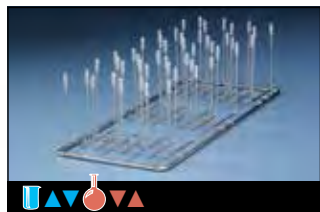
Choose from three inserts designed to hold tubes from 10 to 24 mm OD. Type 304 stainless steel.

Catalog #	Description	Dimensions	Grid Size	Shipping Wt.
4588600*	240 tubes, 10 mm to 12 mm	18.0" w x 8.6" d x 4.5" h (46 x 22 x 11 cm)	16.8 mm x 16.8 mm	4 lbs. (2 kg)
4402001	144 tubes, 15 mm to 18 mm	18.0" w x 7.8" d x 6.4" h (46 x 20 x 16 cm)	23.8 mm x 23.8 mm	3 lbs. (1 kg)
4402101	105 tubes, 20 mm to 24 mm	18.0" w x 8.3" d x 9.9" h (46 x 21 x 25 cm)	26.5 mm x 26.5 mm	3 lbs. (1 kg)
4401401	Retainer Top	18.5" w x 8.3" d x 0.3" h (47 x 21 x 1 cm)	—	2 lbs. (1 kg)

*Includes 4401401 Retainer Top

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

ACCESSORIES



48-Pin Insert 4591601

Forty-eight pins accommodate a variety of labware. Type 304 stainless steel. Stainless steel pins have plastic tips to protect glassware from scratching. Dimensions: 7.8" w x 19.3" d x 5.2" h (20 x 49 x 13 cm). Shipping weight 2 lbs. (1 kg).



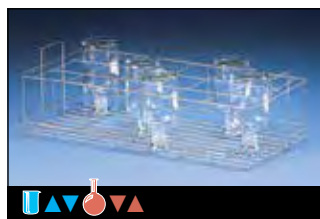
Labware Inserts

Pins hold a variety of wider-mouth flasks, beakers and other labware in inverted position. Retainer Top is recommended for use with plastic and lightweight glassware. Inserts and Retainer Top of Type 304 stainless steel.



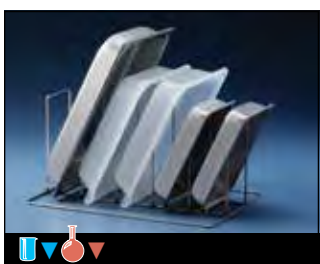
Stainless steel pins have plastic tips to

Catalog #	Description	Dimensions	Shipping Wt.
4401501	10-Pin Insert	19.3" w x 8.8" d x 8.0" h (49 x 22 x 20 cm)	3 lbs. (1 kg)
4401801	32-Pin Insert	19.3" w x 8.8" d x 6.0" h (49 x 22 x 20 cm)	3 lbs. (1 kg)
4401901	Retainer Top	18.5" w x 8.0" d x 0.3" h (47 x 20 x 1 cm)	2 lbs. (1 kg)



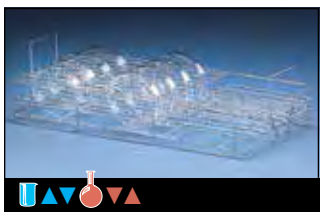
BOD Bottle Insert 4589201

Type 304 stainless steel. Capacity: 18 bottles. Grid size: 70 mm x 70 mm. Dimensions: 19.5" w x 8.8" d x 6.0" h (49.5 x 22.2 x 15.2 cm). Shipping weight 2 lbs. (1 kg).



Tray Insert 4598401

For pans, instrument trays, multi-purpose trays and other shallow containers. Capacity: 5 trays. Type 304 stainless steel. Dimensions: 18.2" w x 12.2" d x 9.1" h (46 x 31 x 23 cm). Shipping weight 2 lbs. (1 kg).



Petri Dish Insert 4589701

For Petri dishes, watch glasses and microtiter plates. Capacity: 24 plates. Grid size: 22 mm x 140 mm. Type 304 stainless steel. Dimensions: 19.2" w x 8.6" d x 5.9" h (49 x 22 x 15 cm). Shipping weight 2 lbs. (1 kg).



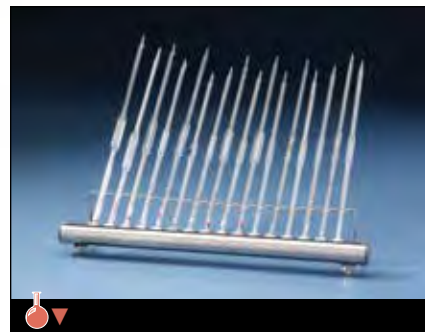
DNA Sequencing Plate Insert 4591500

For electrophoresis plates, 10" x 16.6". Capacity: 6 plates. Type 304 stainless steel with plastic glides. Dimensions: 17.1" w x 8.5" d x 9.9" h (43 x 22 x 25 cm). Shipping weight 6 lbs. (3 kg).



Pipet Inserts

Permit direct injection cleaning of pipets. Self-sealing silicone check valves allow washing of partial or full loads. Type 304 stainless steel. FlaskScrubber and FlaskScrubber Vantage Series Washers hold up to four 4494200 or two 4595200 Inserts.



Catalog #	Description	Shipping Wt.
4494200	Holds 8 pipets, 1 ml to 10 ml. Includes one 1.25" mounting spindle.	2 lbs. (1 kg)
4595200	Holds 16 pipets, 1 ml to 50 ml. Includes two 1.25" mounting spindles and PVC-coated holder.	3 lbs. (1 kg)



Glassware Holders

Grip glassware over spindles.

Catalog #	Description	Shipping Wt.
4424600	4.0" h (10 cm) vinyl-coated Type 304 stainless steel wire with height adjustment screw	0.4 lb. (0.2 kg)
4424800	6.0" h (15 cm) vinyl-coated Type 304 stainless steel wire with height adjustment screw	0.4 lb. (0.2 kg)
4585204*	3.9" h (10 cm) plastic with Type 304 stainless steel height adjustment clip	0.4 lb. (0.2 kg)

*Eighteen 4585204 Glassware Holders are included with every FlaskScrubber and FlaskScrubber Vantage Series Glassware Washer.

Small Spindles with Clips 4596000

Included with every FlaskScrubber and FlaskScrubber Vantage Series Glassware Washer. Type 304 stainless steel. Spindles may be used in any spindle location on any Upper or Lower Spindle Rack to provide direct injection cleaning of small narrowneck glassware. Each spindle is 4.3" h x .12.0" OD. Package of 10 small spindles with 10 height adjustment clips, tool to remove large spindles, 36 nylon plugs and 18 height adjustment clips for large spindles. Shipping weight 3 lbs. (1 kg).

Drain Water Cooling Kits

Provide plumbing components, solenoid valve and electrical connections necessary to mix cold tap water with hot drain water so that water <60° C (<140° F) is directed to the house drain system. When the washer's drainage pump is activated, the solenoid valve opens releasing the flow of cold tap water to the drain.

Catalog #	Description	Shipping Wt.
4591900	Cold Water Drain Kit, 115 volt, 60 Hz operation	8 lbs. (4 kg)
4591901	Cold Water Drain Kit, 230 volt, 50/60 Hz operation	8 lbs. (4 kg)

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

ACCESSORIES & DETERGENT



Freestanding-to-Mobile Conversion Kits

Add mobility to freestanding SteamScrubber and FlaskScrubber Glassware Washers. Allow washers to be plugged into a 20 amp electrical wall outlet and connected to a standard laboratory sink faucet. Include four 2-inch diameter rubber casters, two aerator adapters for connection to standard 55/64"-27 male and 15/16"-27 female laboratory

faucets, drain hose and installation instructions. Not for use with under-counter washers or FlaskScrubber Vantage Series Glassware Washers.

Catalog #	Description	Shipping Wt.
4596100	Mobile Conversion Kit, for 115 volt operation. Includes 10' power cord with NEMA 5/20 plug.	60 lbs. (27 kg)
4596101	Mobile Conversion Kit, for 230 volt operation. Includes 8.2' power cord with NEMA 6/20 plug.	60 lbs. (27 kg)



LabSolutions Liquid Detergent 4522000, Neutralizing Acid Rinse 4522200, and Powder Detergent 4422100 and 4422000

LabSolutions™ Non-Foaming Powder Detergent

Specially formulated for Labconco glassware washers. Removes lab contaminants such as grease, agar, blood and protein digestates. Rinses completely. Non-foaming formula does not promote leaks. A 1% solution has a pH of approximately 12.5. Contains phosphates. Non-hazardous formula may be shipped anywhere.

Catalog #	Description	Shipping Wt.
4422000	Powder Detergent, small pail for approximately 140 loads	10 lbs. (5 kg)
4422100	Powder Detergent, large pail for approximately 400 loads	28 lbs. (13 kg)

LabSolutions™ Low-Foaming Liquid Detergent

Specially formulated for Labconco glassware washers. Removes a wide range of laboratory contaminants. Rinses completely. Non-corrosive formula won't degrade stainless steel, glass or plastic. Phosphate-free for environmentally-safe disposal. Chlorine-free and tissue culture-safe. May be used in hot or cold water.

Catalog #	Description	Shipping Wt.
4522000	Low-Foaming Liquid Detergent for approximately 180 loads. 1 gallon (3.8 liters)	12 lbs. (5 kg)

LabSolutions™ Neutralizing Acid Rinse

Specially formulated for rinse aid reservoir in Labconco glassware washers. Mild acid corrects pH reducing alkaline detergent residue. Removes hard water deposits, mineral deposits, accumulated lime scale that can cloud glassware. Rinses completely.

4522200	Neutralizing Acid Rinse, fills reservoir approximately 6 times. 34 ounces (1 liter)	3 lbs. (1 kg)
---------	---	---------------



Base Stands

Elevate washers 17" (43.2 cm) for washer loading convenience and storage of supplies. Type 304 stainless steel stationary stand, fully assembled with leveling feet and instructions.

Catalog #	Description	Shipping Wt.
4595400	Stand for Freestanding FlaskScrubbers or SteamScrubbers, 24.2" w x 27.5" d x 17.0" h (61 x 70 x 43 cm), includes one storage compartment with hinged door	80 lbs. (36 kg)
4595500	Stand for FlaskScrubber Vantage Series, 32.2" w x 27.5" d x 17.0" h (82 x 70 x 43 cm), includes two storage compartments with hinged doors	105 lbs. (48 kg)



Liquid Detergent Dispenser Kit 4587500

Connects to any SteamScrubber or FlaskScrubber Glassware Washer during installation to automate liquid detergent dispensing.

Includes peristaltic pump, float switch, tubing, one gallon plastic container and installation instructions. Detergent is not included. Not for use with FlaskScrubber Vantage Series Glassware Washers. Shipping weight 10 lbs. (5 kg).

For MSDS information, visit our website at www.labconco.com or call customer service at 800-821-5525 or 816-333-8811.

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

COMPANION PRODUCTS



ScrubberMate Glassware & Rack Cart 8027000



Sixteen combs, each with three pins, may be placed in sixteen positions in the upper drawer and sixteen positions in the lower drawer.



Upper and lower drawers hold two inserts each and pull out for easy access. An upper rack may be stored on the top; a lower rack below.

ScrubberMate™ Glassware & Rack Cart 8027000

Designed for Labconco glassware washers. Provides convenient storage and transport of extra Labconco washer racks, inserts or miscellaneous glassware. Accommodates up to two Labconco washer racks or four wire inserts. Alternatively, 48 adjustable and removable pins, 0.5" wide x 4.75" high (1.3 cm x 12.1 cm), may be arranged in the drawers to hold inverted flasks, beakers and other glassware. Rails are provided to allow a lower washer rack to slide directly onto the cart from the washer. In addition, the lower drawer pulls out for simple loading of inserts or individual glassware. An upper washer rack may be docked above the upper drawer. The upper drawer accommodates two wire inserts and is removable so that tall glassware may be loaded in the lower drawer. Durable and chemical-resistant, high density polyethylene construction. Includes 2.5" diameter casters with toe locks. Dimensions: 23.3" w x 22.6" d x 31.6" h (59.2 x 57.4 x 80.3 cm). Fully assembled. Shipping weight 70 lbs. (32 kg).



Glassware Cart 8032500



Glassware Cart 8045000

Glassware Carts

Safely transport clean and dirty labware. Come with two large or four small interchangeable vinyl-coated wire baskets and removable drip pan below the baskets to catch spills. Include 4" diameter casters (two with toe locks). Constructed of welded 1-inch square tubular steel coated with mar-resistant epoxy. Dimensions: 34.9" w x 19.0" d x 36.4" h (88.6 x 48.3 x 92.4 cm). Fully assembled. Lifetime warranty.

Catalog #	Description	Shipping Wt.
8032500	2-Basket Glassware Cart	43 lbs. (20 kg)
8045000	4-Basket Glassware Cart	43 lbs. (20 kg)
8040100	Large Basket, 32.0" w x 18.0" d x 4.0" h (81.3 x 45.7 x 10.2 cm)	5 lbs. (2 kg)
8040200	Small Basket, 16.0" w x 18.0" d x 4.0" h (40.6 x 45.7 x 10.2 cm)	2 lbs. (1 kg)



Carboy Caddy 8000300

Provides safe way to move a large container of purified water without heavy lifting. Includes 3" diameter casters that elevate the support shelf only 4.25" above the floor. Shelf constructed of phenolic board with a melamine high-pressure laminate surface. Frame constructed of welded 1-inch square tubular steel coated with mar-resistant epoxy. Handle dimensions: 38.5" high x 19.0" wide (97.8 x 48.3 cm). Shelf

dimensions: 20.0" x 23.6" (50.8 x 60.0 cm). Supports loads up to 360 pounds (163 kg). Fully assembled. Lifetime warranty. Shipping weight 35 lbs. (16 kg).

FlaskScrubber® & SteamScrubber® Laboratory Glassware Washers

COMPANION PRODUCTS



WaterPro RO Stations

Connect to Labconco glassware washers to provide purified water for the rinse cycles. Deliver 1 liter/minute of reverse osmosis purified, Type III water when feedwater purity is 100 µs or better. For wall mounting. Powder-coated steel cabinet with Type 304 stainless steel front panel. Three bowls made of white polypropylene. Includes integral

17 liter polyethylene storage tank with outlet port for connection to washer; ON/OFF switch; µS, TEMP ° C, TIME DISP. and TANK FULL indicator lights; and DISPENSE switch. If TIME DISP. is activated, water dispensing from the valve automatically shuts off once user-set time has elapsed. LED display shows actual water quality from 1 to 999 microsiemens (µS), actual water temperature in ° C or dispense time in minutes. **Requires Prefilter/Carbon Filter Kit 9067201 and Reverse Osmosis Membrane 9078700 for operation.** Dimensions: 31.1" w x 7.9" d x 30.4" h (79 x 20 x 77 cm).

Catalog #	Electrical Requirements	Shipping Wt.
9075000	For 115 volts, 60 Hz, 12 amp AC operation. Includes 8-foot, 3-wire cord and plug.	100 lbs. (45 kg)
9075002*	For 230 volts, 50 Hz, 6 amp AC operation. Includes 8-foot, 3-wire cord. An electrical plug is required.	100 lbs. (45 kg)

Prefilter/Carbon Filter Kit 9067201 Required for operation. Includes Prefilters (3) and Carbon Filters (3), for initial start-up and two filter changes. Shipping weight 10 lbs. (5 kg).

Reverse Osmosis Membrane 9078700 Required for operation. Shipping weight 6 lbs. (3 kg).



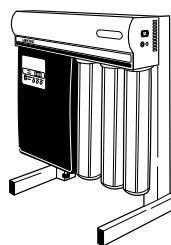
70 Liter Storage Tanks

Connect to the WaterPro RO Station to provide additional storage capacity for RO-purified water and means to deliver it from three outlets to destinations such as a polishing station and glassware washer. Use a gravity feed system for water delivery. The 70 liter polyethylene tank has one 3/4 NPT female port and two 3/8" ball valves with 3/8" female fittings. The tank includes 6 feet of polyurethane tubing for

connection to the WaterPro RO Station, a 0.3 micron vent filter to help prevent airborne bacterial contamination of the tank, a float switch to prevent the WaterPro RO Station from overflowing the tank, a fill valve wired in series with the float switch that activates when a drop in water level is detected, and two check valves that direct water to drain if the water level exceeds normal level. The tank has a powder-coated steel support stand so that it may stand alone up to 6 feet away from the WaterPro RO Station. Dimensions: 32.8" w x 14.4" d x 26.0" h (83.5 x 36.5 x 66.0 cm).

Catalog #	Electrical Requirements	Shipping Wt.
9100000	For 115 volts, 60 Hz, 1 amp AC operation. Includes 8-foot, 3-wire cord and plug.	80 lbs. (36 kg)
9100001*	For 230 volts, 50 Hz, 6 amp AC operation. Includes 8-foot, 3-wire cord. An electrical plug is required.	80 lbs. (36 kg)

* International electrical configuration



Support Stand 9077400

For converting wall-mounted WaterPro RO Station to bench mounted. Rests on countertop or other horizontal surface. Powder-coated steel. Dimensions (with WaterPro RO Station attached): 31.1" w x 16.1" d x 35.3" h (79 x 41 x 90 cm). Shipping weight 20 lbs. (9 kg).

Contact Labconco for more information about these quality products for your laboratory.



Water Purification Systems



Fume Hoods & Carbon-Filtered Enclosures



Biological Safety Cabinets



Safety Enclosures & Clean Benches



Laboratory Animal Research Stations



Balance & Bulk Powder Enclosures



Glove Boxes



Forensic Enclosures



Freeze Dry Systems



Vacuum Concentrators & Cold Traps



Multiple Sample Evaporation Systems



Bio-Concentrators



Agricultural Chemistry Products



Laboratory Carts & Benches



Blood Drawing Chairs



Labconco Corporation

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 Kansas City, MO 64132-2696
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 E-MAIL: labconco@labconco.com
 HOME PAGE: www.labconco.com



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2-10-8/12-3M-R1

Supreme Air Fume Hood Construction

The design is based on rigid frame construction that assures a solid installation and low vibration and sound levels. Access panels are easily removable to access service lines and fittings. Radius corner posts and airfoils, plus, easy operator control of interior baffle settings assure a high level of comfort, safety and efficiency.

Given the variety of models available and the comprehensive option packages to be selected,

this new generation of fume hoods can be tailored to the application needs of your modern laboratory. Aesthetically pleasing curved airfoils, vision sash panels, contemporary controls and devices, designer colors and combinations make a hard-working laboratory safety device into an attractive part of the total laboratory environment.

Energy saving lighting with exterior relamping

- Single bulb, low profile T5 fluorescent light fixture
- Optional special purpose lighting

Task specific liner options

- Phenolic resin
- Kemglass
- KMER
- Type 304 Stainless Steel
- Low profile, self-gasketing, interior access panel — removable without tools

Customizable accessory offering

- A full array of service fittings and electrical fixtures
- Monitoring and safety alarms
- Pre-piping and pre-wiring
- UL listed when pre-wired per UL 61010A-1
- UL 1805 classified with Kemglass or Stainless Steel liner

Low profile PVC sash tracks

- Smooth sash operation
- Reduced air turbulence
- Seals the interior side panel

Easy operating full vision sash with:

- Full length painted aluminum handle for neat, clean appearance and streamline air features
- Exclusive sash leveling and alignment features

Top front panel available as:

- Solid panel with integral louvers
- Vision panel with integral louvers (shown)
- Solid panel with Sight-tight Chevron by-pass grille
- Vision panel with Sight-tight Chevron by-pass grille



Independent frame construction

- Rigid structural frame
- Allows liner panel replacement
- Stainless steel fasteners concealed with corrosion resistant caps

Narrow-radiused corner posts

- Enhances aerodynamic air flow
- 4" width creates more interior work space

Radiused air foil

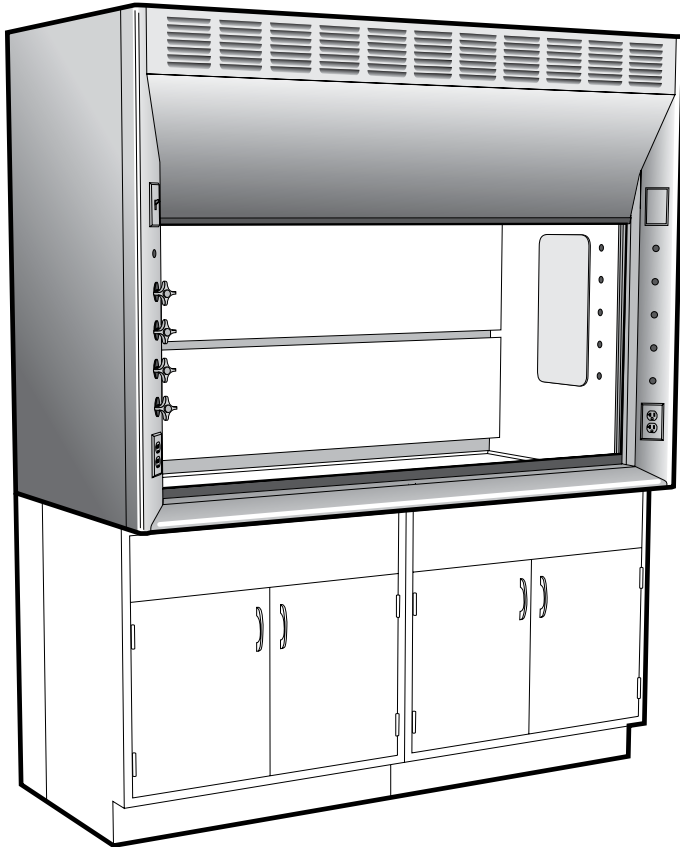
- Streamline air flow — low turbulence
- Heavy gauge steel for durability
- Available painted or in stainless steel

Exclusive Kemresin work tops

- Dished worksurface available in multiple colors
- Many other options, including stainless steel

General Purpose Bench Fume Hood

with Vertical Rising Sash



Available Options:

- Adjustable Baffles
- Air Flow and Static Pressure Alarms
- Service Fittings and Piping
- Electrical Fixtures and Wiring
- UL listed when pre-wired per UL 61010A-1
- 1805 UL classified with Kemglass or Stainless Steel liner
- Vapor Proof and Explosion Proof Lighting
- Stainless Steel Deflector Vane
- Alternate Sash Handles
- Sash Frames
- Tempered Sash Glass
- Tissue Screen
- Fire Extinguisher
- Distillation Rack
- Sash Stop
- Stainless Steel Duct Collar

Available Models:

- Open By-Pass
- Restricted By-Pass
- Auxiliary Air

Features:

- Radiused corner posts and airfoils for smooth air movement assures high level of comfort, safety and efficiency.
- 4" thick endwalls provide more interior work space and clean-lined uncluttered design.
- Interior baffles designed to minimize turbulence and optimize containment.
- Frameless sash with full-length formed steel handle for neat, clean appearance and streamline air features.
- Low profile PVC sash tracks and exclusive sash leveling and alignment features assure easy-smooth sash operation
- Large friction-fit interior access panels provide easy access to piping and service fittings.
- Heavy gauge cold rolled steel exterior panels with independent rigid structural frame.
- Designed and tested using ASHRAE 110-1995, BS 7258, and DIN 12 924 standards.

Supreme Air Fume Hood

H05

Specifications:

Supreme Air General Purpose Bench Fume Hoods are furnished with a choice of liner and baffles with upper, center, and lower exhaust slots. Each fume hood is complete with a lower deflector vane, counterbalanced, frameless sash of 1/4" combination

safety glass and interior plumbing access panels. Hood exteriors are fabricated of cold rolled steel, phosphate coated with a baked chemical resistant, synthetic resin finish. The exhaust duct collar is polyethylene, 11¹⁵/₁₆" O.D. (8 foot

hoods are furnished with two duct collars.) Supreme Air Bench Hoods are available with either an Open By-Pass or a Restricted By-Pass for VAV use. An auxiliary air chamber is available for use on the Open By-Pass hood.

Additional Parts Required to Make Up a Complete Fume Hood Assembly

- Work Top** see page 49
- Base Cabinets** see page 63
- Service Fittings** see page 54
- Cupsink** see page 53
- Fan/Blower** see page 82

Liner Options:

- T** = Phenolic Resin
- G** = Kemglass
Fiberglass reinforced polyester
- K** = KMER
Kewaunee Modified Epoxy Resin
- S** = Type 304 Stainless Steel

The blank left in the fume hood catalog numbers is for designating the desired lining.

Example: H05T5448-00 would designate a 4' hood with a Phenolic Resin lining.

DIMENSIONS	HEIGHT	LENGTH				DEPTH
Overall Dimension	89 3/4" **	48"	60"	72"	96"	36"
Sash Opening	28" *	40"	52"	64"	88"	...
Work Top	37" **	40"	52"	64"	88"	25 1/2"
Clearance (sash up)	97" **

* Sash opening height above airfoil. Add 1" in height to calculate sash opening area.
** Subtract 1" in height if wood base cabinets are used.

Overall Hood Length	Sash Opening Sq. Ft.	Total CFM and Static Pressure					
		80 FPM	S.P.	100 FPM	S.P.	120 FPM	S.P.
4'-0" / 48"	8.1	650	0.15"	810	0.25"	980	0.35"
5'-0" / 60"	10.5	840	0.20"	1050	0.30"	1260	0.45"
6'-0" / 72"	12.9	1040	0.25"	1290	0.40"	1550	0.60"
8'-0" / 96"	17.7	1420	0.15"	1770	0.25"	2130	0.35"

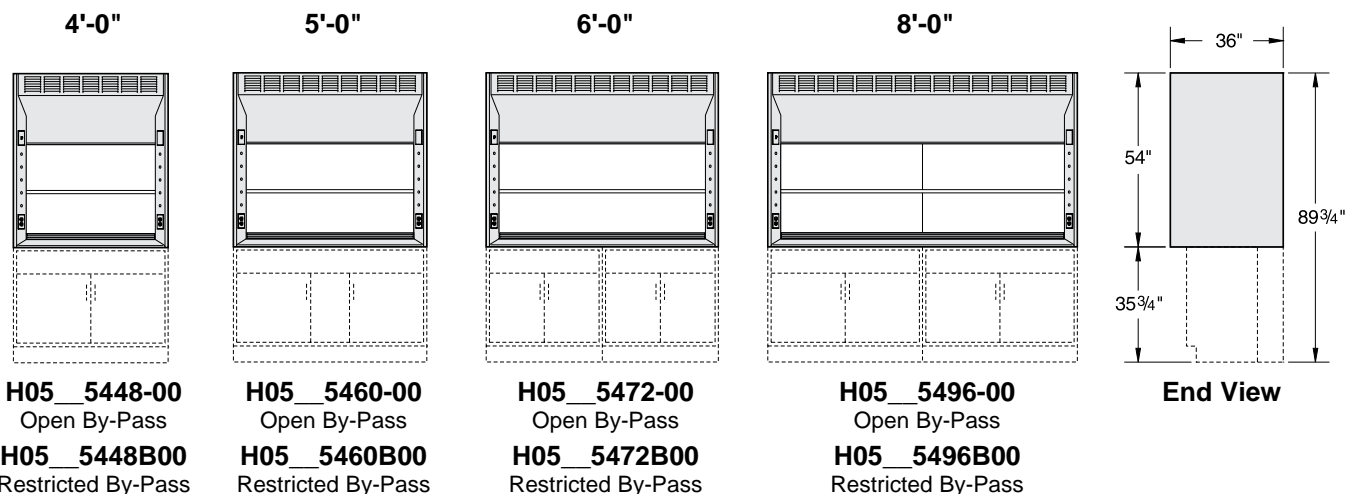
Static pressures shown are for the pressure drop through the hoods only. The total pressure drop through the hood and the duct system must be calculated to select the proper exhaust fan.

Note: CFM requirements shown above are for **Open By-Pass** hoods. The CFM requirements for a **Restricted By-Pass** hood with the sash fully open is the same as above. The by-pass opening with the sash closed is 20% of that with the sash fully open.

Accessories Include: Two 120 volt AC 20 amp GFI receptacles, single-tube, T-5 fluorescent light fixture with bulb and 20 amp light switch. **No wiring for the electrical fixtures is included unless H-Option is selected.**

Optional Accessories: Each front post and interior end liner is punched for up to five (5) remote control service fittings. The right hand post is punched for a second electrical fixture at the top which may be used for a fan switch or other electrical device. **Service fittings, fan, fan switch, work top, cupsink, and base units must be ordered separately.**

General Purpose Bench Fume Hoods — Vertical Rising Sash



Auxiliary Air

All Open By-Pass hoods can be Auxiliary Air hoods by adding an Auxiliary Air Chamber. See page 43 for catalog numbers.

Note: See page 44 for chart of available options.

Note: Open By-Pass Fume Hood shown. Restricted By-Pass Fume Hoods do not have louvered top front panel.

CU1526 / CU2026 - 150 lb / 200 lb Self-contained Ice Machine

Prodigy[®] Undercounter Cuber with Storage



CU1526 / CU2026

Features & Benefits

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

AutoAlert™ control panel can communicate operating status and signal when it's time to descale, sanitize, and more—making upkeep easier.

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

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

Preventative maintenance is simpler than ever with easily-removed door, top panel and storage bin allowing clear access to all internal components and a diagnostic code display insuring the right fix the first time.

Front removable air filter.

24 Hour Volume Production

Air Cooled				Water Cooled		
70°F/21°C 50°F/10°C lb/kg	Air Water	AHRI 90°F/32°C 70°F/21°C lb/kg		70°F/21°C 50°F/10°C lb/kg	Air Water	AHRI 90°F/32°C 70°F/21°C lb/kg
150/68		110/50	CU1526	175/80		124/56
200/91		155/70	CU2026	240/109		190/83



Front Air Filter

Cube Ice



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

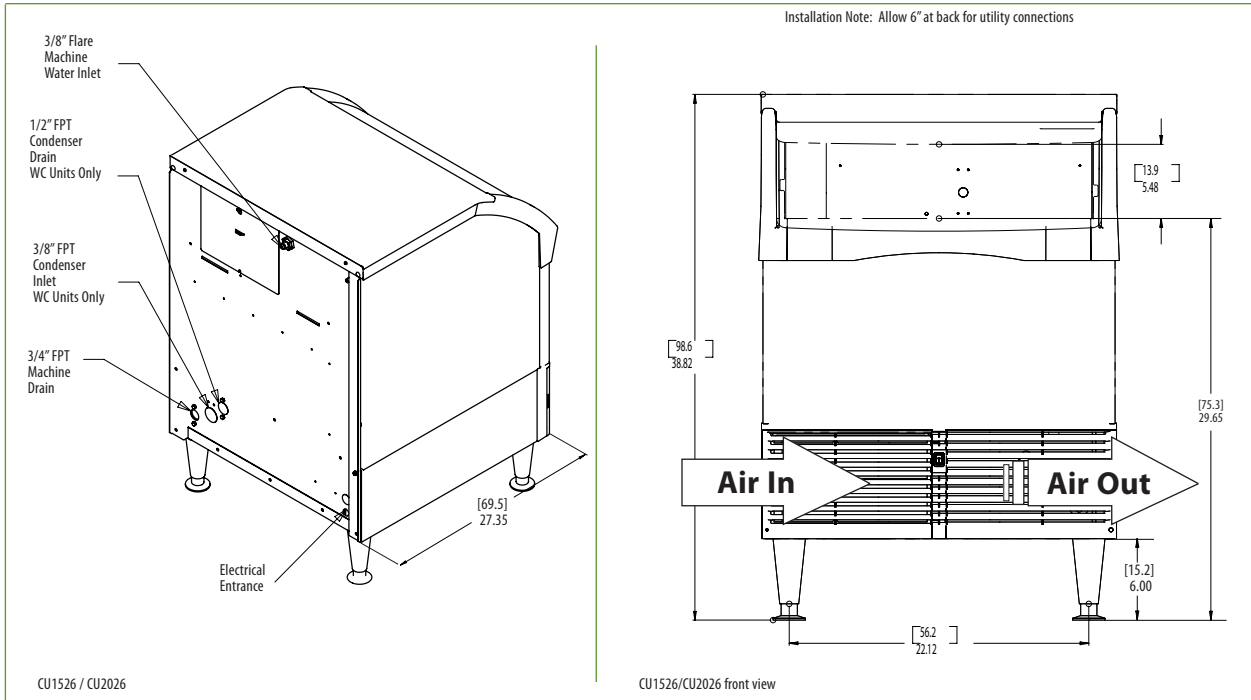
Medium Cube
7/8" x 7/8" x 7/8"
(2.22 x 2.22 x 2.22 cm)

Common ice form, ideal for mixed drinks.

Warranty

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

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



Specifications

Model Number* <small>Cube Size: medium or small</small>	Condenser Unit	Storage 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)	Water Usage Gallons/100 lb (liters/45 kg)	
								Potable 90°F(32°C)/70°F(21°C)	Condenser 90°F(32°C)/70°F(21°C)
CU1526MA-1	Air	80/36	115/60/1	15	2	Cord	11.5	18.0/68.2	-
CU1526MW-1	Water	80/36	115/60/1	15	2	Cord	8.8	18.0/68.2	160/606
CU1526SA-1	Air	80/36	115/60/1	15	2	Cord	11.5	18.0/68.2	-
CU1526SW-1	Water	80/36	115/60/1	15	2	Cord	8.8	18.0/68.2	160/606
CU2026MA-1	Air	80/36	115/60/1	15	2	Cord	9.7	18.0/68.2	-
CU2026SA-1	Air	80/36	115/60/1	15	2	Cord	9.7	18.0/68.2	-
CU2026SW-1	Water	80/36	115/60/1	15	2	Cord	6.6	18.0/68.2	180/682

* 208-230/60/1 Voltage - Substitute -32 in place of -1, i.e. CU2026MA-32A (CU2026 models only)

All Models

Dimensions (W x D x H):
 Unit: 26" x 27 3/8" x 33"*
 (66.0 x 69.5 x 83.8 cm)
 *Add 6" for legs

Shipping Weight:
 CU1526 - 150 lb / 68 kg
 CU2026 - 175 lb / 80 kg

Shipping Carton:
 29" x 30" x 37"
 (73.7 x 76.2 x 94.0 cm)

BTUs per hour:
 CU1526 - 3,100
 CU2026 - 3,900

Accessories

Model Number	Description
KLP8S	Kit 6 inch legs SS
KPUFM26	Kit Prodigy undercounter floor mount 26 inch for CU1526 - CU2026 (adds .5" to height)

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

Operating Requirements

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

Specifications and design are subject to change without notice.

Scotsman Ice Systems • 775 Corporate Woods Parkway • Vernon Hills, IL 60061

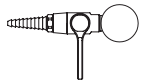
1-800-SCOTSMAN

Fax: 847-913-9844

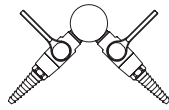
E-mail: customer.relations@scotsman-ice.com

www.scotsman-ice.com

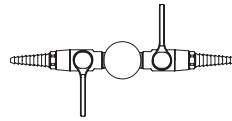
L4200-131WSA Laboratory Ball Valve Assembly, Deck Mounted Single



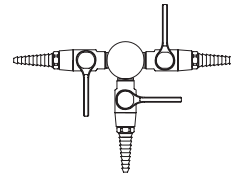
L4200-131WSA
Single



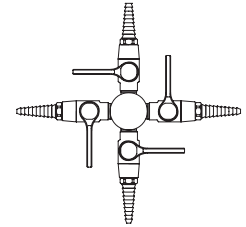
L4200-132AWSA
90° Double



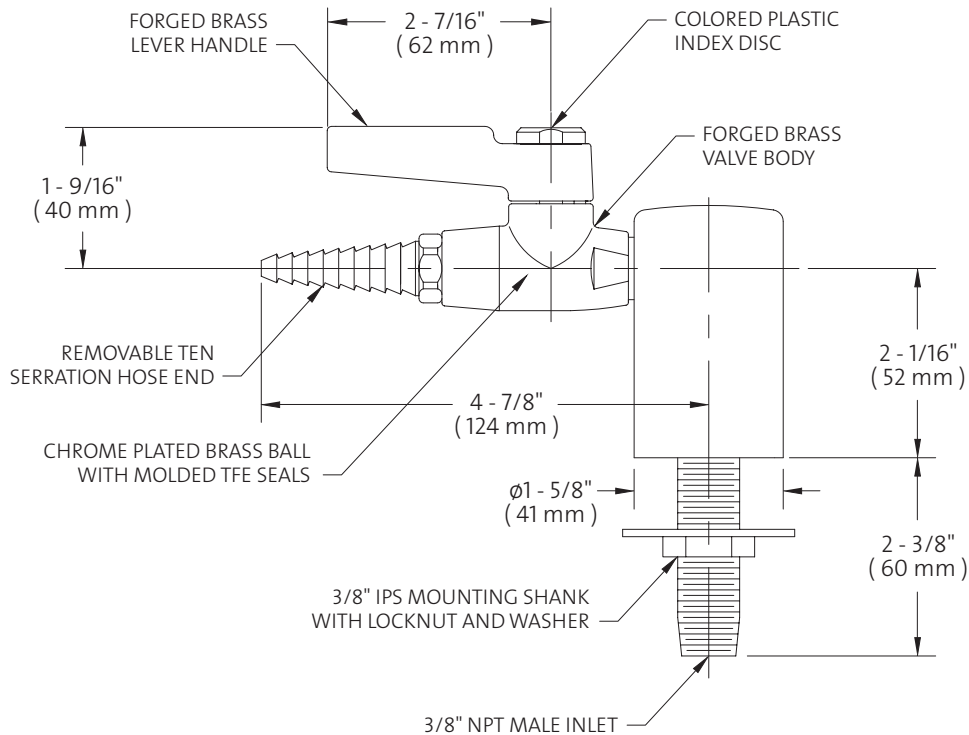
L4200-132SWSA
180° Double



L4200-133WSA
3-Way



L4200-134WSA
4-Way



NOTES:



- LABORATORY BALL VALVE ASSEMBLY IS CERTIFIED BY CSA INTERNATIONAL TO COMPLY WITH ANSI Z21.15 AND CGA 9.1.
- FIXTURE IS FULLY ASSEMBLED AND FACTORY TESTED AT 125 PSI AIR PRESSURE. MAXIMUM WORKING PRESSURE IS 75 PSI.

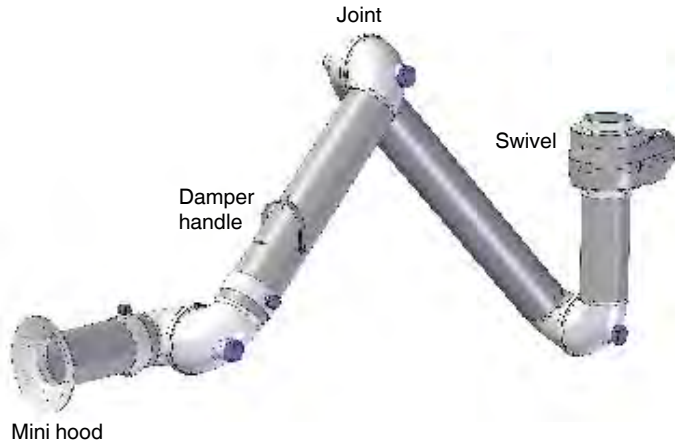
Measurements may vary $\pm 1/4$ ".

© 2008 / WaterSaver Faucet Co.

Technical Description

FX Extractor arms - Original

Wall/ceiling/floor model - 50, 75 and 100 mm



General description

Extractor arms for use in industries, laboratories, schools in applications such as gluing, working with solvents, spot/TIG welding, screen printing, adhesives etc.

Arm sections

Thin walled anodized aluminum sections with a very good corrosion resistancy against solvents etc. In contacts with alkaline materials the surface can be stained or damaged.

Swivel

Swivel with 360 degree rotation. Add reduction for correct connection diameter.

Joints

The adjustment knobs on the friction joints are supported by ball-bearings. The first joint is supported by a spring (not Ø50-700 and Ø100-1200). 360 degree rotation where indicated.

Mini hood

The Mini hood is supplied together with the arm and is also interface to the multi purpose and metal hood.

Mounting

The arms can be mounted on ceilings, walls and floors or fixed to tables. By using an extension profile the arm's operational reach can be increased.

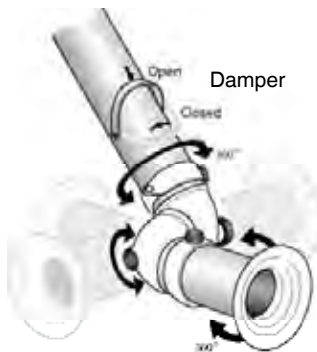
Other

All the arms are provided with dampers, tight down to an underpressure of 3500 Pa. Air temperature -10°C to 70°C. Material recovery: 99% by weight.

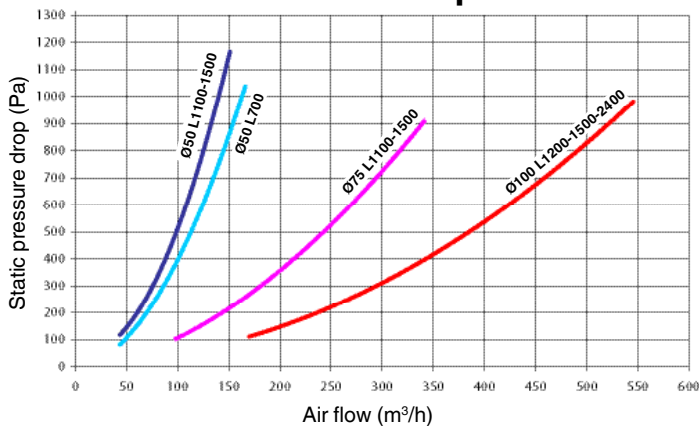
Accessories

For brackets, hoods, reductions and hoses, see Technical Description "FX Extractor arms Accessories".

Swivel and link functions

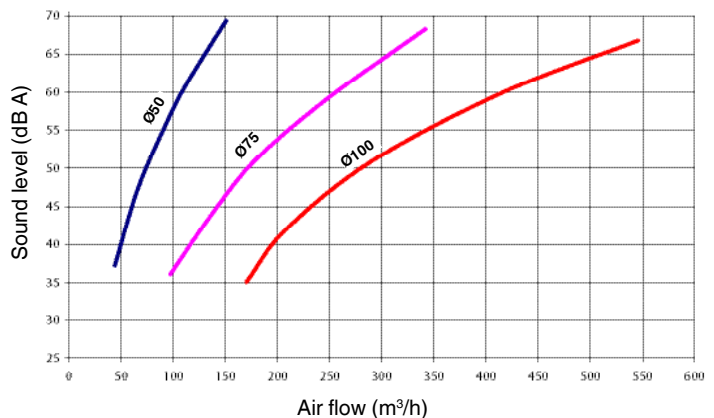


Pressure drop



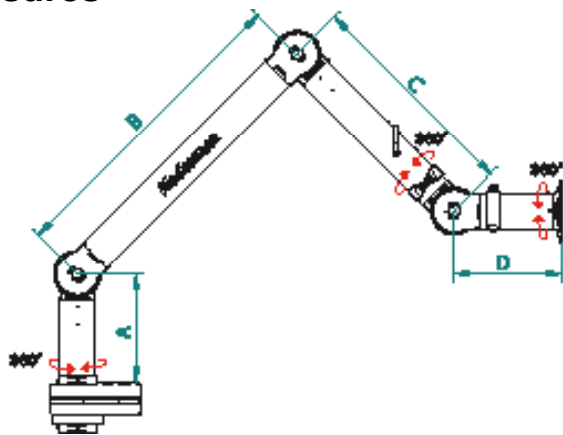
Position of arm when measured

Sound level

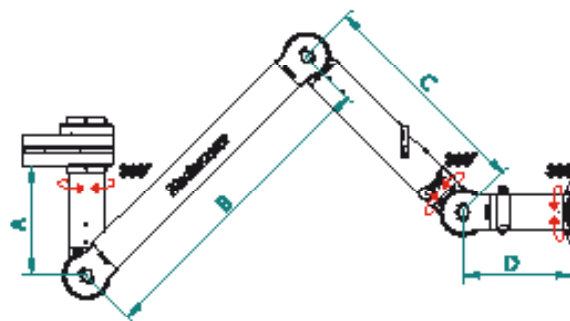


Position of arm when measured

Measures



FX arm with ventilation connection downwards.



FX arm with ventilation connection upwards.

Measures and Part numbers

Connection direction*	Diameter (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Length (mm)	Weight (kg)	ORIGINAL Part No.
Down	50	250	400	400	230	1100	2.5	70510244
Down	50	250	700	500	230	1500	2.8	70510444
Down	75	250	420	420	250	1100	3.3	70540144
Down	75	250	700	500	250	1500	3.5	70540344
Down	100	260	750	750	270	1800	5.9	70570244
Up/Down	50	250	400	-	230	700	1.9	70510144
Up/Down	100	260	450	450	270	1200	4.8	70570144
Up	50	250	400	400	230	1100	2.5	70510344
Up	50	250	700	500	230	1500	2.8	70510544
Up	75	250	420	420	250	1100	3.3	70540244
Up	75	250	700	500	250	1500	3.5	70540444
Up	100	260	750	750	270	1800	5.9	70570344
Up	100	330	1010	1010	270	2400	6.9	70570544

*Note: Different spring mechanisms are fitted depending on connection direction

Materials

Description Original arm	Material
Flange	PP
Tubes	Aluminium, anodized 10 µm
Joints	PP with glass fibre reinforcement
Plastic rings	PP with glass fibre reinforcement
Axial locking rings	PP with glass fibre reinforcement
Adjustment knobs	PP with glass fibre reinforcement screws in galvanized steel
Threaded shaft inside joints	Stainless steel
Damper blade	Thermo Plastic Elastomer
Damper adjustment handle	Aluminium, anodized 10 µm
Internal spring	Stainless steel
Bearings swivel	PP with glass fibre reinforcement
Swivel	Aluminium
Rivets	Aluminium

Airflows

Recommended airflows	
Ø 50	50-110 m³/h
Ø 75	110-240 m³/h
Ø 100	200-450 m³/h

Nederman

www.nederman.com

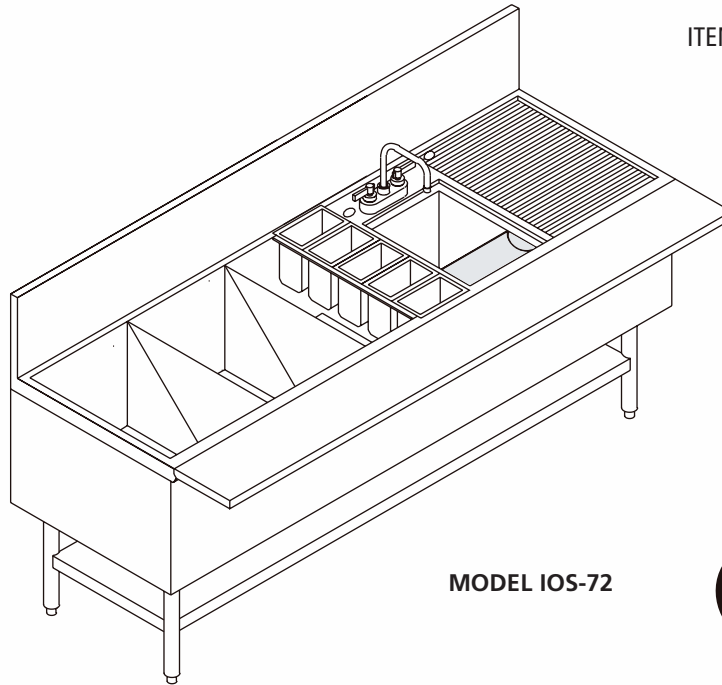


OYSTER STATION

MODULAR COMPONENTS

PROJECT _____

ITEM NO. _____



MODEL IOS-72



STANDARD FEATURES

- All Heli-arc welded construction
- All 18 gauge type 304, 18/8 stainless steel
- Heavy duty stainless steel gussets welded to 14 gauge stainless steel channel supports
- Stainless steel adjustable bullet feet
- Attractive high polished bullnose edge to front
- Polyurethane 'shot-in-place' insulation
- Shucking sink with built in sand trap and removable shell catch insert
- Full length fold down plastic cutting board with heavy duty fold down brackets
- 42" wide ice chest with perforated false bottom
- Two (2) removable ice bin dividers
- 12.1/2" deep ice bin
- 1" x 3" brass drain
- Easy clean bin with 3/8" radius interior corners
- 5 - 1/9th pans for cold condiments
- Premium heavy duty faucet's with gooseneck spout - deck mounted
- Ice melt down faucet

MODELS

OYSTER STATION

Length	Depth	Ice Capacity	Model
<input type="checkbox"/> 60"	32" (with cutting board up)	126#	IOS-60
<input type="checkbox"/> 72"	32" (with cutting board up)	181#	IOS-72

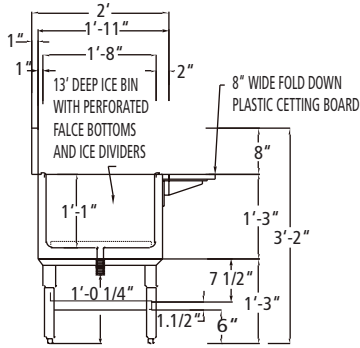
OPTIONS

- TC - Plastic Trash Can
- TR - Towel Rail

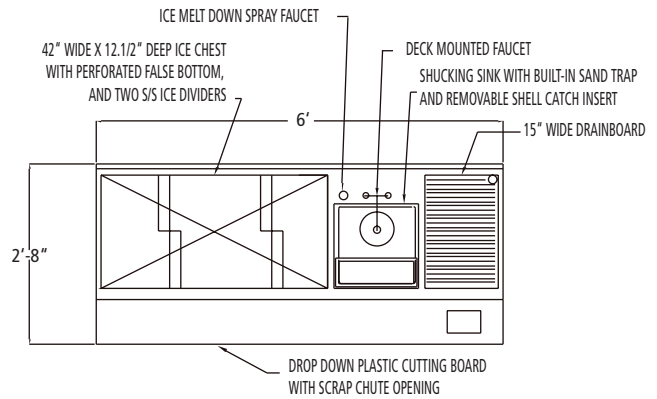


OYSTER STATION

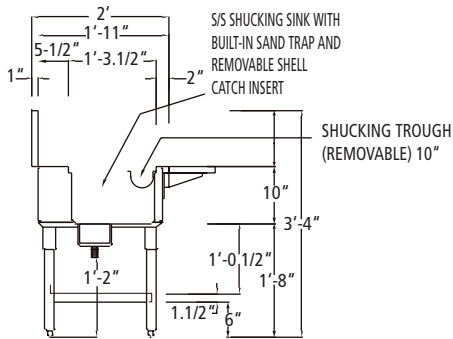
MODULAR COMPONENTS



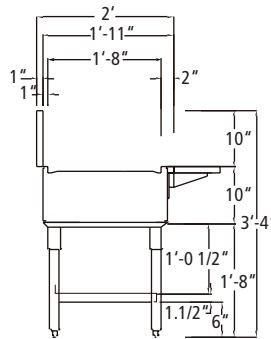
A SECTION



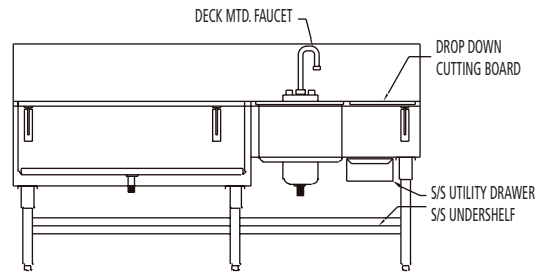
TYPICAL PLAN



B SECTION



C SECTION



TYPICAL ELEVATION

OYSTER STATION 32" DEEP WITH CUTTING BOARD IN THE UP POSITION

LENGTH	ICE CAPACITY	MODEL No.	WEIGHT	CUBE
60	126 lbs.	IOS-60	270	42
72	181 lbs.	IOS-72	270	42

UTILITIES

COLD WATER	HOT WATER	DRAIN	DRAIN
1 x 1/2" COLD	1 x 1/2" HOT	1 x 1.1/2"	2 x 1"

Beta Star LS Series Steam Sterilization Autoclave

BETA STAR
LIFE SCIENCE EQUIPMENT

Sterilizer Models:
202038, 262639, 262651

Features and Benefits

Lowest Cost of Ownership - Design characteristics from many years of service experience are engineered into the **LS Series** sterilizers. Industrial grade components, precision machining and fabrication, proven mechanical advantages, and utility conservation devices provide owners and users with a low maintenance reliable sterilizer.

Reliability - Industrial grade valves and high temperature gaskets prevent otherwise costly and common service downtime. The vessel is tested and certified to exceed national pressure vessel standards and carries a manufacturer's warranty.

Safety - Operator and technician safety is insured through temperature and pressure monitoring, relief valves, safety interlocks and manual overrides.

Serviceability - Reduce costly maintenance downtime with easy to access consumable and expendable components. A maintenance program is featured in the robust easy to use PLC control system.

Simplicity - The intuitive touch screen interface provides users with clearly identifiable selections to begin cycles.

Long Life Door Gasket - Beta Stars high temperature, air actuated door gaskets are seated into a machined groove that provides closer tolerances, offering a less strenuous environment, extending door gasket life.

Made in the U.S.A. - Manufactured in South Eastern Pennsylvania, Beta Star takes pride in their first class ASME certified fabrication and assembly plant. Over 250 employees are committed to the superior quality products we provide.

Eco Friendly - Reduce your facilities carbon footprint with Beta Star's utility conservation features. Mechanical and programmable conservation features are integrated into the Beta Star **LS Series** sterilizer.



Application

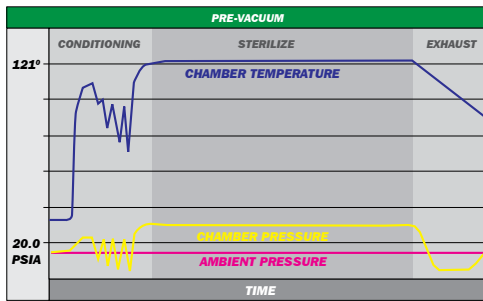
Beta Star supplies sterilization cycle packages for all applications in the pharmaceutical, life science, biotechnology, laboratory, and animal care markets. All **LS Series** sterilizers include Pre-Vacuum, Liquid, Bio-Bag, Hard Goods, Bowie & Dick and a Vacuum Leak Test cycles as standard. Cycle parameters adhere to the guidelines for Industrial Moist Heat Sterilization referred to in document AAMI / ISO 111345-R-8/93.

Thirty total cycle recipes can be programmed and stored for specific goods or media using supervisory access. Custom cycle recipe programming is supported by a robust PLC (Programmable Logic Control) system.

Design

Beta Star sterilizers are value engineered for maximum throughput, efficiency, serviceability, safety, and reliability. Our solid stainless steel rectangular chambers offer more usable space, including our center sloping chamber floors to minimize condensate retention, reduce dry time, and allow simple cleanup if spilling occurs.

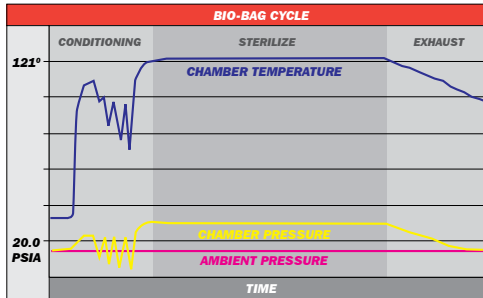
Beta Star steam sterilizers are designed for continuous use with serviceability engineered into every sterilizer. Lengthy downtime has been eliminated through the use of industrial grade non proprietary components. Our rigid modular frame provides a solid base and framework for our industrial grade mechanical and electrical components.



Pre-Vacuum Cycles

Entrapped air is removed from filters, porous materials, and apparatuses with hoses and hard to reach areas prior to sterilization. Steam then penetrates porous areas and as a result heats up the loads quickly and more uniformly.

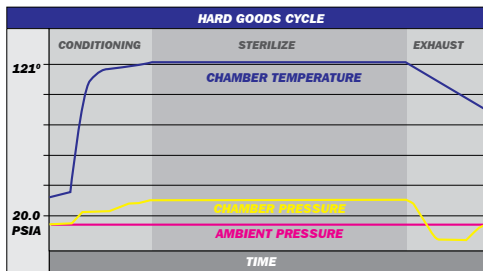
Used for sterilization of Instruments and Glassware with rapid drying capability. Pulls deep vacuum prior to sterilization for porous materials, fermentors, hoses, filters, bedding, food and most laboratory apparatuses.



Bio-Bag Vacuum Cycle

Entrapped air is removed from inside bio-waste bags prior to sterilization. Steam then penetrates and as a result heats up the load quickly and more uniformly. A controlled slow exhaust is used to eliminate waste liquids from boiling over inside the Bags.

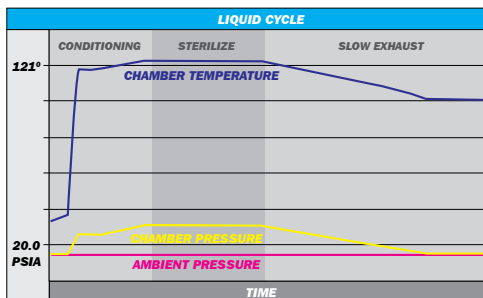
Used for filled Bio-Waste Bags, bedding, food, and Sharp Containers.



Hard Goods Cycles

Steam enters the chamber and mixes with air under positive pressure. With vacuum assisted removal, the denser air gravitates out the drain. After sterilization, steam is exhausted at a rapid controlled rate, and an optional vacuum is used to expedite the drying process.

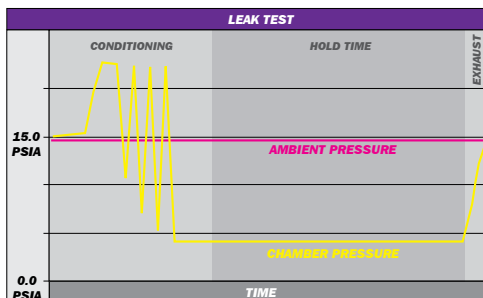
Used for surface sterilization only. Instruments, Empty Glassware upside down, Empty carboys, Metal devices from laboratory apparatuses.



Liquid Cycles

Steam enters the chamber and mixes with air under positive pressure. With vacuum assisted removal, the denser air gravitates out the drain. After sterilization steam is exhausted at a programmed rate or naturally cooled to prevent boil over.

Used for sterilization of liquids or media in vented containers.



Leak Test

Air is removed from inside the chamber via vacuum. The system stabilizes followed by a 10 minute hold time. The vacuum level is sampled at the beginning and end of the hold time.

The test ensures thorough vacuum monitoring of the chamber and piping assemblies.

Control System

Beta Star Laboratory Series (LS) Color Touch Screen PLC features a user friendly interface powered by a robust Programmable Logic Control system. Features include:

- Operator intuitive 5.7" color touch screen display
- Five levels of user login security
- Five (5) pre-programmed cycle types
- Thirty (30) stored programmable custom cycles
- Custom cycle names for easy recognition
- Continuous cycle status output
- Help screens / alarms
- Network or data download ports



Printer

The printer is a 32 column nine (9) pin dot matrix impact printer. The printer records all cycle set points, cycle phase changes, pressure & temperature at specified time intervals, and alarms. The printer uses easy to change roll paper and ink ribbons as consumables.

Vessel Construction

All Beta Star vessels are manufactured at our corporate headquarters in Honey Brook, PA. All standard vessels consist of a 316L stainless steel chamber and door, and 304 stainless steel steam jacket. The chamber and jacket meet the requirements of the ASME Boiler and Pressure Vessel Code Section VIII, Division 1. The vessel chamber, doors and jacket maintain specified operating pressures and temperatures and withstand operation from full vacuum to 45 psig. Two (2) validation ports for load probes are included on all sterilizer chambers. Features include:

- Engineered for lowest cost of ownership
- 316L/304 stainless steel construction
- 25 Ra polished chamber finish for sanitary requirements
- Two (2) threaded validation ports for load monitoring
- Machined and polished door gasket groove for extended door gasket life, and greater assurance of seal integrity.
- Square chamber design for maximum loading capacity
- Three (3) sided door retention for additional safety

Piping

All Beta Star LS Series piping assemblies are constructed, tested and fitted using brass and copper connected to the jacket, chamber and drain. Industrial grade pneumatic valves provide less maintenance eliminating frequent downtime. Features include:

- Engineered for lowest cost of ownership
- High temperature industrial grade valves
- Pressure relief valves
- Piping traps to collect condensate
- Serviceable piping configuration for P.M. inspections
- Integrated RTD's for constant and accurate monitoring
- Drain strainer to catch debris before entering piping
- Stainless steel piping configurations are available

Door System

Engineered for safety: Each door system is equipped with both locking and sealing subsystems. The locking system is used to ensure that once the door reaches the closed position, it remains there until the system has reached a safe open state. The sealing system uses compressed air to activate the seal once the door is in the closed and locked state.

Power operated door systems have a closing safety feature that requires the operator hold the close button until the door is in the fully closed position. Should the operator release the close button before the door is fully closed, it will auto reverse to the fully open position.

Electrical and pneumatic interlocks are provided to prevent the chamber from being unsealed or opened while chamber is under pressure.

Door Gasket

Beta Stars high temperature, air actuated door gaskets are seated into a machined groove that provides closer tolerances, offering a less strenuous environment, extending door gasket life.

Fascia

All Beta Star sterilizers include a number 4 finish, 304 stainless steel, removable front fascia panel to enclose the vessel, mechanicals and the door. Side back and top panel removable enclosures are available.

Vacuum System

The Beta Star LS series sterilizer is equipped with a water ejector system. Beta Star's unique piping configuration reduces water consumption while maintaining consistent vacuum and regulate effluent temperature to the drain.

Quality Standards

All Beta Star steam sterilizers are factory tested according to Beta Star QA and Testing procedure (TP-001). The results of each test are recorded and stored on the Quality Control Record (QR-001). This testing includes: instrument calibration to NIST standards, electrical input and output verification, leak test, Bowie & Dick Test, alarms verification, hazards test, and consecutive execution of sterilization cycles to insure repeatability. Temperature control to **within +/- 1.0° C** is verified for all sterilization cycles. The following listings and standards are met, exceeded and carry identifiable labeling.

- **Underwriters Laboratory (UL) Standard**
- **ASME Code, Section VIII, Division 1** for pressure vessels.
- **Canadian Standards Association (CSA)**

Control System Options

The Beta Star LS Touch Screen control system is equipped to handle advanced cycle functionality.

- **F₀ Cycle:** The F₀ Cycle calculates the sterilize time based on load temperature and duration exposed. These calculations are based on predetermined set points. The result is reduced exposure time.
- **Air Over Pressure:** This option provides filtered air pressure to the chamber to cool the load and improve exhaust time. This feature is used in the processing of liquids to reduce the cycle time and prevent boil over.
- **Isothermal Cycle:** This is a low temperature cycle used in disinfection or pasteurization of heat sensitive solutions.
- **Full or Partial Remote:** Sterilizers equipped with a second door as a pass through can be equipped with full control capabilities or partial control capabilities for monitoring system status.
- **Allen Bradley Compact Logix:** An Allen Bradley non proprietary PLC is available with the Beta Star LS series sterilizers.
- **Nema 4x Enclosure:** For facilities who require specific control enclosures.
- **Foot Pedal:** A foot pedal for operating the automatic sliding door can be used where hands free operation is necessary.
- **Load Probe:** A load probe for temperature monitoring can be added through one of the included validation ports.

Vessel Options

The Beta Star vessel can be configured to enhance functionality.

- **Double Door:** Beta Star LS Sterilizers can be configured with a second door to be used as a pass through system. Double door sterilizers can be equipped with a full or partial secondary control.
- **Sanitary Ports:** The chamber ports can be upgraded with sanitary ports accepting thermocouples fittings for use with critical media or goods.
- **20 Ra. Polish:** The internal chamber and door can be polished to a 20 Ra. finish or better for critical applications.
- **316L Steam Jacket:** the standard 304 stainless steel steam jacket can be upgraded to 316L stainless steel.
- **Seismic Restraints:** For equipment being installed in areas of seismic activity a seismic restraint or tie-down is used.
- **Chamber Passivation:** An internal surface chamber passivation can be applied to the sterilizer. This process removes impurities and inhibits further corrosion.



Piping Options

Sterilizer jacket and chamber piping can be configured to meet process requirements and are upgrades.

- **316L Stainless Steel Piping** with threaded and swagelock fittings, and stainless steel process valves.
- **Sanitary Piping:** 316L stainless steel, orbital welded, sanitary piping and process valves can be added for high level sterilization.

Steam Source Options

The Beta Star LS Steam Sterilizers are used for moist heat sterilization. Steam requirements vary based on model size and options. The following are the steam supply options:

- **House Steam:** House steam is when the facility or building is equipped with a steam source that can supply the sterilizer with the required steam utility.
- **Integral Electric Boiler:** An integral electric boiler is used to generate steam if there is no building steam available. Integral boilers sit within the footprint of the sterilizer.
- **Stainless Steel Boiler:** For use with sensitive media or goods, a stainless steel steam generator can be used to produce clean steam with DI water.
- **Steam to Steam Generator:** A heat exchanging system used to create clean steam from a pure water source and house steam or electric boiler system. These systems are connected directly to the chamber.

Air Compressor

A laboratory grade air compressor can be used when facility supplied compressed air is not available.

Process Options

Non standard options used in the processing of goods or media include:

- **Air Inlet Insitu Filter:** An air inlet filter rated at .02um. For use in high level sterilization.
- **Stainless Air Inlet Housing:** A stainless steel housing that allows the insitu filter to be sterilized.

Loading Equipment

A bottom shelf is standard with all Beta Star sterilizers. Additional shelves are available using the internal rack system.

Loading Cart & Transfer Carriage

The 316L stainless steel loading cart is designed to hold the goods or media to be sterilized. The loading cart rides on the tracks between the transfer carriage and the vessel. The transfer carriage is used to transport the loading cart from station to station. A drip pan can be added to the loading cart to capture spilled liquid or media.

Uninterrupted Power / Backup Power

An uninterrupted power supply (UPS) system can be integrated into the sterilizer configuration. This option helps prevent against voltage spikes, drops and loss.

Biocontainment Seal

An optional biocontainment flange is welded to the vessel. The flange serves as a sealed and ready-to-install rigid support for our adaptable biocontainment extension panels, ensuring a reliable, and turnkey, vapor barrier for containment applications.

Effluent Package Option

Our design prevents harmful pathogens and viruses from exiting the sterilizer at any time during the sterilization process. Pathogens are retained until the required sterilization exposure time has been achieved.

Our standard steam sterilization cycles exhaust through a heated 0.2 um hydrophobic filter in order to prevent pathogens and viruses from exiting the sterilizer prior to fulfilling sterilization time and temperature requirements. Slopped chamber base and internal dams contain condensate during the entire sterilization period.

Serviceability

Service access will be from the top, and control side of the sterilizer. Electrical wiring, pneumatic valves and tubing is clearly labeled and visibly traceable. Standard piping components are copper brazed or compression fittings and threaded brass components, positioned for safe and easy replacement. All wiring and piping are non-proprietary industrial grade components available direct through a local supply house, authorized service agency, or direct through the Beta Star Parts Department.



Quality Documentation

Quality documentation packages can be included into your sterilizer package. Quality documents include:

- **IQ/OQ Documentation Only:** A documentation package used to qualify installation and operation of the sterilizer.
- **IQ/OQ Documentation and Execution:** A documentation package and manufacturer representative execution qualifying installation and operation of the sterilizer.
- **GMP Documentation Package:** Good Manufacturers Practice documentation used for sterilizers involved in the manufacturing process.
- **FAT (Factory Acceptance Test):** Equipment customer specified testing is performed directly by the manufacturer in the factory before shipment.
- **FAT Documentation Only Package:** Documents qualifying the factory acceptance test.
- **SAT (Site Acceptance Test):** On site testing of the equipment performed by a manufacturers representative.
- **FRS (Functional Requirement Specification):** Testing provided ensuring equipment functionality .
- **Chamber Temperature Mapping:** Temperature testing throughout the inside of the chamber to record consistency.

Installation Scope

All Beta Star sterilizers are installed directly by the manufacturer or an authorized service and installation provider. The scope of installation can vary depending on the customers requirements.

- **Delivery** Factory direct delivery and installation provided directly or through an authorized installation provider.
- **Removal of Existing Equipment:** In the case of equipment replacement Beta Star can arrange removal of the existing sterilizer.
- **Installation Supervision Only:** Where in-house or trades-men will be used, an on-site authorized representative will guide workers through the installation process.
- **User Training:** Operator training is provided with every newly installed sterilizer. Additional operator training is available to refresh or train new users.
- **Maintenance Training:** In house maintenance technicians can benefit from factory direct training on site.
- **Validation Support:**

Water Conservation

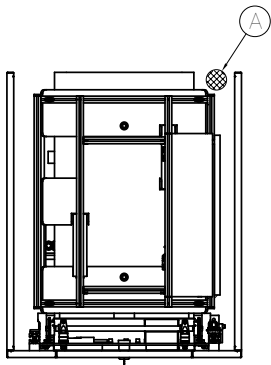
The EnviroVac dramatically reduce environmental and facility water usage concerns with our water savings option.



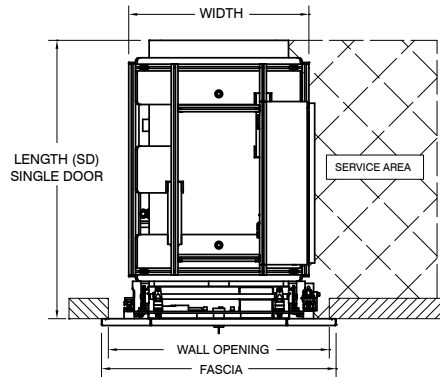
Beta Star Sterilizers can be equipped with the optional patent pending EnviroVac™. Designed to drastically reduce water consumption by nearly 80% during the sterilization cycle the EnviroVac™ requires only a ½" water feed at a minimum of 20 psig. With the EnviroVac™ option your sterilization cycle is no longer at risk due to normal water pressure and temperature fluctuations. The EnviroVac™ also conditions your water and steam discharge below safe and regulatory temperature levels before allowing entry to the facility drain systems. This replaces standard vacuum pump & condenser systems provided by others. Condensers on other systems have a history of failure, which requires costly out of warranty replacement.

Small Capacity Life Science Sterilizer

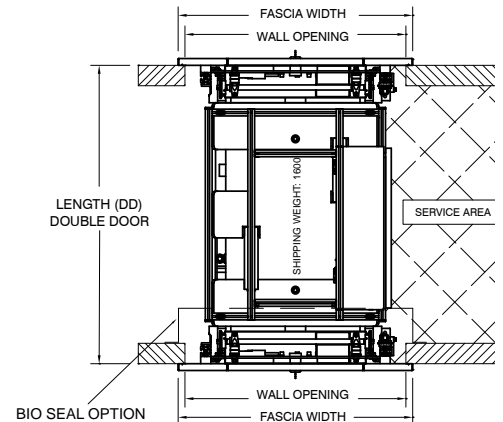
Sizing and Volume



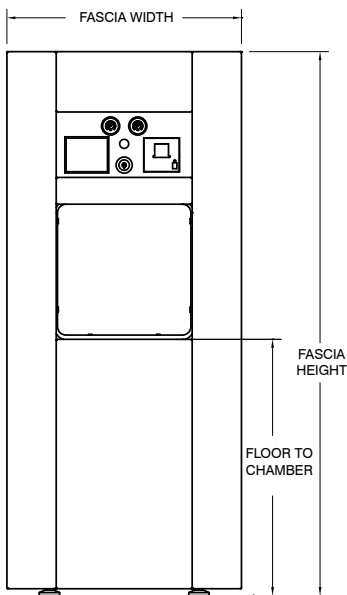
SINGLE DOOR
CABINET ENCLOSED



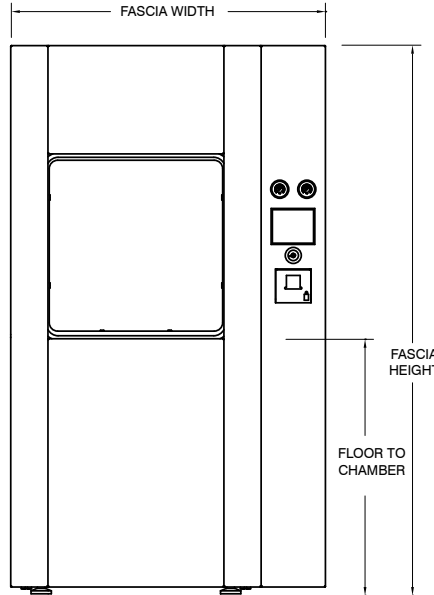
SINGLE DOOR, RECESSED



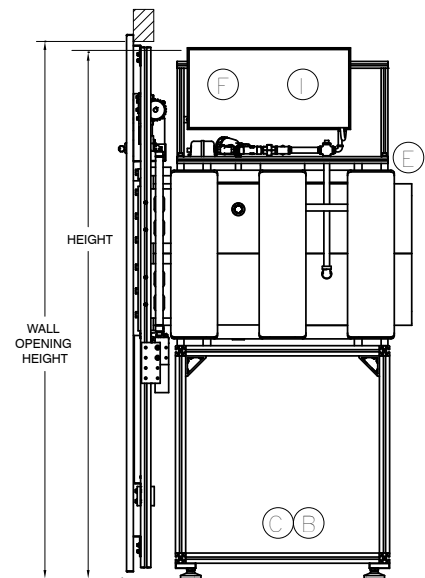
DOUBLE DOOR, RECESSED



MODEL 202038 FRONT VIEW



MODEL 2626xx FRONT VIEW



SINGLE DOOR, SIDE VIEW

Model	202038	262639	262651
Chamber Size (W x H x L) in Inches	20 x 20 x 38	26 x 26 x 39	26 x 26 x 51
Chamber Capacity	8.79 ft ³	15.26 ft ³	19.95 ft ³
Width	34.5"	46.5"	46.5"
Height	78.1"	85.31"	85.31"
Length (SD)	40.93"	44.87"	56.87"
Length (DD)	43.87"	47.5"	59.5"
Wall Opening Width	32.5"	44.5"	44.5"
Wall Opening Height	79"	80"	80"
Fascia Height	80"	81"	81"
Fascia Width	34.5"	46.5"	46.5"
Floor to Chamber	37.68"	38.81"	38.81"
Overall Weight (Lb)			
Single Door / Double Door	1,500 / 1,700	1,750 / 2,150	1,975 / 2,375
Heat Emissions (BTU/HR)			
Front Wall / Mech. Space	2,000 / 3,400	3,000 / 5,400	3,000 / 7,200

Equipment Notes

Small Capacity Life Science Sterilizer

Utility Requirements

Model 202038						
Plumbing Utility		Supplied Connection	Material	Flow Rate		Pressure
A	Drain Size	3 Inch	PVC/Copper	Peak	Average	
B	Compressed Air (SCFM)	1/2 Inch	Copper	2	1	80-100 PSIG
C	Pulse Vacuum - Water (GPM)	3/4 Inch	Copper	8	4	60-80 PSIG
C	High Vacuum - Water (GPM)	1/2 Inch	Copper	2	1	40-60 PSIG
D	Hot Water for Generator (GPM)	1/2 Inch	Copper	1/4	1/4	40-60 PSIG
E	House Steam (LB/HR)	1/2 Inch	Black Iron/Brass	80	65	60-80 PSIG

Electrical Utility		Voltage	Phase	Frequency	Amp Draw	Disconnect	Fuse Size
F	Control	120	1	60 Hz	5	Wall Switch	15 Amp
G	30 KW Steam Generator	230/480	3	60 Hz	83/36	100/60 Amp Switch	100/45 Amp
H	Steam Generator Control	120	1	60 Hz	5	Wall Switch	15 Amp
I	Vacuum System	208/480	3	60 Hz	6.9/3.0	30/30 Amp Switch	10/5 Amp
J	Air Compressor	120	1	60 Hz	12	Duplex Outlet	15 Amp

Model 262639						
Plumbing Utility		Supplied Connection	Material	Flow Rate		Pressure
A	Drain Size	3 Inch	PVC/Copper	Peak	Average	
B	Compressed Air (SCFM)	1/2 Inch	Copper	2	1	80-100 PSIG
C	Pulse Vacuum - Water (GPM)	3/4 Inch	Copper	8	4	60-80 PSIG
C	High Vacuum - Water (GPM)	1/2 Inch	Copper	2	1	40-60 PSIG
D	Hot Water for Generator (GPM)	1/2 Inch	Copper	1/2	1/2	40-60 PSIG
E	House Steam (LB/HR)	1/2 Inch	Black Iron/Brass	110	85	60-80 PSIG

Electrical Utility		Voltage	Phase	Frequency	Amp Draw	Disconnect	Fuse Size
F	Control	120	1	60 Hz	5	Wall Switch	15 Amp
G	36 KW Steam Generator	230/480	3	60 Hz	100/43	200/60 Amp Switch	125/80 Amp
H	Steam Generator Control	120	1	60 Hz	5	Wall Switch	15 Amp
I	Vacuum System	208/480	3	60 Hz	6.9/3.0	30/30 Amp Switch	10/5 Amp
J	Air Compressor	120	1	60 Hz	12	Duplex Outlet	15 Amp

Model 262651						
Plumbing Utility		Supplied Connection	Material	Flow Rate		Pressure
A	Drain Size	3 Inch	PVC/Copper	Peak	Average	
B	Compressed Air (SCFM)	1/2 Inch	Copper	2	1	80-100 PSIG
C	Pulse Vacuum - Water (GPM)	3/4 Inch	Copper	8	4	60-80 PSIG
C	High Vacuum - Water (GPM)	1/2 Inch	Copper	2	1	40-60 PSIG
D	Hot Water for Generator (GPM)	1/2 Inch	Copper	1/2	1/2	40-60 PSIG
E	House Steam (LB/HR)	1/2 Inch	Black Iron/Brass	110	85	60-80 PSIG

Electrical Utility		Voltage	Phase	Frequency	Amp Draw	Disconnect	Fuse Size
F	Control	120	1	60 Hz	5	Wall Switch	15 Amp
G	48 KW Steam Generator	230/480	3	60 Hz	133/58	200/100Amp Switch	175/75 Amp
H	Steam Generator Control	120	1	60 Hz	5	Wall Switch	15 Amp
I	Vacuum System	208/480	3	60 Hz	6.9/3.0	30/30 Amp Switch	10/5 Amp
J	Air Compressor	120	1	60 Hz	12	Duplex Outlet	15 Amp

NOTE: Utility "letter" key in (BOLD), indicates standard equipment utility requirements.

Small Capacity Life Science Sterilizer Equipment Configuration Worksheet

Customer Information

Company: _____
Contact: _____
Address: _____
Building: _____
City: _____ State: _____ Zip: _____
Phone: _____
Email: _____
Project: _____

Select your equipment configuration, features and options by using the check boxes below.

* Required Selections

Model Size*

- 20x20x38 = 8.79 ft³
- 26x26x39 = 15.26 ft³
- 26x26x51 = 19.95 ft³

Doors(s)*

- Single Door
- Double Door

Mounting*

- Recessed One Wall
- Recessed Two Walls
- Free Standing (Cabinet)

Cabinet Fascia Panels*

- No Side Panels (Recessed)
- Two Side Panels
- Left Side Panel
- Right Side Panel
- Top Panel
- Back Panel

Service Side and Control Side*

- Left Side Service
- Right Side Service

Control Options*

- Model LS PLC (Standard)
- Allen Bradley Compact Logix
- Partial Remote (For Double Door)
- Full Remote (For Double Door)
- Additional Printer (One Standard)
- Nema 4X Enclosure
- Foot Pedal for Door
- Dual RTD with Recorder

Piping*

- Copper and Brass (Standard)
- 316L Threaded and Swagelock
- 316L Sanitary

Compressed Air*

- House Air
- Integral Air Compressor

Vacuum System Type*

- Water Ejector Vacuum
- EnviroVac Water Conservation Vacuum System

Steam Source*

- House Steam
- House Clean Steam
- Integral Electric Boiler 208 Volt
- Integral Electric Boiler 280 Volt
- Integral Electric Boiler 480 Volt
- Stainless Electric Boiler 208 Volt
- Stainless Electric Boiler 280 Volt
- Stainless Electric Boiler 480 Volt
- Steam to Steam Generator (Single Tube)
- Steam to Steam Generator (Double Tube)

Loading Equipment Options

- Bottom Shelf Only (Standard)
- Rack with One Shelf
- Additional Shelf for Rack

Cart & Carriage Options

- Loading Cart with Two Shelves
- Cart Drip Pan
- Transfer Carriage
- Additional Transfer Carriage

Vessel & Jacket Options

- Additional 1.5" Threaded Side Port
- Additional 1.5" Sanitary Side Port
- Polished 20 Ra. (25 Ra. Standard)
- Polished 10 Ra. (25 Ra. Standard)
- Internal Chamber Passivation
- 316L Steam Jacket (304 Standard)
- Seismic Restraints
- Sanitary Thermocouple Fitting

Process Feature Options

- Load Probe for Fo
- Air Inlet, Insitu Filter
- Stainless Air Inlet Housing
- Air Over Pressure

Containment Options

- Effluent Decontamination Package
- Door 1 Bioseal
- Door 2 Bioseal
- Dual Bioseal

Quality and Documentation Options

- IQ/OQ Documentation Only
- IQ/OQ Documentation and Execution
- GMP Documentation Package
- FAT (Factory Acceptance Test)
- FAT Documentation Only Package
- SAT (Site Acceptance Test)
- FRS (Functional Requirement Specification)
- Chamber Temperature Mapping

Installation Scope*

- Delivery & Installation
- Removal of Existing Equipment
- Installation Supervision Only
- User Training
- Maintenance Training
- Validation Support

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

APPLICATION: Recessed barrier-free eye/face wash and shower safety station with ceiling mounted concealed shower head and drain pan. Stainless steel cover provides attractive appearance and protects unit when not in use. When activated, cover serves as pan to collect waste water and return it into unit for drainage.

ADA COMPLIANCE: When installed at recommended mounting heights, unit complies with ADA requirements for accessibility by handicapped persons.

SHOWER HEAD: 10" diameter with flange for flush mounting in ceiling. Shower head is stainless steel (SSBF2160) or polished chrome plated cast brass (SSBF2160PCC)

SHOWER VALVE: 1" IPS brass stay-open ball valve with stainless steel "panic bar" actuator.

COVER/DRAIN PAN: 16 gauge stainless steel combination cover and drain pan. Grasping "panic bar" handle and opening cover pulls spray head assembly down from vertical to horizontal position, activating water flow. While unit is in operation, waste water is collected in drain pan and returned into cabinet for drainage. Unit remains in operation until cover is returned to closed position.

EYE/FACE WASH SPRAY HEAD ASSEMBLY: Two FS-Plus™ spray heads mounted on supply arms. Each spray head has individually adjustable flow control and filter to remove impurities from water.

EYE/FACE WASH VALVE: 1/2" IPS brass rotating plug-type valve. Furnished with Teflon® coated O-ring seals and in-line strainer to protect valve from debris and foreign matter.

MOUNTING: 16 gauge stainless steel cabinet with flanged rim for recessed mounting in wall. Unit fits in standard 3 5/8" deep wall.

SUPPLY: 1" NPT female inlet.

WASTE: 2" NPT female outlet.

SIGN: Furnished with ANSI-compliant identification sign.

QUALITY ASSURANCE: Unit is completely assembled and water tested prior to shipment.

NOTE: ANSI Z358.1-2009 specifies that shower heads be installed no more than 96" above the finished floor. This unit should therefore not be installed in ceilings over 8 feet. For higher ceiling heights, we recommend the SSBF2150 or SSBF2170 units.

U.S. PATENT 5,768,721

Available Options

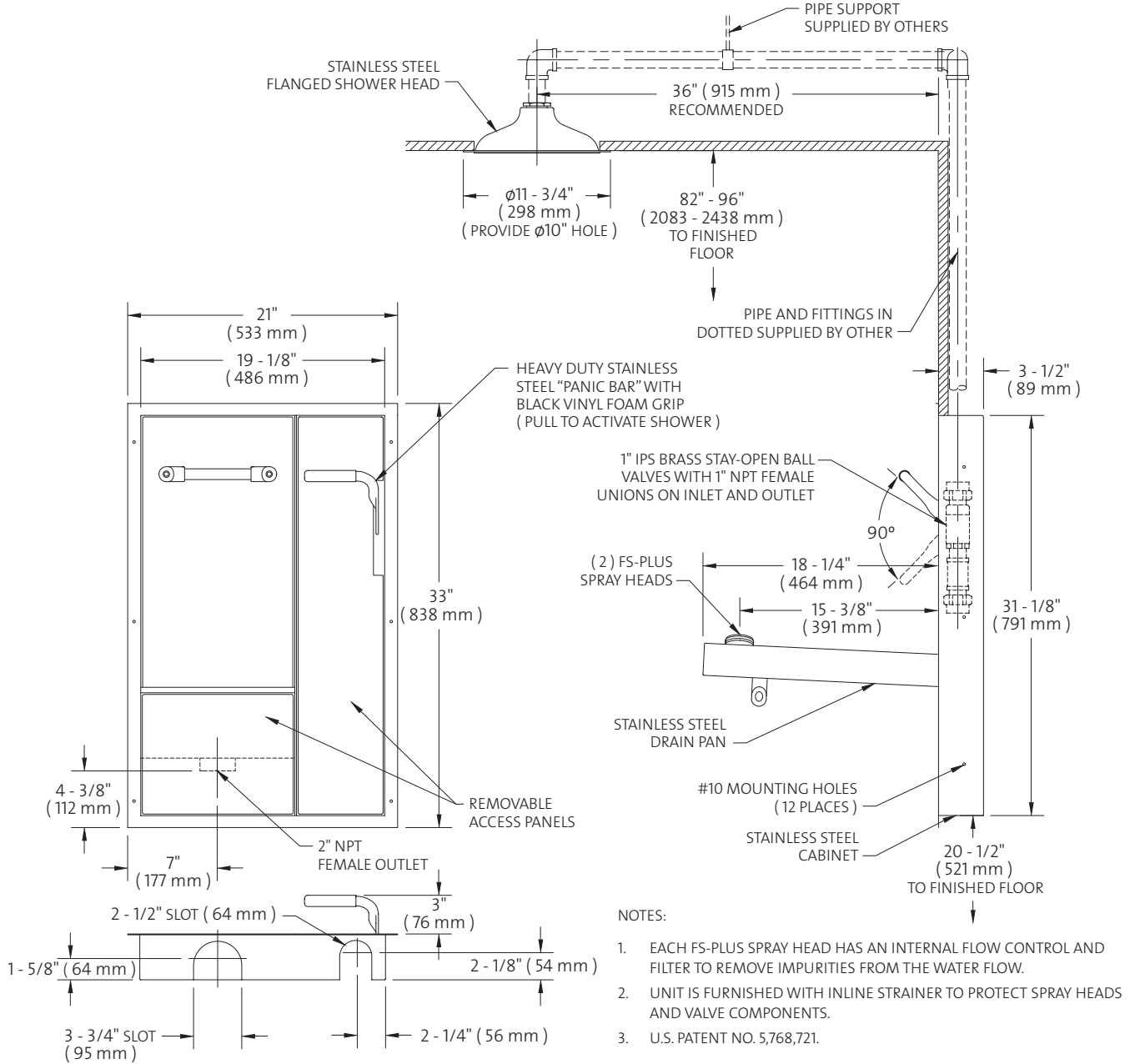
- **PCC** All-polished chrome plated brass construction.
- **AP250-065 MODESTY CURTAIN**
- **AP280-230 ELECTRIC LIGHT AND ALARM HORN**
- **TMV** AP3800 thermostatic mixing valve.



Note: Shown with optional AP280-230 electric light and alarm horn unit (sold separately).



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



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 $\pm 1/4"$ (6mm). rev. 0212

Sign Included



- **SSBF2170** Recessed Safety Station with Drain Pan, Stainless Steel Shower Head
- **SSBF2172** Recessed Safety Station with Drain Pan and Daylight Drain, Stainless Steel Shower Head

APPLICATION: Recessed barrier-free eye/face wash and shower safety station with wall mounted shower head and drain pan. Stainless steel cover provides attractive appearance and protects unit when not in use. When activated, cover serves as pan to collect waste water and return it into unit for drainage.

ADA COMPLIANCE: When installed at recommended mounting heights, unit complies with ADA requirements for accessibility by handicapped persons.

SHOWER HEAD: 10" diameter stainless steel (SSBF2170) or 8" diameter chrome plated cast brass (SSBF2170PCC). Furnished with horizontal supply pipe and wall escutcheon.

SHOWER VALVE: 1" IPS brass stay-open ball valve with stainless steel "panic bar" actuator.

COVER/DRAIN PAN: 16 gauge stainless steel combination cover and drain pan. Grasping "panic bar" handle and opening cover pulls spray head assembly down from vertical to horizontal position, activating water flow. While unit is in operation, waste water is collected in drain pan and returned into cabinet for drainage. Unit remains in operation until cover is returned to closed position.

EYE/FACE WASH SPRAY HEAD ASSEMBLY: Two FS-Plus™ spray heads mounted on supply arms. Each spray head has individually adjustable flow control and filter to remove impurities from water.

EYE/FACE WASH VALVE: 1/2" IPS brass rotating plug-type valve. Furnished with Teflon® coated O-ring seals and in-line strainer to protect valve from debris and foreign matter.

MOUNTING: 16 gauge stainless steel cabinet with flanged rim for recessed mounting in wall. Unit fits in standard 3 5/8" deep wall.

PIPE AND FITTINGS: Exposed pipe and escutcheon are brushed stainless steel (SSBF2170) or polished chrome plated brass (SSBF2170PCC).

SUPPLY: 1" NPT female inlet.

WASTE: 2" NPT female outlet.

SIGN: Furnished with ANSI-compliant identification sign.

QUALITY ASSURANCE: Unit is completely assembled and water tested prior to shipment.

U.S. PATENT 5,768,721

Available Options

- **PCC** All-polished chrome plated brass construction.
- **AP250-065 MODESTY CURTAIN**
- **AP280-230 ELECTRIC LIGHT AND ALARM HORN**
- **TMV** AP3800 thermostatic mixing valve.

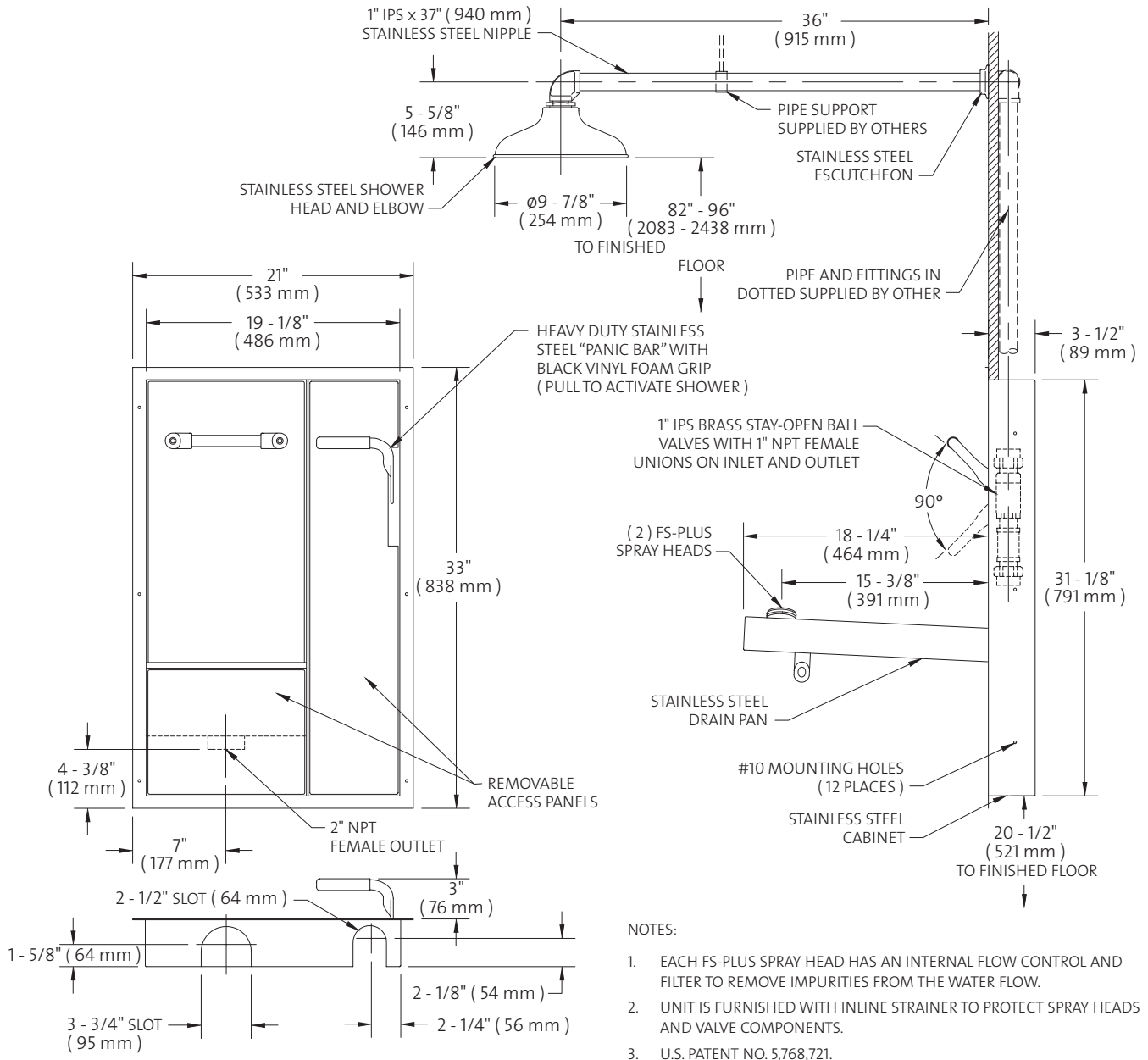


Note: Shown with optional AP280-230 electric light and alarm horn unit (sold separately).





- **SSBF2170** Recessed Safety Station with Drain Pan, Stainless Steel Shower Head
- **SSBF2172** Recessed Safety Station with Drain Pan and Daylight Drain, Stainless Steel Shower Head



THIS SPACE FOR ARCHITECT/ENGINEER APPROVAL

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Sign Included



- **EW1022** Eyewash/Drench Hose Unit, Deck Mounted
- **EW1022BP** Eyewash/Drench Hose Unit, Deck Mounted, with Backflow Preventer

APPLICATION: Dual purpose eyewash/drench hose for deck mounting. Unit meets the provisions of ANSI Z358.1 - 2009 as both an eyewash and a drench hose. Unit may be left in the deck flange for use as a fixed eyewash, leaving user's hands free. Alternatively, unit may be removed for use as a drench hose to rinse any part of user's eyes, face or body.

SPRAY HEAD ASSEMBLY: Two GS-Plus™ spray heads mounted side-by-side. Each head has a "flip top" dust cover, internal flow control and filter to remove impurities from the water flow.

VALVE: Forged brass squeeze valve activated by stainless steel lever handle. Valve has replaceable stainless steel seat for exceptional durability. Locking clip engages when handle is depressed, providing "hands free" operation. Valve stays open until locking clip is released.

HOSE: 8' reinforced PVC hose. 300 PSI maximum working pressure.

MOUNTING: Deck flange for countertop mounting. Flange has handle locator guide to position spray heads and handle facing forward at all times.

BACKFLOW PREVENTER: In-line dual check backflow preventer installed on inlet of hose (EW1022BP only). *Note: Check with code authority for compliance with local plumbing code.*

SUPPLY: 3/8" NPT male swivel-type inlet.

SIGN: ANSI-compliant identification sign.

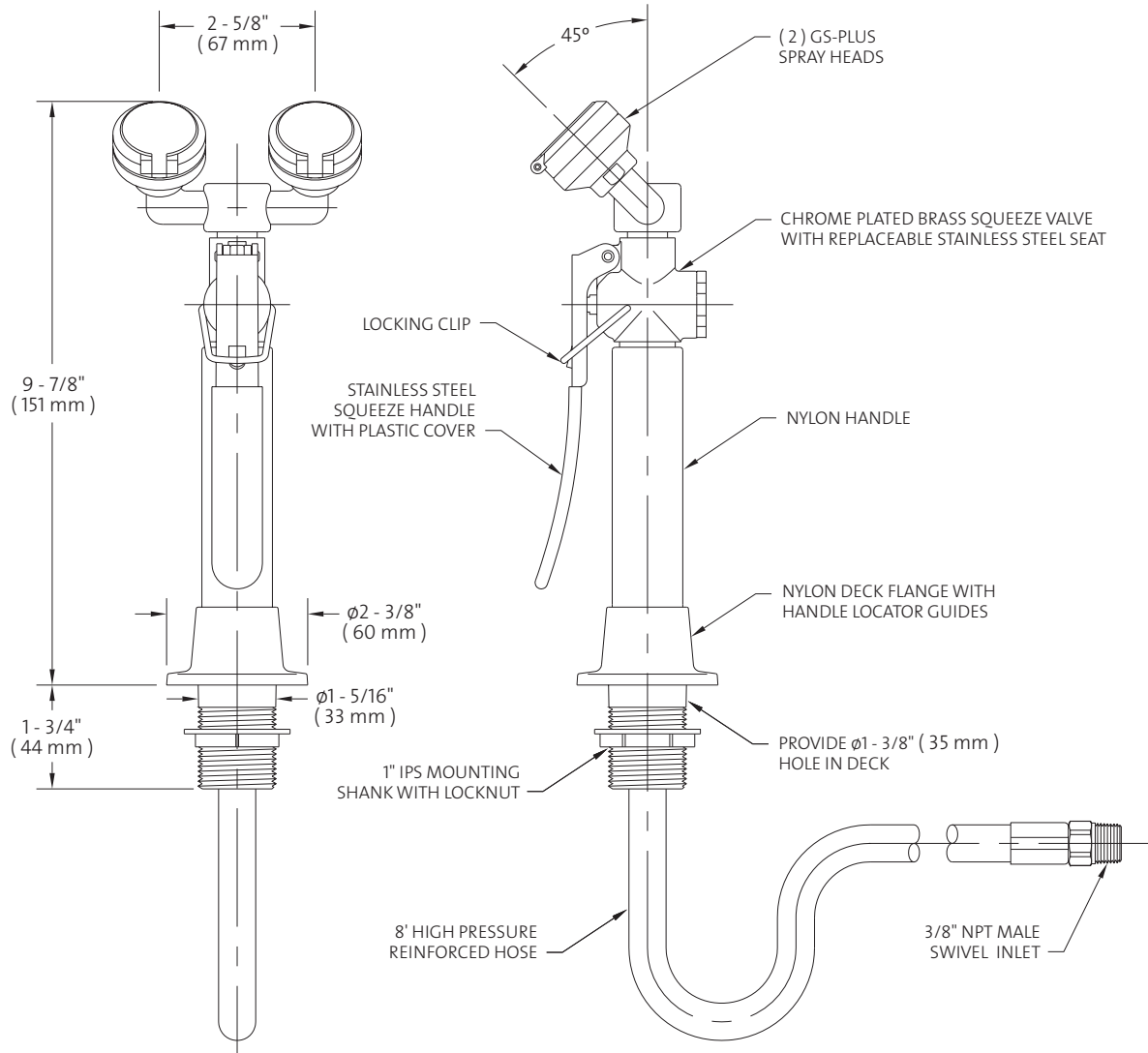
QUALITY ASSURANCE: Unit is completely assembled and water tested prior to shipment.

Available Options

- **DC** Stainless steel dust cover for each spray head.
- **FSH** 8 ft. flexible stainless steel hose in place of PVC hose.
- **HG** Undercounter hose guide bracket to prevent hose from tangling or binding.
- **VB** In-line vacuum breaker for installation between valve and spray head.
- **TMV** AP3600 thermostatic mixing valve precisely blends hot and cold water to deliver warm (tepid) water as provided by ANSI Z358.1 - 2009. Refer to "Tempering Units" section for complete technical and product selection information.



- **EW1022** Eyewash/Drench Hose Unit, Deck Mounted
- **EW1022BP** Eyewash/Drench Hose Unit, 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.

THIS SPACE FOR ARCHITECT/ENGINEER APPROVAL

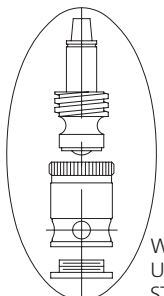
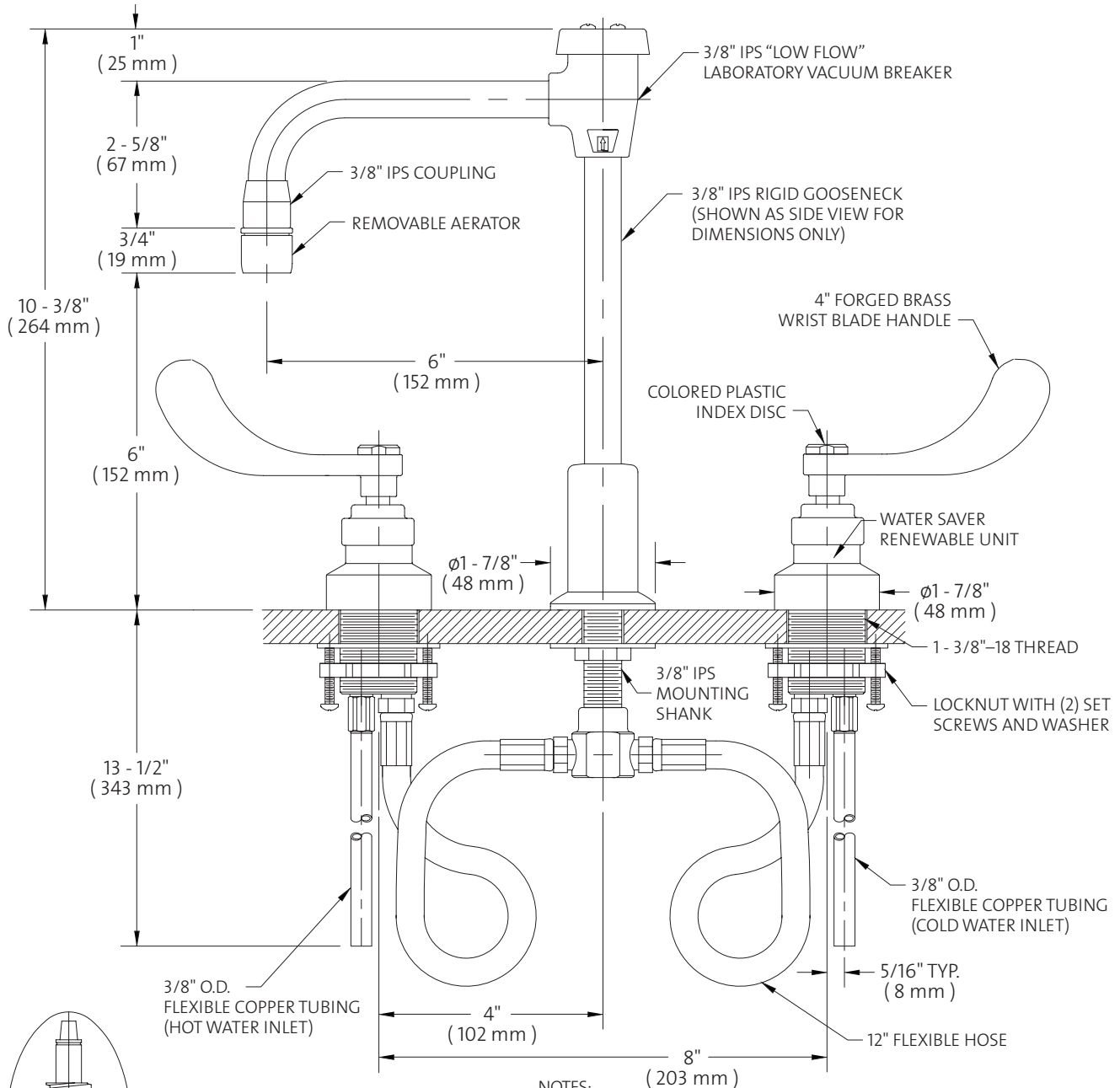
Due to continuing product improvement, the information contained in this document is subject to change without notice. All dimensions are $\pm 1/4"$ (6mm). rev. 0212

Sign Included





- **L2221VB** Laboratory Mixing Faucet, Deck Mounted, 6" Rigid Vacuum Breaker Gooseneck, Aerator, Wrist Blade Handles
- **L2222VB** Same as Above Except with 6" Swing Vacuum Breaker Gooseneck
- **L2224VB** Same as Above Except with 6" Rigid/Swing Vacuum Breaker Gooseneck



WATER SAVER RENEWABLE UNIT WITH REPLACEABLE STAINLESS STEEL SEAT



- NOTES:
1. FIXTURE IS CERTIFIED BY CSA INTERNATIONAL TO COMPLY WITH ASME A112.18.1M AND CSA B125.1.
 2. VACUUM BREAKER IS CERTIFIED TO COMPLY WITH ASSE 1001.
 3. VALVES AND GOOSENECK ARE FULLY ASSEMBLED AND FACTORY TESTED PRIOR TO SHIPMENT.
 4. PROVIDE (2) 1 - 3/8" DIAMETER HOLES FOR VALVES AND (1) 3/4" DIAMETER HOLE FOR GOOSENECK.

Measurements may vary ± 1/4".

© 2008 / WaterSaver Faucet Co.



20 APPENDIX L - ADDITIONAL SITE SELECTION MEMO



MEMORANDUM

DATE:	2/25/14 (revised)	PROJECT NUMBER:	227.02.66
COPY SENT:	Thomas Miller PE	PROJECT NAME:	Wallkill ICF
VIA:	email		
FROM:	Dan Lennon		
NUMBER OF PAGES (Including Cover Sheet):			

Tom,

In response to your request for additional information about scaled drawings I have attached pdfs that are scalable drawings if printed on 11x 17 sheet. I have also included some additional information pertaining to the site.

Building 1 Option Site

The existing building site as shown below was reviewed for the ability to be updated to serve the new usage and visitor requirements for an office/lab space. The current overgrown site would need to have parking and exterior storage of boats expanded, repair to access roads, exterior lighting, and general trimming to allow for safe parking. The existing building has updated utilities that can be reused, but it lacks parking as it had not been a requirement in the prior usage. Limited data is available about testing existing soils for contamination; documentation provided excluded the majority of the site. Trudeau Architects was not tasked with testing the existing site for hazardous materials.





New building potential sites:

As noted the report, no firm site was selected for a new building but for many “potential” sites were selected for costing considerations. Discussions held with DASNY and staff at Pilgrim about the environmental status multiple site on the campus help to eliminate many areas due to unknown underground conditions, identified underground storage tanks, and areas with known contamination as outlined in reports by Roux Associates, CT Male Associates, and OMH documentation. Each of the alternate new building sites has characteristics that may be favorable depending on availability, two would need to have existing building demolished, one sits on 30’ hillside that is currently wooded.

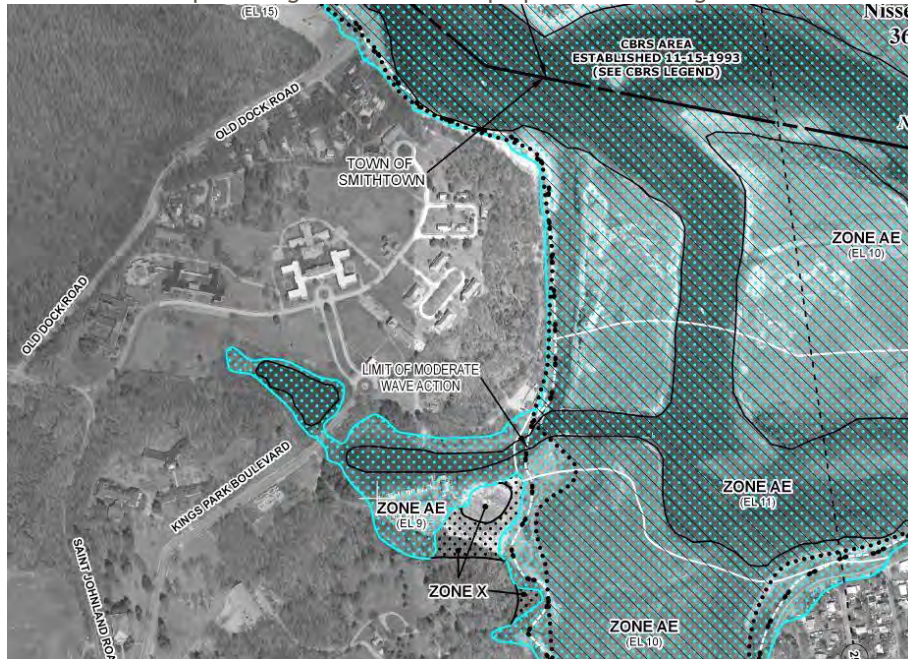
After discussion with DASNY it was determined that a fixed cost be applied to complete basic site clearing (but no demolition) and add a cost to run all building utilities to a town road a maximum of 750’-0. It should be noted that while utilities exist in close proximity to the proposed building site, officials from OMH made it clear that they had failed in multiple locations, and were beyond salvage. It would be expected further site study would need to be completed once available lands are discussed between the multiple state agencies that control the properties.

All of the sites were also selected because they are close to the multiple boat launches, access to highways, and ability for a large amount of land that could be converted to parking/ exterior storage. All of the sites have been selected sites also stay away from the current flood zones.

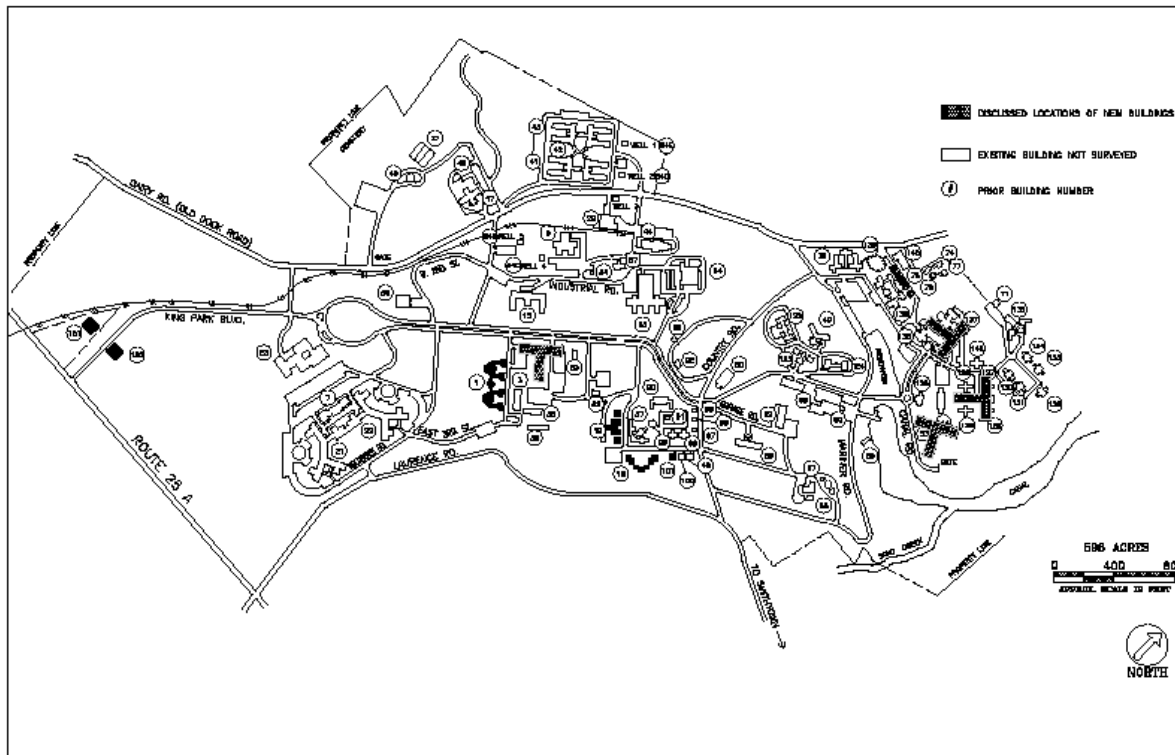




Current FEMA FIRM map showing flood zones. All proposed sites along but not in a current flood zone.



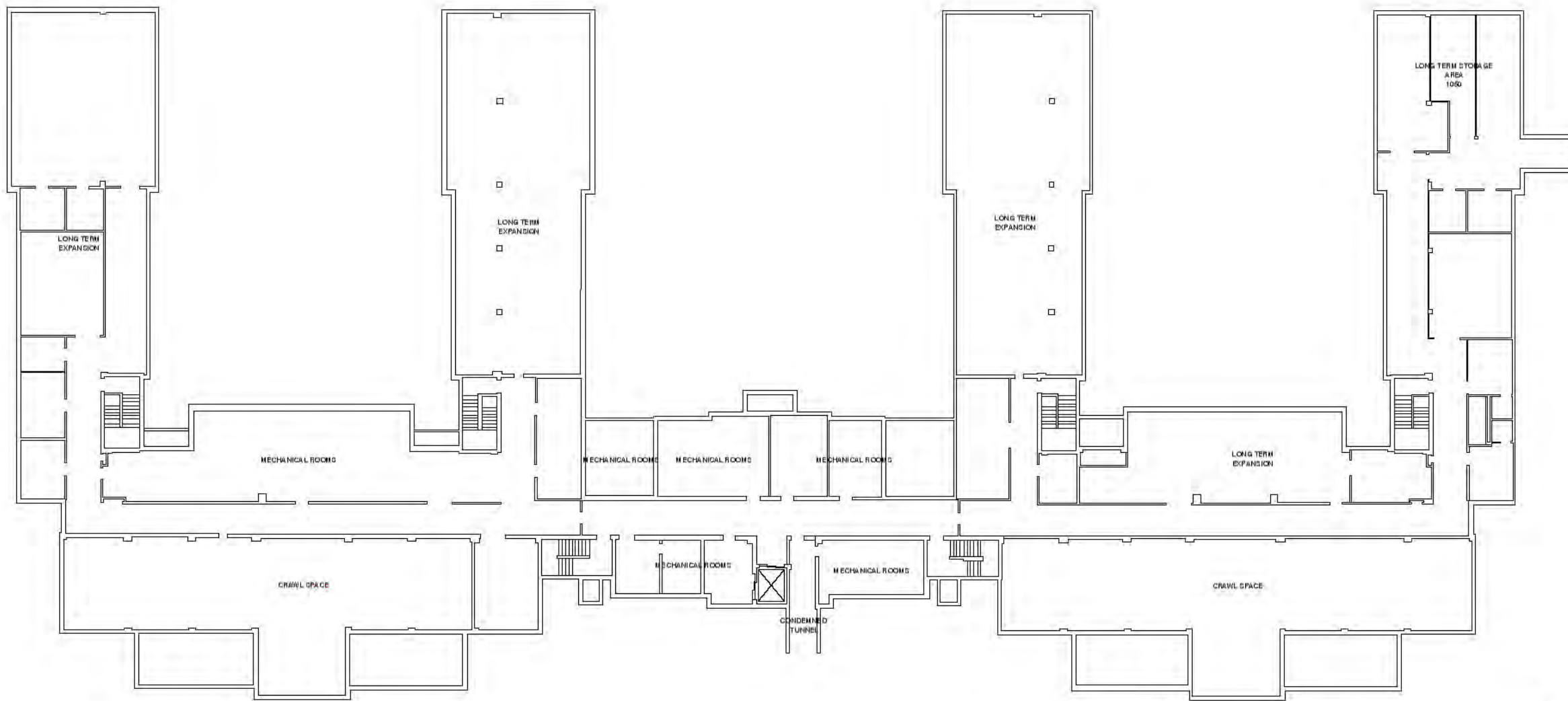
Below is a conceptual overlay of locations considered for a new building, with the existing buildings left on for location reference.



SITE PLAN
 Thanks, Dan Lennon

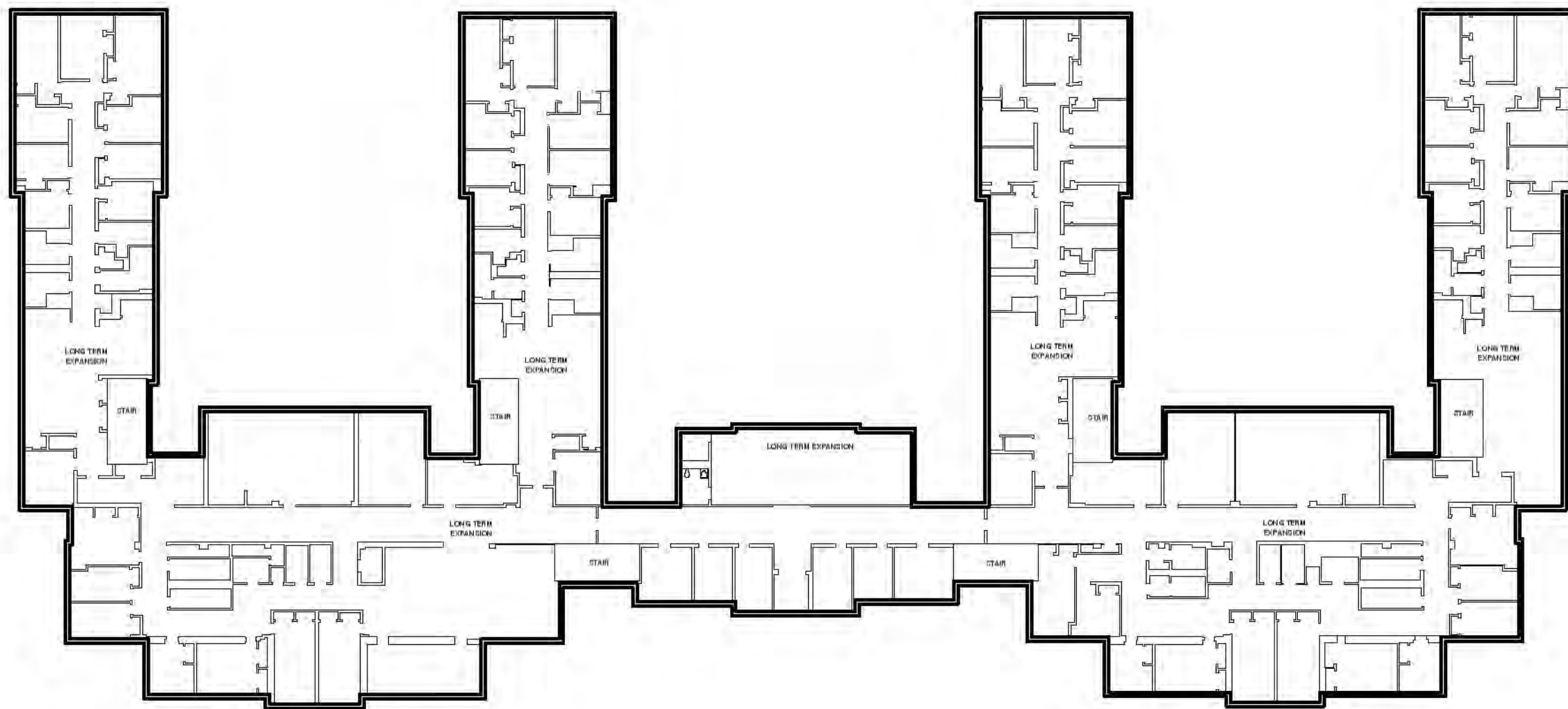


21 APPENDIX M - EXPANDED FLOOR PLANS



1 EXISTING BUILDING - BASEMENT PLAN
1/16" = 1'-0"

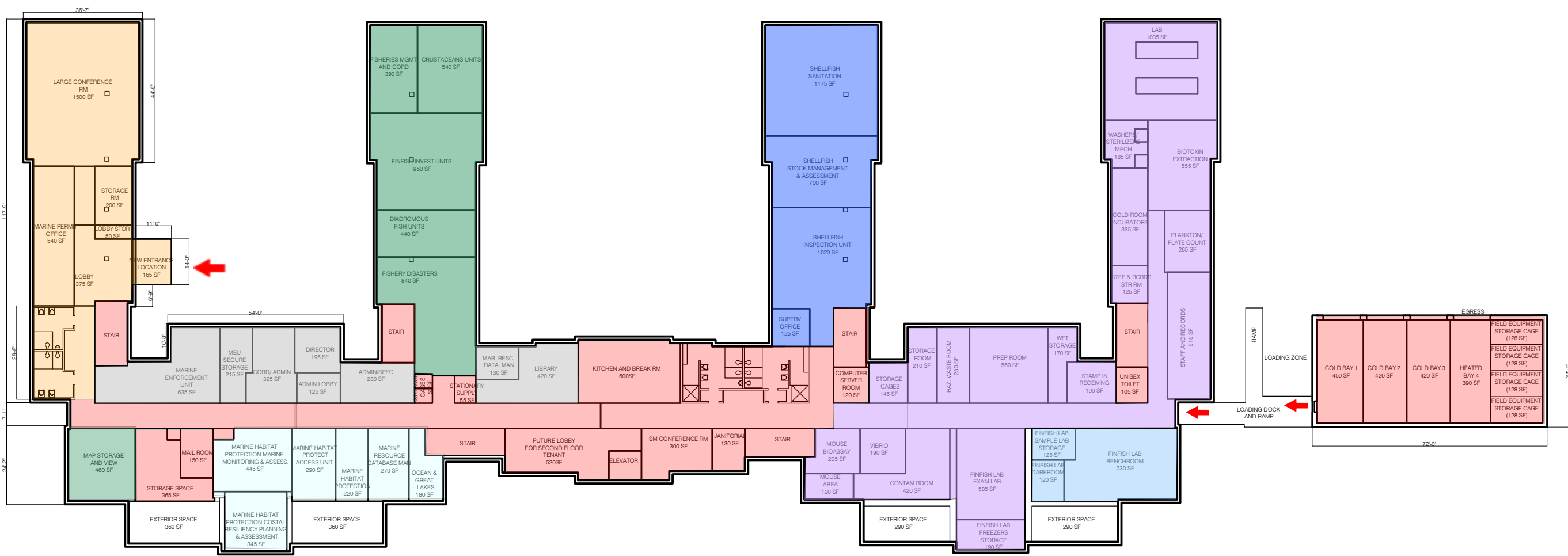




1 EXISTING BUILDING - SECOND FLOOR
1/16" = 1'-0"



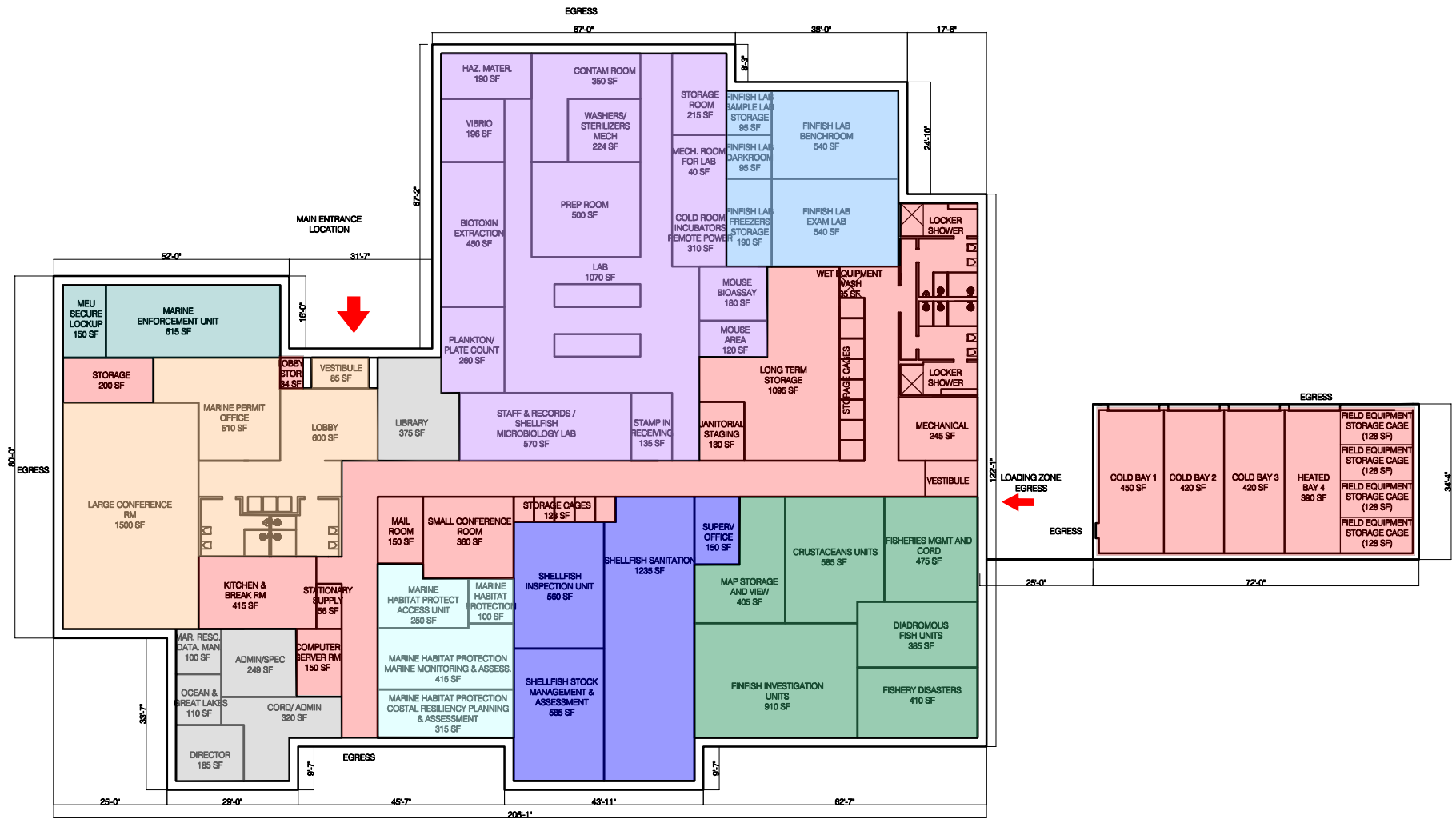
- SHELLFISH LAB AREA
- FINFISH LAB AREA
- MARINE HABITAT PROTECTION
- PUBLIC ACCESSIBLE AREAS (ONLY)
- FINFISH AND CRUSTACEANS UNITS
- ADMINISTRATION
- STORAGE (MIX) AND PRIVATE UTILITY SPACES
- SHELLFISH UNIT



1 EXISTING BUILDING - FIRST FLOOR
1/16" = 1'-0"



- SHELLFISH LAB AREA
- FINFISH LAB AREA
- MARINE HABITAT PROTECTION
- PUBLIC ACCESSIBLE AREAS (ONLY)
- FINFISH AND CRUSTACEANS UNITS
- ADMINISTRATION
- STORAGE AND PRIVATE UTILITY
- SHELLFISH UNITS





22 APPENDIX N - FOLLOW UP MEMOS

22.1 ENERGY USAGE COMPARISON

Our team was asked to compare the new building option vs. the renovated building option in terms of total building energy usage. At this stage of the planning a direct comparison is not possible as many variables have yet to be decided, such as which portions of the building may be leased to an outside agency and whether or not the building would require a basement. The following are general comments related to both options.

Due to the type of equipment used in the labs and the usage cycles of that equipment, both options would be considered high energy use buildings. While the selection of Energy Star compliant equipment is recommended and will help to reduce the energy use, this alone will not “make up” for the anticipated high energy use of the lab equipment. In general, the backup power generation and air conditioning systems would be similar in both options with the only exception being the additional unused second floor space in the renovated building option.

Building Envelope Energy Usage:

As proposed, the existing building would receive a new roof system which will be required to meet the current energy standards for roof performance. This will also be the case for the new building option. Once completed both roof systems would be approximately the same in performance levels.

The existing wall assembly in the renovated building option was part of the 1980’s renovation and was confirmed at two locations in the building.

Renovated Building Wall Assembly (Existing):

- Outer brick wythe
- Concrete backup
- Rigid insulation
- Air space
- Metal stud with fiberglass batt insulation
- Gypsum wall board interior

New Building Wall Assembly (Proposed):

- Brick exterior
- Fiberglass gypsum board
- Steel stud backup infilled with batt insulation
- Finished with gypsum board



Performance wise, these two systems would be similar unless additional funds are allocated to add more insulation to the envelope.

The majority of the windows in the existing building have been replaced with vinyl units containing insulated glass. The new building would mostly likely contain fully thermally broken aluminum window units containing insulated glass. Unless a triple glass insulated unit is used in the new building, the systems listed above will have approximately the same heat loss so the performance will be similar.

Lighting:

All lighting in the renovated building option would be replaced with the same fixtures proposed for the new building option. Based on a square foot cost, both options will utilize approximately the same amount of energy.

Mechanical System:

The mechanical system in the existing building was updated and upgraded during the last renovation in the 1980's, however it is sized to heat the building in its entirety. The new building mechanical systems would be sized only for the specific needs of the facility. Assuming the existing building were to lease out the second floor to a tenant (not the basement), if no allowances are written into the lease agreement, this could create a net loss as compared to the proposed new building.

As noted above, the renovated building option would consume more energy in its existing state due to the presence of the basement. A basement would not be required in the new building.

Both building options would require hot water which could be supplied with "instant on" hot water devices at the load point. The existing building has a mix use of hot water tanks which would need to be replaced with significantly smaller units due to the change in the building usage. It had been discussed previously that the hot water in the renovated building may be able to be taken off the existing boilers, however for the purpose of the report; it is assumed that both building options would contain the same hot water system. The requirements for specialized hot and purified water in the lab space would be the same in both buildings thus the energy usage would be the same.

General Energy Savings:

In general, the new building option has a greater potential for energy savings over time given that the building can be sized appropriately for the required programs. However, it is important to consider that the renovated building option may have a lower total carbon footprint given the reuse of an already existing building and the possibility to share unused space with other agencies.



22.2 SINGLE STORY VS MULTIPLE STORY BUILDING

At the time the report was prepared, no site was identified for new construction therefore the decision to program a single story space as opposed to a multiple story space was driven by unknown geotechnical site factors. In planning for the new construction option, conservative estimates were made for the geotechnical scenarios based upon the general soil conditions on the Kings Park site (mostly Till Moraine/Kame Deposits/Loose fill). While the cost difference of a single or multiple story building foundation is not significant in and of itself, if the bearing capacity of the soil on the selected site is found to be low, the cost to design and amend the existing soils to support the building structure could be high.

In addition to the geotechnical considerations, programming was also considered when determining a single vs. multistory building for the new building option. An advantage to having a multistory building is that it would require a smaller footprint, as well as a smaller site requirement. However, it is important to note that a multistory building will also require additional square footage to accommodate multiple stairwells, elevators large enough for equipment as well as passengers, and larger chases to properly route the utilities through the building. The introduction of an elevator will also require additional structural considerations, such as foundation changes and depending on the type of elevator installed, a deeper elevator pit at the lowest level of the building.

Due to the requested programming layout of the building many functions are required to be on the ground level. These spaces include: the labs/ lab offices, lab storage, central showers/locker rooms, large equipment storage, reception, license office/back office, public meeting rooms, DEC Police, mailrooms, loading as well as receiving. Given that the available sites on the Kings Park campus are not overly restrictive and the soil conditions have yet to be verified, a single story building option was selected for planning purposes.