



ECI HYER / NBBJ

UNIVERSITY OF ALASKA SOUTHEAST

ANDERSON BUILDING REMODEL

UAS PROJECT NO: 2007-01

SCHEMATIC DESIGN NARRATIVE

DECEMBER 10, 2008

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OVERVIEW

Following submission and review of the Anderson Building Remodel *Project Program* and *Conceptual Design* phases UAS authorized the initiation of the Schematic Design phase of services. This direction was received from UAS at the end of August 2008.

A more significant initial effort associated with the start of the schematic design phase involved a site visit in November 2008. The primary purpose was to verify in more detail the as-built conditions of the current facility. During this site visit detailed meetings with UAS Facilities Services representatives occurred; reviewing the previous condition survey and appropriate levels of building upgrades. This review was very timely in light of the difference between the project budget and the conceptual design estimate, prepared following submission of the Conceptual Design. As part of this on-site visit the design team also had the opportunity to receive further input from the UAS User Group regarding program provisions and design considerations.

The site visit meetings explored a wide range of options focussed on utilizing many of the more recently remodeled areas of the building. The thought of reducing the extent of a wholesale replacement of current functional spaces well serves a balanced approach of directing construction expenditures towards a balance between building re-use and total renewal.

The current level of design has built on the work accomplished over the past six years. During this period the goal to advance and achieve recognition for the excellence of the UAS programs in biology, marine biology and environmental sciences emerged. In concert with the input and direction received from UAS during the previous programming and design phases the Schematic Design submittal is still based in the following visions and goals:

- The existing running seawater system in the building, fed directly from Auke Bay, is a unique asset to marine science programs. The program for the remodeled building should make the most of this capability.
- Remodeling of the Anderson Building into a significant modernized science facility presents an opportunity for UAS to further its strengths and core values and to fit its vision for the future –“to speak to who we are”.
- Support UAS’s expansion into all of the Anderson Building and maximize the opportunities and costs for the best reuse of the facility.
- The first priority in the remodeled building is to provide facilities that will further the quality of the science teaching program and classrooms.
- The second priority is to provide research space with the focus of instructional delivery.

The design efforts for the Anderson Building Remodel and Pedestrian Crossing Improvements have established individual budgets for the building remodel and the pedestrian crossing. With the support of UAS the pedestrian crossing has been placed on a

separate design track. This adjustment will permit the State of Alaska Department of Transportation to advance the scope the proposed Glacier Highway improvements to a more defined level of project understanding and scope. This will permit the development of pedestrian crossing design that won't be in jeopardy of requiring modifications based on the final highway alignment and vehicle access provisions for the Anderson Building.

The current difference between the project budget and the recent conceptual cost estimate indicate a reduction of approximately twenty percent is necessary, for both the building and crossing. The Schematic Design represents a more detailed organization, a building floor plan of the program functions and support spaces. It represents the initial prioritization and strategies developed with UAS to capture many cost reduction considerations generated in this phase.

Once the Schematic Design cost estimate is in hand we can evaluate the extent of cost reduction realized. If needed, additional options to align the budget with the estimate of probable cost will occur. These adjustments would be identified and reviewed with UAS. The prioritization by UAS of further changes to the Schematic Design would occur before advancing into the next increment of design, the design development phase.

The Schematic Design Phase represents the level of design where, with the Owner's input the project requirements are fully defined; program needs and scope of the project is clearly understood. Following acceptance of this phase the project moves to the next increment of design, Design Development. We refer to this phase as the "design fix". At completion of the design development the compatibility of all systems is fully proven. The design then forms the base for completing final contract documents for bidding and construction.

At this point in the design the project has a significant way to go but should be reviewed and considered for completeness of UAS's needs and clarity of understanding. We will participate in upcoming review conferences following your review to address any areas of the project that lack this clarity of understanding.

DISCIPLINE SUMMARIES**SITE***General Description*

The Anderson Building is located a short distance from the main UAS campus; located south of the main campus and south of the Glacier Highway. The building is served by direct vehicular access from the Glacier Highway but lacks a formalized and safe pedestrian crossing of the Highway.

The Anderson Building site is approximately .98 acres in size with the following legal description; Lot 003 US Survey Number 1500 within the City & Borough of Juneau.

Bordering the site immediately to the west is NOAA's Alaska Fisheries Science Center's Auke Bay Marine Station. The Auke Bay Marine Station includes fresh and salt water laboratories, offices, and dive and docking facilities.

To the east is a parcel developed with a private residence. UAS has been in contact with the owner discussing the potential for future acquisition. If the ownership is obtained UAS would then own three contiguous parcels; starting with the Anderson Building anchoring the western end.

To the south is Auke Bay.

To the north the Glacier Highway.

The site is currently zoned WC (waterfront commercial) by the City & Borough of Juneau. The WC zoning is intended to provide land and water space for uses directly related to or dependent upon a marine environment. A conditional use would have been granted to the facility to permit the university use in the WC zoning district. The need to amend any previous conditional use permit is being reviewed with the CBJ.

Site Development

A portion of the project includes the development of an improved and safer form of pedestrian crossing of the Glacier Highway; a physical separation of the main UAS Campus from the Anderson Building. With the recognition and support of UAS this portion of the project has been placed on a separate design schedule from the building improvements and will be represented in a separate submittal. Again the reasoning for the separate schedule is to permit the State of Alaska Department of Transportation to undertake the Glacier Highway design to a better level of understanding.

The pedestrian crossing option holding the most promise is an elevated walkway spanning the Glacier Highway. We have received input from UAS that an elevated pedestrian link extending to the building would be advantageous. The extension of the elevated link to the building would permit use of the existing stairs and elevator to access all levels of the Anderson Building.

Site design elements advanced with this submittal primarily focus at the first floor service side of the building. We have represented a revised organization of the enclosed stair, exterior cold laboratory, specimen freezer unit, and loading dock functions.

The dock area is increased in area to improve circulation and access for the users and incorporates a new covered roof area to reduce the weather exposure for the building occupants.

The current site incorporates a fire department access lane along the western edge of the site. We assume the existing fire lane was previously reviewed and approved by the City and Borough of Juneau Fire Department. Since no changes to the building footprint or occupancy is anticipated, the current provisions remain compliant with the CBJ's requirements. The fire department access beyond the points of fire apparatus access is assumed to be compliant as well. We intend on obtaining the CBJ's concurrence before advancing the design much further.

At the eastern open stairway the exit path crosses the roof of the Process Room and terminates at the northern edge of the roof. An elevated walkway between the roof edge and the adjoining sidewalk is needed to provide a compliant exit path to the public way.

The Anderson Building is one of a few facilities in the Juneau area that has a developed sea water source associated with marine biology sciences. The salt water intake and discharge were permitted and advanced by UAF's School of Fisheries and Ocean Sciences. As the SFOS vacates the Anderson Building, UAS is pursuing the transfer of the permits associated with ongoing access and use to the sea water from Auke Bay. The status of the permit transfer and any modifications or system upgrades that may be required are unknown at this point in the design.

Parking

The site currently accommodates a limited amount of vehicle parking. The current parking requirements of the CBJ, for a stand alone facility, are not met by the current parking provisions. Additionally, the available site is inadequate to accommodate the required total. We have had preliminary conversations with the CBJ that suggest the parking provisions can be analyzed in a more global manner. They are willing to evaluate the parking provisions on the basis of campus wide provisioning. Our current understanding is the CBJ feels a portion of the parking could be developed on-site with the balance of required parking provided on the main campus. As we further advance the site design we will pursue this option and rely on available UAS historic data to confirm the global campus parking compliance.

Future Design Efforts

Site components that will be refined and represented with the submittal of the pedestrian crossing will include: site grading revisions, the siting of the refuse container, structural

terminations on site for the elevated crossing support, site lighting associated with the final parking lot configuration, and a new facility sign identifying the Anderson Building.

BUILDING

Building Description and Development History

The building was originally constructed as a two-story structure in 1977. The original laboratory interiors were designed and constructed in 1978. In 1981 a third floor was added to the building incorporating primarily laboratory settings with a few additional office spaces. Subsequent modifications to the building include: casework renovations in 1982, the additional of a fire sprinkler system in 1984, first floor ventilation system modifications in 1985, exterior siding and window upgrades in 2002, third floor classroom laboratory remodel in 2004, and seawater vault renovations in 2004.

The Anderson Building is a three story structure; 16,123 gross square feet in area with a 220 gross square foot enclosed penthouse and roof access. The construction consists of protected steel columns, steel open web joists and girders, elevated floors are composite steel decking with concrete topping, a cast concrete slab on grade at the first floor, perimeter roof beams and steel joists supporting an inverted roof membrane over metal decking with an exposed ballasted roof paver surface. Roof drainage for the low sloped roof consists of internal roof drains with overfloor scuppers at the roof perimeter. The exterior vertical enclosure for the building consists of batt insulated wood framing with painted wood siding or cement asbestos board. Exterior windows and the main entry doors are an aluminum frame system with insulated glazing. Service doors are steel frames and doors. The roof contains a small penthouse housing the RO water generator and electrical panels and controls. Exhaust fans are rooftop mounted units with exterior service access.

Exits for the building include a heated, enclosed stair at the west end of the building and an open stair, constructed of steel with partial wood sided enclosure, at the east end. The enclosed stair provides access to the roof and penthouse. The stair exiting terminates at the first floor loading area for the enclosed stair and at the roof deck of the Process Room for the open stair. The first floor also has an on-grade exit at the east end of the building and the second floor has a third exit by way of the covered main building entry.

The interior wall and ceiling systems vary dependent upon the vintage of construction. The primary ceiling system consists of a suspended metal grid organized on a 5-foot module. Toilet rooms and service areas are finished gypsum board. A significant amount of the interior walls are a demountable partition system with the balance being gypsum board finishes over conventional wall framing. The toilet room walls consist of both ceramic wall tile and vinyl wall covering over gypsum board substrates. Flooring includes exposed concrete at the first floor labs, carpet at offices and classrooms, and sheet vinyl flooring at the third floor laboratories.

Other than the proposed adjustments at the service loading dock the balance of the building footprint and building exterior will remain unmodified.

DESIGN APPROACH

At the conclusion of the Programming and Concept Phases of the project, significant issues were identified as to the shortfall of the project budget to enable complete delivery of the final Project Program. This is due in large part to the unexpected extent of the potential need for replacing or repairing much of the existing mechanical, electrical and plumbing related systems, even without any significant remodeling or upgrading of the existing spaces in the building.

Due to these budget considerations, the design team has taken a closer look as to how more of the existing building can be utilized without major changes, yet still renews and repurposes the building to better serve the needs of the university. The intent is to deliver the conceptual organization and program reflected in the Concept design with a few modifications to better reuse areas of the building that have less critical needs for remodeling or replacement.

In this process, some compromises to the full remodeling program are inevitable. Determining the best mix of reuse and remodel is an iterative process incorporating a balance between program, design and cost. As we move forward into the Design Development phase of the project we will utilize the cost information developed at the end of Schematic Design, to continue to refine the best mix of these issues with the University's guidance.

Building Organization

The organization of program spaces for each of the floor levels has remained in-keeping with the Concept Design. The first floor will house the seawater and undergraduate biology laboratories and support spaces with the third floor housing chemistry and general biology instructional labs and support spaces. The second floor remains as classroom instructional spaces, offices, and student commons breakroom.

We have utilized the reuse many current room configurations to increase the efficiency of budget and the needed instructional setting delivery.

Overall Direction for Interior Improvements

A majority of the existing building interior has been built utilizing a five-foot construction module; forming the layout for ceiling grids, tile modules and demountable partition walls terminating at the underside of the ceiling.

More recent renovations within the Anderson Building have configured rooms with more conventional construction utilizing framed walls with gypsum board finishes that can accommodate mechanical piping and electrical power and data distribution and terminations within the wall assembly. The conventional wall construction type permits the elimination of free standing power and data poles for distribution, surface mounted electric raceways to extend horizontal service distribution, and provides more flexibility for plumbing supply and waste distribution throughout the building. Many of the installed

conventional walls extend to the floor structure above providing an improved acoustic separation between adjoining spaces and eliminates a common building atmosphere.

The condition of the current ceiling tiles warrants replacement to provide a freshened unifying look to the building and correct damaged or inappropriate finishes at the wet sea water laboratories. Replacement of the ceiling tiles alone can occur if the ceiling grid is not removed.

Our evaluation of ceiling and wall construction during schematic design consists of two primary options:

1. Remove the existing ceiling grid and demountable partitions. If the ceiling grid is removed the demountable partitions would lose their integrated support capability supplied by the current grid.
2. Maintain the existing ceiling grid and utilize a selective combination of existing demountable partitions and more conventional wall assemblies.

We have chosen to estimate the schematic design with the first option. We will obtain pricing differences associated with retaining the ceiling grid for a more informed evaluation of cost differences associated with either option. The pricing will also consider the replacement of mechanical supply and return air distribution eliminated with the removal of the ceiling grid assembly.

Lighting options will also be evaluated as part of the cost estimate efforts. The circuitry for the first and second floor lighting requires complete fixture replacement floors. Also the condition of the lights at the first floor further suggests total replacement. At the third floor newer lights exist. Energy consumption and lighting quality could be improved by maintaining the current fixtures and replace the ballasts and bulbs; an upgrade from T12 to T8 technology.

Accessibility Upgrades.

The current building has toilet room facilities on each floor. The schematic design has expanded the quantity of plumbing provisions at each level for compliance with the current building code minimal requirements. The increase in fixture counts is coupled with redesigned toilet room layouts meeting accessibility requirements for fixture clearances and access.

The existing elevator in the Anderson Building serves all three levels. The current elevator cab size is deficient and does not comply with the accessibility requirements for existing elevators. The schematic design incorporates a larger elevator cab which requires modifications for the increased the elevator footprint and shaft size.

For the remodeled spaces within the building compliant accessibility clearances to each space have been incorporated in the schematic design.

Building Support, Offices & Support Spaces and Classrooms

The following series of items provides a brief description of the intended scope for the work to be performed in each of the laboratory spaces in relation to the Schematic Design plans. The Room Data Sheets and subsequent review comments from the University can provide for many of the specific assumptions for these spaces. We have followed the general program identification format of the Final Concept Program with explanation where we have modified those items.

*Building Support (non-programmed spaces)*Toilet Rooms – All Floors

Ceramic tile floor and base, ceramic tile at walls to a 7-foot elevation with painted moisture resistant gypsum wall board above, painted gypsum board ceiling, and recessed lighting.

Janitor Closet – Second Floor

Self-coved sheet vinyl floor and base, fiber-reinforced wall panels installed over moisture resistant gypsum board, painted gypsum board ceiling, and utility lighting.

Mechanical and Electrical Spaces – All Floors

Rooms will receive repair associated with interior renovations to match existing levels of materials and finishes.

*Office & Support Spaces*OS-1.1 through OS1.6 & OS-2.1

Tenured & Research Faculty Offices & Adjunct Faculty Shared Office.

Provide solid doors without sidelights.

Eliminate whiteboard surface.

Increase depth of shelving to 12-inch.

Furnishings will vary with the individual.

OS-5.1 Department Workroom - Administrative Office

To keep the space as flexible as possible all furnishings are to be systems type with manufactured storage cabinets for supplies.

OS-6.1 Student Commons – Breakroom

Floor tile at the kitchenette/vending zone and carpet for the balance of the space.

Provide countertop and storage cabinets at the kitchenette/vending area.

Elimination of the coffee maker and teapot.

Provisioning of room darkening and overhead ceiling projector.

Eliminate dedicated computer workstations, design the space for laptop computer use.

The space is to be flexible enough to accommodate small seminar and conference room functions. Tables and seating should be flexible to permit organization for a conference room setting.

The room will be accessed from the corridor but provisions will be incorporated for securing access to the space during certain hours.

*Classrooms – Second Floor*CR-2.1 Classroom, 42 seat.

The SD program revision comments have requested elimination of plumbing, air and gas spigots at the podium.

The SD program revision comments have requested separation of the projection screen and chalk board. The chalk board is to be located on the west wall. The circulation zone along the west wall will permit the placement of chalk boards but will result in an overlap of seat access and the instructional zone.

The UAS standard for seating in classroom instructional settings utilizes an 18 x 60 inch table. The schematic design layout has incorporated this module to the greatest extent possible. To meet the occupant count of 42 seats we have shown a single half-table module or tablet arm at the western edge of the seating.

CR-3.1 Classroom, 32 seat

The seating requirement of this space was noted as 16 or 32 in the SD program revision comments, the design shows how 32 seats could be accommodated within the existing space. Confirmation of room occupancy should be confirmed with the review of the schematic design submittal.

Following the programming phase the user group representatives noted the existing room should retain the instructional podium. SD program revision comments have requested separation of projection screen and chalk board (with chalk board being located on the east wall). We will test the wall lengths to accommodate the requested zoning but note the view to the east wall will be limited with a 32 seat occupant layout.

The schematic design layout incorporates the 18 x 60 inch table seating module.

Laboratory Settings

The following series of items provides a brief description of the intended scope for the work to be performed in each of the laboratory spaces in relation to the Schematic Design plans. The Room Data Sheets and subsequent review comments from the University can provide for many of the specific assumptions for these spaces. We have followed the general program identification format of the Final Concept Program, with explanation where we have significantly modified those lab items.

*OFFICE & SUPPORT SPACES –FIRST AND THIRD FLOOR ONLY*OS-9.1 Departmental Shared Storage

Storage Area with sealed concrete floor and utility lighting.

OS-11.1 Dive Locker

The Field Equipment Storage component of this space was deleted in the SD program revisions.

This space should have similar finishes to the Seawater Research Lab, below. A unisex shower is provided with durable tile finishes and a GWB ceiling. A large scullery sink of a saltwater resistant material is to be provided. Storage racks and Scuba Storage Lockers are to be movable equipment and are not part of the building construction budget.

OS-4.1 Lab Tech Shared Office

This shared office is located off of the third floor Support Lab and will allow convenient access to both the Biology Instructional Lab and the Chemistry Instructional Lab.

Research Labs

RL-1.1 Biology Undergraduate Research Lab 1 (now Lab 1A & 1B)

In the August 11, 2008 Final Concept Diagram this lab program area was comprised of converted portions of the existing Rooms 315, 316, and 317, converted into a single new large lab.

The Schematic Design plan proposes that these three rooms be left largely as-is, with the lab uses continuing as two separate labs: Undergraduate Research Lab 1A (316) and Undergraduate Research Lab 1B (315). The existing Office (317) is proposed as being reused as a room for the CL-3.1 Specimen Collection Storage. Rooms 315 and 316 are among the more recently remodeled lab rooms in the building and seem to be working reasonably well for their intended purpose. Standard grade new ceiling tile, grid and lighting are included in these rooms as the basis of the Schematic Design cost estimate. Walls to be painted with a durable epoxy finish.

RL-2.1 Biology Undergraduate Research Lab 2

RL-3.1 Biology Undergraduate Research Lab 3

In the August 11, 2008 Final Concept Diagram, the Lab 2 program area was comprised of converted portions of the existing Room 112 on the north side of the floor, while Lab 3 was located on the opposite side of the hall and opposite end of the building along the window wall on the south side of the floor.

The Schematic Design plan proposes that Lab 2 be moved to the south window wall side of the floor, immediately adjacent to Lab 3 in the partial area of the former Room 108 and 115A. It is intended that these labs would be able to function as both an undergraduate research lab and with some adjustment, an undergraduate teaching lab.

The revised layout is in keeping with the intention that all lab space on the first floor has access to natural light and view, while support space, including the restrooms and shower, are be consolidated at the north side of the floor.

There is the potential that these two labs could be opened up to each other in order to create a single large flexible lab space. Alternatively, one of these spaces could be set up as a conventional seated classroom with the adjacent room as a teaching lab space.

For purposes of discussion, two different casework layouts are shown. Lab 3 shows a more conventional research lab linear bench arrangement perpendicular to the window wall. Lab 3 shows a layout that is parallel to the window wall and results in lab bays feeding off of a north-south aisle. It would be possible to utilize either layout in either room. Further discussion of these options will occur in the Design Development phase when budget considerations can be better evaluated.

Standard grade new ceiling tile and lighting is included in these rooms as the basis of the Schematic Design cost estimate. Floor covering is assumed to be resilient tile with rubber base. Unless running seawater is desired in these labs, it would be good to fill in the existing drain trenches to promote cleanliness and a better feeling to the floor surface. A new six foot fume hood is to be added to each room, although an option could be to share a single fume hood which could be located in the Room 112B Support Lab. Lab casework is assumed to be plastic laminate with an epoxy top. Sinks are to be epoxy drop-in. A flexible stacked whiteboard system will be located across the entry wall of each room.

RL-4.1 Seawater Research Lab

RL-4.2 Seaweed / Greenhouse / Culture Lab

RL-4.3 Support Lab: Seawater Labs

Several changes are proposed from the August 11, 2008 Final Concept Diagram. The OS-11.1 Dive Locker is moved away from the window wall to an interior location on the other side of the hall in order to allow for a more flexible rectangular plan for the Seawater Research Lab and greater access to daylight.

The RL-4.1 Seawater Research Lab is open all the way to the south window wall. The existing fume hood is to remain. Casework shown is to be new Polypropylene casework with a Trespa top and sink. The ceiling grid is to be replaced and inset with Mylar tiles and waterproof sealed fluorescent lights. A fiberglass Unistrut seawater supply system suspension grid is to be hung below the ceiling on a 4 foot module with new seawater distribution piping and waterproof electrical drops. The floor is to have a high-build salt water resistant industrial grade epoxy coating applied, with all trench gratings replaced with new non-metallic materials. The floor trench drain is to be extended as shown in the documents to provide a second parallel run. Wall surfaces to be of a waterproof material, sealed and coated with an epoxy coating. Waterproof room darkening shades should be provided for all exterior windows on the 5' window module.

The area for the RL-4.2 Seaweed/ Greenhouse /Culture Lab area is now proposed to be part of the greater Seawater Research Lab. This arrangement would provide more flexibility to that area and allow it to grow or shrink depending on research needs. If an enclosure is required for this area, walls can be added in the Design Development phase.

Classroom Labs

CL-1.1 General Biology Instructional Lab

CL-1.2 Support Lab: General Biology

Although the seating requirement of this space was reduced from 24 to 16-20 in the SD program revision comments, the design shows how 24 seats could be accommodated within the existing space. In the interest of cost the majority of the perimeter casework and plumbing for this room is thought to remain. The student bench areas are shown with a new configuration and new casework. The details of this casework will be further developed in the Design Development phase. Several possibilities exist that would allow for an increase of seating and flexibility. The Schematic Design plan shows a configuration that would still allow for water, power or data to be delivered to the bench along a fixed 12 inch wide “spine”, albeit to cup sinks rather than the large covered sinks that now exist. The need to provide for sinks at these student benches will be further assessed in the Design Development phase. Open benches with an epoxy top and wood frame (fixed or movable) are shown abutting the spine to provide for a flexible seating configuration. If water is not required, the spine would not be needed and the student benches could be completely movable to allow for flexible seating arrangements within the room.

As in all program areas, the ceiling grid, tile and lighting will be replaced. The full width of the instructional wall is to be provided with a layered rising whiteboard system. The exposed sink venting of the instructional island is to be relocated out of the space.

The Support Lab: General Biology is shown as open into the Biology Instructional Lab. This support lab will provide storage areas, preparation areas, and could house a larger seawater table or additional seawater aquaria. This will require that the running seawater system is extended into this room. Some of the displaced and additional storage needs that the new layout in the Instructional Lab will be provided in this room. A sink and snorkel hood will be provided to aid in specimen preparation. The plan shows the wall open between the support area and the general instructional area to facilitate the movement of microscopes and other equipment, although it is possible that a door may want to be added between these two rooms. Further discussion of this functionality will occur in the Design Development phase. All new wood casework (to match the instructional lab area with epoxy tops) will be provided. Tall build-in cabinets will be provided for microscope and instrument storage.

CL-3.1 Specimen Collection Storage

The existing Room 317 will be used with movable cabinets added for storage. The cabinets will not be included in the construction budget.

CL-4.1 Chemistry Instructional Lab

CL-4.2 Stock Storage

CL-4.3 Chemistry Instrument Room

Further investigation of ventilation issues in the Instructional Lab is required to formulate a solution.

Existing casework is assumed to remain in the Instructional Lab and the Stock Storage areas with needed clean up and repairs. The ceiling grid, tiles and lighting is to be replaced in all of these spaces.

The fume hoods in the Chemistry Instructional Lab will be replaced with three new six-foot hoods.

The Chemistry Instrument Room will be created by merging the existing Rooms 309A and 306. Seating height epoxy top wood base lab bench with wall cabinets will be provided along the south wall with three movable balance tables located on the north wall with wall cabinets above. A snorkel hood will be provided above the south bench top.

STRUCTURAL

Facility Description

The UAS Anderson Building is a three story steel frame structure. The Anderson Building was originally constructed as a two story building designed to accommodate a future third level. The building has plan dimensions of approximately 60 ft by 85 feet. An enclosed stairwell is constructed at the west end of the building and an open stair at the east end. An approximate 20 foot square room, Process Room 100U2, is constructed on the east side of the building, but only occurs at the first floor level.

Description of Existing Structural Systems

The Anderson Building is a steel frame building constructed on a conventional cast-in-place concrete foundation system. Framing consists of two equally sized bays in the north-south direction and three bays in the east-west direction.

Roof framing consists of 1.5-inch by 20 gage metal decking supported by 18-inch deep open web bar joists spaced approximately 5 feet on center. The bar joists span is approximately 30 feet to wide flange steel beams supports. The beams are supported on steel tube columns. The building has a total of 12 columns.

Framing on the 2nd and 3rd levels consists of 1.5-inch by 22 gage composite steel deck with concrete fill. The total thickness of the floor slab is 4-inches. The deck is supported on 36-inch deep open web steel bar joists spaced 5-feet on center. The joists span 30 feet and are supported at each end on 33-inch deep open web joist girders. The girders frame into 10-inch and 12-inch steel tube columns.

At the north side of the building, at the first floor, the bar joists are supported not on the joist girders but on an 8-inch thick concrete foundation (basement) wall. The concrete wall extends the full length of the north side of the building and the north half of the east and west walls of the first floor level.

The first floor consists of a 4-inch concrete slab on grade. The perimeter foundation wall consists of a 6-inch concrete wall supported on an 8-inch by 14-inch strip footing, except at

the north wall and portions of the east and west walls where the 8-inch concrete basement wall was constructed.

Building columns are supported on concrete pilasters and spread footings.

Capacity of Structural System

The original building, including the addition, was designed for the following live loads.

Roof Snow Load:	40 psf
Floor Live Loads:	100 psf

Current live load requirements are:

Roof Snow Load:	50 psf (amendment, the CBJuneau)
Offices:	50 psf (+ 15 psf dead load allowance for partitions)
Laboratories:	60 psf (see note below)
Corridors above First Floor:	80 psf
Lobbies/1 st Floor Corridors:	100 psf
Exit Facilities:	100 psf

The International Building Code (IBC) does not have a separate live load category for Laboratories. Under the load requirements for Hospitals, the IBC requires a 60 psf live load for operating rooms and laboratories.

As the existing floors were designed for a live load of 100 psf, the existing floors should be able to support the proposed floor layouts providing that the new laboratories do not require a live load greater than 100 psf.

The roof was designed for a snow load of 40 psf. The City and Borough of Juneau currently requires a 50 psf roof snow load. The existing roof framing is “grandfathered in”; it is not required that we upgrade the existing roof to support the higher roof snow load. The existing roof system, however, consists of an IRMA roof with 2-inch nominal pavers. Pavers typically weigh approximately 15-18 psf.

Applicable Design Requirements

Codes

For the new work, the design is to meet or exceed the requirements of the 2006 International Building Code (IBC), as amended by the City and Borough of Juneau. For dealing with the existing building the 2006 International Existing Buildings Code (EIBC) provides guidelines and requirements for the repair, renovation and upgrade.

Standards

For new construction, the design is in accordance with the published standards of the following organizations:

American Concrete Institute (ACI)
American Institute of Steel Construction (AISC)
American Iron and Steel Institute (AISI)
American Society of Civil Engineers (ASCE)

American Society for Testing and Materials Standards (ASTM)

American Welding Society (AWS)

International Conference of Building Officials (ICBO)

Steel Deck Institute (SDI)

Steel Joist Institute (SJI)

Steel Structures Painting Council (SSPC)

Considerations for Renovation

The floor and the roof of the Anderson Building are framed with steel open web bar joists for both the joists and girders. The use of open web bar joists creates several issues for consideration relative to renovations:

1. Open web bar joists are proprietary trusses designed for the specified loads. They typically have very little, if any, reserve capacity to support additional loads beyond what was specified on the original design drawings.
2. Open web bar joists tend to be “bouncier” than wide flange beams. This could be an issue if proposed new lab spaces have stringent limitations on floor vibrations. If vibration sensitive equipment is proposed for the facility, it would be preferable to locate the equipment on the first level unless a vibration analysis is performed on the floor framing.
3. Modifying roof or floor joists for new ductwork penetrations is more difficult than modifying floors framed with wide flange beams. Open web bar joists are trusses designed primarily for axial loads. The addition of concentrated loads on the top and bottom chords, between “panel points” on the trusses, induces flexural bending stresses not included in the original joist design. It would be preferable if any new floor or roof penetrations be designed to fit within the clear spacing between existing joists.

Seismic Design Considerations

Although not specifically required by code for the Anderson Building, the Owner may wish to consider a seismic evaluation of the building, to determine its seismic capacity relative to current code requirements.

Repairs and alterations to existing buildings may require seismic upgrades. As described above, the 2006 IEBC allows a change in the seismic base shear (dead weight of the building) without a mandatory seismic upgrade. Therefore, new floor, wall and roof finishes may be added up to 10% of the total weight of the building without requiring a seismic evaluation or upgrade.

Local modifications to the structural lateral system can be made and the modification can be dealt with on a “local” basis. For example, a brace may be moved from one bay to another to provide for a new door opening. The new brace and connections must be checked for seismic forces under the current codes, but a “global” evaluation or upgrade of the entire building is typically not required.

Mandatory global upgrades to the building's lateral load resisting systems may be required depending on the type or magnitude of the modifications to the building. Changes that trigger a mandatory upgrade to existing buildings, none of which apply to the Anderson Building, include:

1. Change of use that places the building in a higher hazard category, e.g. changing occupancy from a Business classification to an Assembly or Educational use.
2. Designation of the building as an Essential Facility.

Some jurisdictions may require a mandatory seismic evaluation and/or upgrade based on the extent of the proposed modifications to the building, even if the modifications do not otherwise affect the structural framing systems. The City of Seattle, for example, requires that a seismic evaluation/upgrade be performed, as "determined by the building official", for "Remodeling or additions that substantially extend the useful physical and/or economic life of the building, other than typical tenant remodeling."

Although a mandatory code upgrade does not appear required for the Anderson Building, the Owner may wish to consider an evaluation of the building to see how it performs under current codes. From a cost perspective, the time to perform an upgrade would be when the building was undergoing a significant remodel that removed existing finishes and exposed the structural framing.

Based on our preliminary review of the drawings for the existing facility, we have identified several aspects of the existing design/construction that although they conformed to seismic code requirements at the time of construction, are not allowed under current codes. For example:

1. The building's primarily lateral load resisting system consists of joist girders rigidly connected to steel tube columns. This system is no longer allowed in multi-story buildings.
2. All the columns in the building that are part of the lateral force resisting system do not meet the "compactness" requirements for steel columns, i.e. the wall thickness is too thin for the size of the column.
3. The columns are used to resist lateral loads in both primary directions of the building. Under current codes, columns in moment frames can be used to resist lateral loads in one direction only.

A seismic evaluation using procedures developed by FEMA for existing buildings would determine the strengths and weaknesses of the existing framing system. This could then be used by the Owner to determine the need for a seismic upgrade.

New Work and Proposed Renovations

Renovation of the loading dock enlarging the footprint to incorporate a revised layout for the new exterior pre-manufactured cold laboratory and freezer units, and a new ramped access for access and building exiting.

The dock would be constructed with a perimeter reinforced concrete foundation wall founded on reinforced concrete strip footings and a concrete slab on grade dock surface.

An area of the loading dock will receive a covered roof area for weather protection. To eliminate lateral bracing that would impact needed access at the perimeter and useability of the dock a steel moment frame structural system is proposed for the roof foundation and structural steel support system. The covered roof would introduce a sloped structural roof support for gravity drainage and discharge to the perimeter. The steel support system would consist of exposed steel columns supported on reinforced concrete pilasters and spread footings.

Renovation to enlarge the existing elevator pit, incorporation of a sump, and added structural supports for the new elevator; including hoist beam and guide rail support and bracing. The revised elevator pit and sump would consist of reinforced concrete foundations and retaining walls. The guide supports and hoist beam would be accomplished with a steel framing system.

As we advance the design for the pedestrian crossing we may see the location for the new elevator being incorporated outside of the current building footprint.

MECHANICAL

Design Criteria

The mechanical systems will be designed and constructed in accordance with the following codes:

- 2006 International Building Code
- 2006 International Mechanical Code
- 2006 Uniform Plumbing Code
- 2006 International Fire Code
- National Fire Protection Association
- ASHRAE - American Society of Heating, Refrigeration, and Air-Conditioning Engineers
- City & Borough of Juneau Title 19 Modifications

General Scope of Work

Replace first level ventilation and exhaust systems, replace second and third floor ventilation fan system, upgrade other ventilation systems including replacement of all exhaust fans, major cleaning of all fans and ductwork, modify plumbing and sanitary waste piping for new plumbing fixtures and revised toilet room layouts, minor modifications to process gas and air piping for remodeled layouts, Minor modifications to the sea water distribution piping system for revised layout, renovate the heating plant system including the existing underground oil tank, and renovate/upgrade the direct digital controls for the facility.

Proposed Mechanical System Renovation as follows.**VENTILATION SYSTEMS***Demolition*

Remove and demolish original AHU-1 from First Floor Boiler Room and ducts including trunks to second floor ceiling. Remove all eight duct coils and transitions throughout the first floor ceiling. Clean remaining ductwork thoroughly.

Remove and demolish all fan equipment, (SF-1, AHU-4, and AHU-5), all related ducts, pumps, heat exchanger, piping, and all controls from First Floor Fan Room.

Remove and demolish AHU-2 from Third Floor Mechanical Room. Remove, clean, and refurbish AHU-3 from Third Floor Mechanical Room for later installation.

Remove eight roof top exhaust fans and replace with six fans sealing penetrations as required.

Remove and replace ductwork for each floor as indicated in the drawings.

Remove all diffusers and grilles from each floor.

*Mechanical Construction**First Floor Ventilation Systems:*

Install new AHU-1/EF Custom Built Heat Exchanger system in First Floor Fan Room. AHU-1/EF is to supply all ventilation air and make-up hood air to first floor area. AHU/EF system shall exhaust all room air to internal heat pipe exchanger and exchange the heat with the incoming outside air.

AHU-1/EF-1 Fan Unit: 10,000/8000 cfm, 2.0", Class II, 7.5 Hp variable speed motors, Exhaust and Supply Fan, 30% efficiency Filters, and Face& Bypass integral stainless steel heat pipe type heat exchanger. Install air flow measuring grid to determine actual air volume and DDC pressure sensors to control static pressures.

First Floor Fume Hood Exhaust Systems: Replace fume hoods where shown. Replace all exhaust fans on roof for fume hoods. Fume hoods are generally intermittent or low usage so combining systems and extracting heat recovery may not be practical.

EF-2: 900 cfm, $\frac{3}{4}$ hp motor, 120v.

EF-3: 900 cfm, $\frac{3}{4}$ hp motor, 120v.

EF-4: 900 cfm, $\frac{3}{4}$ hp motor, 120v.

First Floor Fume Exhaust Systems Optional system; Combine the three exhaust systems (EF-2, EF-3, and EF-4) into one new variable speed exhaust fan EF-3, located on the roof or in first floor Fan Room. Fume hoods will be renovated with modern variable speed air valves and controls.

EF-3; 3000 cfm, 3 hp motor, variable speed, roof top with 18 inch high curb.

Process Room Exhaust Fan. Install new exhaust fan EF-14 on first floor generator/sewage ejector wall of room with exhaust grill inside and controlled by a humidistat on wall to operate.

EF-14: 400 cfm, $\frac{1}{2}$ hp, wall mounted with back draft damper.

Second and Third Floor Ventilation Systems

Install new AHU-2 for ventilation of second and third floor areas in Third floor Mechanical Room. Install new supply air and return air duct mains through third floor mechanical floor to second floor ceiling and connect to existing ductwork.

AHU-2: 10,000 cfm, 2.0", Class II, 7.5 Hp variable speed motor, Supply Fan, 30% efficiency Filters, and Mixing Dampers. Return Relief air fan propeller; 6,000 cfm, 5 hp variable speed motor.

Remove, renovate, and reinstall AHU-3 with new mixing dampers, new variable speed 3 hp motor and locate fan unit above new AHU-2 on stand to serve Chem Lab Fume Hoods make-up air with variable volume control. Install air flow measuring grid to determine actual air volume and DDC pressure sensors in Chemistry to control static pressures.

Third Floor Exhaust Air Systems: Replace all roof top exhaust fans. Replace fume hoods where shown. Add new roof top exhaust fan EF-5 for second and third floor toilet rooms; optional combine into EF-1 exhaust air system.

EF-5: 800 cfm, 3/4 hp motor, 480v, 3-phase. Toilet room exhaust air for second and third floors, control by DDC occupancy schedule.

EF-6: 500 cfm, two-speed 3/4 hp-1/4 hp motor, 120v. Biology Instructional Lab General Duty Exhaust, control by switch on wall.

EF-7: 500 cfm, two-speed 3/4 hp-1/4 hp motor, 120v. Chemistry Lab General Duty Exhaust, control by switch on wall.

EF-8: 400 cfm, two-speed 3/4 hp-1/4 hp motor, 120v. Biology Lab General Duty Exhaust, control by switch on wall.

EF-9: 900 cfm, two-speed 3/4 hp-1/4 hp motor, 120v. Chemistry Lab Fume Hood.

EF-10: 900 cfm, two-speed 3/4 hp-1/4 hp motor, 120v. Chemistry Lab Fume Hood.

EF-11: 500 cfm, 1/2 hp motor, 120v. Chemistry Stockroom General Duty Exhaust, control by switch on wall.

EF-12: 900 cfm, two-speed 3/4 hp-1/4hp motor, 120v. Chemistry Lab Fume Hood.

EF-13: 300 cfm, 1/4 hp motor, 120v. Support Lab Biology Instruction Snorkel Hood.

Third Floor Exhaust Air Systems Optional system; Combine the three fume hood exhaust systems (EF-9, EF-10, and EF-12) into one new variable speed exhaust fan EF-3, located on the roof or in first floor Fan Room.

EF-9; 3000 cfm, 3 hp motor, variable speed, roof top with 18 inch high curb.

For each floor: Mechanically clean all ductwork. Replace all supply air diffusers and flexible ducts, replace all return air grilles, and connect to existing ductwork, modify where required. Ductwork on each floor is to be renovated and approximate extent is listed on each sheet. Return air ceiling space is return air. Extend ventilation systems into electrical equipment rooms for natural cooling.

Exhaust Air Systems

The entire ventilation system will be checked, measured, and balanced by an experienced technician for correct air volumes from the ventilation, exhaust, and fume hoods systems.

HEATING SYSTEM*Demolition*

Remove original boiler, all heating piping and valves, all pumps, all domestic water tanks and piping, and all controls from the First Floor Mechanical Room. Remove all heating piping serving duct coils in first floor ceiling. Remove the 2000 gallon underground oil tank.

New Construction

Replace the heating plant and all piping in the original boiler room. For maximum seasonal efficiency and diversity of the plant two cast-iron sectional boilers will be utilized with approximately 55% total capacity. Capacity of each boiler would be 1050 MBtu's/hr each. Each boiler would have a boiler circulation pump. Utilize existing chimney, clean, and install new 18" diameter chimney above roof. Install two variable speed pumps to supply heating water to all heating unit and fan heating coils in the building. Heating header piping would be arranged in a primary-secondary layout.

P-1, P-2: 100 gpm, 3 hp motor, 480 volt, constant speed. Boiler Circulation Pumps.

P-3/P-4: 200 gpm, 5 hp motor, 480 volt, variable speed. Building Circulation Pumps.

Install new 2000 gallon double wall underground oil tank for full ADEC compliance for regulated tanks with secondary containment piping, corrosion protection, spill containment devices, and a monitoring leak-level detection system with DDC connection.

Heating Piping and Units

Modify exterior wall finned pipe heating piping system where walls are being relocated.

Replace all automatic valves and flow setters; quantities shown on each mechanical sheet.

Adjust all flow setters for flow required.

PLUMBING SYSTEM*Demolition*

Remove all plumbing piping and fixtures from all toilet rooms for each floor. First floor trench drains will be removed and new trench drains installed as shown. Remove the domestic hot water piping system from the first floor ceiling, serving first and second floor plumbing fixtures.

New Construction

The plumbing water piping and plumbing fixtures will be replaced at all toilet rooms, connecting to plumbing piping mains as required. ADA fixtures installed where required. All floor drains will have a priming valve and piping to floor drain trap to bring the drains into conformance with plumbing code for maintaining trap seal. Classrooms will have new sinks with connections to existing piping in ceiling below where shown. Install new domestic hot water piping in first floor ceiling to serve all first and second floor fixtures.

Emergency shower and eye wash stations will have tempered water stations installed at each unit with connections to domestic hot water. Currently there is only a cold water connection on most shower units.

SPECIAL PIPING SYSTEMS

The gas, air, and Reverse-Osmosis piping system will be modified only where required for room layout changes. Seawater and fresh water piping will be removed from the first floor and third floor ceilings. New seawater and fresh water piping will be installed in the first floor ceiling as required for new layout.

SPRINKLERS

Existing sprinkler system will be modified for any room layout changes. All sprinkler heads will be replaced.

CONTROLS

Scope of work includes a complete removal of all pneumatic controls, automatic valves, and damper operators from the facility and removal of all older SIEMENS control panels. A new Direct Digital Control (DDC) building automation system compatible with the existing DDC campus wide SIEMENS system. A central host station with computer terminal and graphics to be installed as a user friendly interface with the building mechanical control system.

Approximately 200 control points will be required for the facility renovation and addition area controls. All occupied areas will have “smart” thermostats that can monitor room temperatures and settings remotely.

ELECTRICAL

The following bulleted summary defines the electrical scope associated with the Schematic Design efforts.

Power Systems*Distribution System*

- Retain the existing service. Plan for future upgrade to relocate the main disconnect to the exterior or provide a shunt trip operator on the exterior.
- Retain the existing Generator Transfer Switch. Plan for future work to reposition and replace it to comply with NEC required work clearances.
- Retain the existing Main Distribution Panel. Test all of the feeder circuit breakers, and replace as needed.
- Maintain the present service grounding system. Plan to upgrade the ground system with additional ground rods when the service is upgraded. Create an isolated ground system for laboratory instrumentation and computer based equipment where new circuits are installed. Provide isolated ground buses in the panel boards.
- Relocate one panel in the main electrical closet on the first floor to facilitate NEC compliance to working clearances. This involves terminating existing branch circuits in termination boxes, and extended to a new panel. Increase this new panel to be a two section panel to better accommodate panels removed from the laboratories.

- Remove one panel board and one load center from the first floor laboratories. Possibly remove another panel board from near the west entrance to the first floor. Reroute retained circuits to the new panel in the electrical room on the first floor.
- Retain the current feeders (including conduit and conductors) from the main distribution panel to the branch circuit panels and the elevator where the panels are not relocated. Retain the panel boards on the second and third floors, and in the mechanical/process spaces.
- Replace the second panel board in the first floor electrical room with a new in the same location. The existing one (manufactured by General Electric) is at the end of its service life.

Branch Circuit System

- Provide all new branch circuit breakers in retained panel boards.
- Retain the existing branch circuits (conduit and conductors) where no change to the loads or rooms occurs.
- Provide new branch circuits with single conductors in conduit.
- Provide new branch circuiting using EMT in dry and non corrosive areas. Provide PVC and/or rigid steel conduit in areas susceptible to moisture or corrosion (Seawater laboratory).
- Provide surface raceway for power circuits where noted in the drawings.
- Replace all existing convenience receptacles where the spaces remain unchanged. Provide additional receptacles as noted in the drawings.
- Provide all new receptacles in the laboratories. Provide them with ground fault protection. Locate them to best facilitate routinely changing laboratory needs and conditions. Provide excess raceway capacity to facilitate new or relocated circuiting.
- Provide circuiting as needed for fume hoods, refrigeration, and other laboratory equipment. Utilize existing circuits and raceways where possible.
- Provide new motor starters for the heating and ventilation system.

Alternate Power Systems

- Retain the existing 155 KW, diesel powered, standby generator.
- Provide a new 3 KVA UPS for the Networks & Communications system equipment.

Lighting Systems

Exterior

- Provide new luminaires on the exterior where noted in the drawings.
- Utilize compact fluorescent lamps.
- Retain the existing parking and driveway, the entrance canopy, and wall mount luminaires.
- Provide emergency battery packs or power supplies for luminaires illuminating exits not at grade.
- Provide new contactors and photoelectric cell for the lighting control. Integrate with the Building Automation System to allow scheduling control of some luminaires and daylight control of all.

Interior Corridors, Vestibules, Entrances, & Restrooms

- Provide all new lighting utilizing fluorescent lamps and electronic ballasts, as noted in the drawings.
- Provide recessed cans with compact lamps and troffers with linear lamps in the corridors, vestibules, and entrances.
- Provide accent and decorative lighting as needed to highlight specific areas and to illuminate displays.
- Provide wall mounted linear type luminaires over the mirrors in the restrooms. Provide recessed cans where necessary to address small areas not illuminated by the linear fixtures. Provide occupancy sensor control.
- Configure the controls for the corridors, vestibules, stairwells, and entrances to allow some luminaires to remain illuminated at all times. Configure the remainder with low voltage controls to permit schedule control by the Building Automation System.
- Provide emergency battery packs with the above mentioned luminaires to maintain compliance with the codes.

Offices

- Provide new luminaires utilizing fluorescent lamps and electronic ballasts. Provide lamps with high color rendition and a 3500 degree K color temperature.
- Utilize 2x4 lensed troffers with T8 lamps or suspended linear luminaires with predominantly indirect lighting and T5 lamps.
- Provide wall switch type occupancy sensors for controls.

Classrooms

- Provide new luminaires utilizing fluorescent lamps and electronic ballasts. Provide lamps with high color rendition, with a 3500 degree K color temperature.
- Utilize 2x4 lensed troffers with T8 lamps.
- Provide ceiling mounted dual tech type occupancy sensors and switches for controls.

Laboratories

- Provide new luminaires utilizing fluorescent lamps and electronic ballasts. Provide lamps with high color rendition, with a 3500 degree K color temperature.
- Utilize 2x4 lensed troffers with T8 lamps. Provide gaskets for all lenses to reduce moisture infiltration in rooms as noted in the drawings.
- Provide ceiling mounted dual tech type occupancy sensors and switches for controls.

Utility & Storage Rooms

- Provide new luminaires utilizing fluorescent lamps and electronic ballasts.
- Utilize T5 lamps.
- Utilize suspended industrial strips with reflectors in the utility rooms. Utilize surface mounted linear luminaires in the storage rooms.
- Provide occupancy sensors for controls.

Low Voltage Systems*Fire Alarm System*

- Replace the entire fire alarm system.
- Replace the control panel at the main entrance with a new annunciator panel. Provide a new control panel in the first floor electrical room.
- Provide new smoke detectors in the corridors at the elevator openings, in the elevator shaft & machine room, and in the Network/Communications/Electrical room. Provide thermal detectors in the elevator shaft & machine room.
- Relocate all retained existing manual pull stations to the code stipulated elevations.
- Reconnect the existing sprinkler system flow and tamper devices.
- Provide new horns and strobes in the corridors and utility rooms.
- Provide new strobes in the classrooms, laboratories, and restrooms.
- Utilize the existing raceways as much as possible. Provide new conductors and cables. Provide additional raceway where needed.

Network & Communications

- Provide all new cabling and data station terminals.
- Provide all new cable tray (or basket tray) and raceways as needed to allow all cables to be adequately supported. Locate the cable trays in the corridors if possible with raceways routed from the terminals to the cable tray.
- Provide new patch panels and terminals on the existing rack in the First Floor Network/Communications/Electrical room.
- Provide network cables and terminals as noted in the drawings.
- Provide terminals in the ceilings in strategic locations for wireless modems, as noted in the drawings.
- Provide a grounding system with a bus bar mounted in the Networks/Communications closet as the focal point. Bond this ground bus to the power service ground bus. Provide a ground conductor in the cable trays with bonds to each terminal conduit and large raceway. Allow for bonding to the rack.
- Provide cable runways as needed in the Networks/Communications closet to support the raceway system to the rack.
- Provide repairs and/or modifications to the telephone service conduit as needed to eliminate water drainage from outside into the building.

Access Controls

- Provide raceways and circuiting as needed to support door access controls.
- Provide controls on First Floor west entrance and the Second Floor main entrance.

Surveillance Cameras

- Provide a surveillance camera system to monitor entrances and corridors.
- Utilize Ethernet based cameras and controls.
- Standardize to currently used technology on campus.

- Provide a minimum of two cameras on the First Floor, three cameras on the Second Floor, and two cameras on the Third Floor. Route all cables to the rack in the First Floor Network/Communications/Electrical room.

Outstanding Information Needs and Coordination

As the project continues through completion of the design phase more specific information will be discovered and will be integrated. This iterative process is based on the level of design efforts being advanced and will obtain UAS's more detailed input at the appropriate time. The following summary of issues summarizes known issues needing the review and consideration by UAS. With your review of the Schematic Design submittal we are looking for your suggestions and considerations to address and further resolve the project unknowns.

- A copy of the recent hazardous materials investigation report and conditions. From this information we will access and incorporate components needing remediation and correction.
- Confirmation of current campus wide parking provisions. This summary of available spaces and the previously accepted parking provisions will be used to work with the CBJ to define a finite requirement of on-site parking required for the AB.
- Review of FF&E provisioning and programmed equipment. At present there may be elements assumed to be carried in the construction budget. We need to re-confirm this list to validate the adequacy of the construction budget considerations. Through review and discussions we may identify components that could be acquired directly by UAS and generate savings by elimination of the associated contractor's mark-ups. This step will also better inform the design documents in representing needed service sizes and locations. Also we will be able to better coordinate actual furniture and equipment within the building.
- Update the permitting renewal status for the sea water intake and discharge system. At present the design team does not anticipate any changes to the sea water delivery to the Anderson Building.
- Establishment of the quantities of hazardous materials by UAS; summarizing anticipated storage, use and dispensing within the Anderson Building. We will submit a spreadsheet indicating the maximum quantities and types of hazardous materials that can be considered without having to adjust the building occupancy and establishing rated enclosures to separate these materials from the balance of the building.
- At the cost of converting program space into building support identify if the first floor needs a janitor sink and closet.
- Ongoing review and comment associated with the Room Data Sheets. This effort will establish the provisioning for each space and advance the level of needed detail in line with the phase of design's needs.

Prior to the beginning of the Design Development Phase, and using the Schematic Design estimate of probable cost, we suggest these issues be reviewed in more detail.

Schedule and Phasing

The current project design schedule is based on a single contract for construction for the entire building. The completion of the design, project bidding, and permitting leads to a start of construction in late summer of 2009. UAS has emphasized their goal to see a construction start during the summer school break of 2009. The magnitude of the total project will not support UAS's goal, so structuring of a portion of the total work that can be completed within this time frame must be pursued.

Towards meeting this goal we have had discussions with UAS to identify a portion of the project that could be separated and bid documents for this portion completed in advance of the balance of the design package. To realize an increment of the project being completed for a summer construction we must allow adequate time to bid and award and provide adequate time for material and equipment procurement by the contractor.

- With a reduced scope of work associated with the reuse of many of the third floor spaces this floor emerges as a strong candidate for this initial increment.
- With the second floor consisting primarily of non-laboratory functions the remodel for the newly configured office and classroom areas may offer the construction scope that can be accomplished over the summer.
- Miscellaneous efforts in consideration are; demolition efforts at the first floor, temporary construction at the first floor to permit reuse of the laboratory settings for displaced third floor functions, chemistry and biology, while the third floor is remodeled, and adjustments to the loading dock and exiting from the lower level of the enclosed exit stair.

We will be able to confirm these approaches with receipt of the schematic cost estimate numbers. Once we have the estimate, confirmation that the total project is within the budget will be known and we can start refining the schedule for design and review for an early spring bid period. If the estimate and budget are not in alignment we will need to adjust the project scope further and prioritize remodel efforts with UAS.

Also coming into play is the limited availability of research and classroom laboratory spaces at UAS. If the biology and chemistry laboratories are not available following the summer break courses can not be scheduled or held. Within the Juneau area there doesn't appear to be options for borrowed spaces that can support these needed science laboratory settings. The following considerations are currently in play.

- UAS is evaluating the potential to utilize NOAA's Alaska Fisheries Science Center's Auke Bay Marine Station to temporarily house sea water laboratory facilities while the Anderson Building undergoes remodeling.

- The design team has evaluated the condition of the existing laboratory settings at the first floor with the thought of using these spaces temporarily while remodel work is occurring on the third floor. The configuration of the settings and the condition of the casework appears to support this approach. We would strive to provide new construction boundaries for these spaces such that the money expended would not be significantly directed to non-permanent solutions.

Budget and Project Scope Considerations

The budget for the Anderson Building Remodel and Pedestrian Crossing Improvements totals \$7.9M. The Conceptual Design estimate totals \$9.7M. The assigned budgeting and cost estimate for each component is as follows:

	UAS Budget	Conceptual Design Estimate
Anderson Building Remodel	\$5,920,000	\$7,298,350
Pedestrian Crossing	\$2,040,000	\$2,421,712
Totals	\$7,960,000	\$9,720,062

The difference between budget and estimate of probable cost is in the range of 16 to 20 percent for individual components. This level of disparity is significant and will require a rigorous effort to reconcile.

The estimate and the full list of project scope desired by UAS has been reviewed in detail and discussed with UAS. The effort has generated the following decisions and general guidelines to prioritize a final scope in line with the budget. The summary of these decisions and guidelines include:

1. The UAS budget and cost estimate includes a few scope items that could be deferred to a future time with the support of UAS. We have had initial conversations with UAS to identify these items and have agreed the following items can fall in this category.
 - Replacement of the roof.
 - Repair and replacement of the exterior windows.
 - Provide a developed access to the Auke Bay beach and development of an outdoor lab setting.
2. Following further input from UAS Facilities Services the extent of mechanical upgrades could be reduced.
 - The scope of remodel for air handling units serving the building would consist of a blend of total replacement and repair, cleaning and component replacement.
 - The current reverse osmosis water generator and tank replacement could be deferred. The current system does work.
 - Heating piping upgrades would occur with the boiler replacement only. The fin-tube piping failures appear to have been resolved by UAS.
 - If the replacement of ceiling grid is not pursued, existing diffusers and return air slots would remain unchanged other than relocation associated with room reconfiguration.

- Consider boiler replacement that would utilize fuel versus electrical for a power source.
3. Following further input from UAS Facilities Services the extent of electrical upgrades could be reduced.
- Retain the existing 155 KW, diesel powered, standby generator.
 - Retain the existing service. Plan for future upgrade to relocate the main disconnect to the exterior or provide a shunt trip operator on the exterior.
 - Retain the existing Generator Transfer Switch. Plan for future work to reposition and replace for NEC work clearances.
 - Retain the existing Main Distribution Panel. Test all of the feeder circuit breakers, and replace as needed.
 - Maintain the present service grounding system. Plan to upgrade the ground system with additional ground rods when the service is upgraded. Create an isolated ground system for laboratory instrumentation and computer based equipment where new circuits are installed.
 - Consider relamping and new ballasts for the third level lights.
 - Utilize existing circuits and raceways to the greatest extent possible.
 - Utilize the existing raceways as much as possible.
4. Following further input for UAS Facilities Services the extent of architectural and laboratory upgrades could be reduced.
- Utilize existing third floor laboratory configurations to the greatest extent possible.
 - Evaluate the potential savings associated with retaining the existing ceiling grid and demountable partition systems.
 - Utilize a judicious approach for sea water distribution to laboratory settings.

The Schematic Design efforts have lead to longer list of accessibility upgrades that will be required within the facility. The elevator is not large enough to be compliant with minimal standards for reuse, all of the toilet rooms are not compliant and are represented in the submittal in a compliant solution.

Once the schematic design cost estimate is completed we will need to revisit the project scope and work with UAS to prioritize any further scope adjustment options. If this effort is needed it will occur prior to advancing the design.

Area Tabulations – Concept Design to Schematic Design

The program areas have seen minor adjustments with the development of the Schematic Design. The primary influence for the changes is associated with the adjustments related to the reuse of the more recently remodeled spaces. The tabulation also includes non-programmed building support spaces.

Schematic Design Room Number	Schematic Design Room Name	Concept Program ID Number	Concept Program Room Name	Schematic Design Area (NSF)	Concept Program Area (SF)	Program Difference (NSF)	Non-Programmed Area (NSF)	See Legend
FIRST FLOOR								
100U3	PROCESS ROOM	-		324	-	-	324	
100U3	MECH.	-		160	-	-	160	
101	MECH.	-		320	-	-	320	
102	ELECTRICAL	-		128	-	-	128	
103	STAIR	-		234	-	-	234	
107	ELEV. EQUIP	-		47	-	-	47	
108	BIOLOGY UNDERGRAD RESEARCH LAB 3	RL-3.1	BIOLOGY UNDERGRAD RESEARCH LAB 3	681	610	51	-	
108A	BIOLOGY UNDERGRAD RESEARCH LAB 2	RL-2.1	BIOLOGY UNDERGRAD RESEARCH LAB 2	681	685	-24	-	
109	UNEAR EQUIP ROOM	-		884	-	-	884	
109A	W	-		40	-	-	40	
109B	W	-		40	-	-	40	
111	SEAWATER RESEARCH LAB	RL-4.1 & RL-4.2	SEAWATER RESEARCH LAB & SEAWATER / GREENHOUSE / CULTURE LAB	1134	1055	49	-	(A)
112	DIVE LOCKER	OS-11.1	DIVE LOCKER	350	340	20	-	
112A	SHOWER	-		55	-	-	55	
112B-1	SUPPORT LAB	RL-4.3	SUPPORT LAB SEAWATER LABS	211	210	1	-	
112B-2	DEPARTMENTAL SHARED STORAGE	OS-9.1	DEPARTMENTAL SHARED STORAGE	265	270	-5	-	
FIRST FLOOR: 16 Spaces Total				5,595	3,300	491	2,294	
SECOND FLOOR								
200	STAIR	-		233	-	-	233	
201	CORRIDOR	-		634	-	-	634	
202	CLASSROOM 32 SEAT	CR-2.1	CLASSROOM 32 SEAT	608	640	-32	-	
203	CLASSROOM 42 SEAT	CR-3.1	CLASSROOM 42 SEAT	854	845	19	-	
204	STUDENT COMMONS - BREAKROOM	OS-8.1	STUDENT COMMONS / LIBRARY / BREAKROOM / KITCHEN	484	400	84	-	
205	DEPARTMENT WORK-ROOM / ADMIN. OFFICE	OS-5.1	DEPARTMENT WORK-ROOM / ADMIN. OFFICE	683	400	283	-	
205A	OFFICE	OS-1.1	TENURED & RESEARCH FACULTY OFFICE #1	118	120	-2	-	
205B	OFFICE	OS-1.2	TENURED & RESEARCH FACULTY OFFICE #2	118	120	-2	-	
205C	OFFICE	OS-1.3	TENURED & RESEARCH FACULTY OFFICE #3	117	120	-3	-	
205D	OFFICE	OS-1.4	TENURED & RESEARCH FACULTY OFFICE #4	117	120	-3	-	
205E	OFFICE	OS-1.5	TENURED & RESEARCH FACULTY OFFICE #5	150	185	-29	-	
205F	OFFICE	OS-1.6	TENURED & RESEARCH FACULTY OFFICE #6	93	120	-27	-	
205G	OFFICE	OS-2.1	TENURED & RESEARCH FACULTY OFFICE #7	137	120	17	-	
206	WOMEN'S RESTROOM	-		193	-	-	193	
208	JANITOR'S CLOSET	-		32	-	-	32	
210	MEN'S RESTROOM	-		161	-	-	161	
SECOND FLOOR: 16 Spaces Total				4,949	3,190	206	1,443	
THIRD FLOOR								
300M1	M	-		52	-	-	52	
300U1	MECHANICAL	-		324	-	-	324	
300W1	W	-		52	-	-	52	
301	STAIR	-		257	-	-	257	
302	CORRIDOR	-		531	-	-	531	
307	CHEMISTRY INSTRUMENT	CL-4.3	CHEMISTRY PREP INSTRUMENT ROOM	191	185	6	-	
308	STOCKROOM	CL-4.2	CHEMISTRY STOCK STORAGE A*	364	375	-11	-	
309	CHEMISTRY LAB	CL-4.1	CHEMISTRY INSTRUCTIONAL LAB A* - 14 STUDENTS	849	865	-16	-	
310	SUPPORT LAB BIOLOGY INSTRUCTION	CL-1.2	SUPPORT LAB BIOLOGY 1	255	150	145	-	
313	SHARED TECH OFFICE	OS-4.1	LAB TECH SHARED OFFICE (2)	147	140	7	-	
314	BIOLOGY INSTRUCTIONAL LAB	CL-1.1	GENERAL BIOLOGY INSTRUCTIONAL LAB 1 (24 STUDENTS)	895	1,220	-325	-	
315	BIOLOGY LAB 1B	RL-1.1	BIOLOGY UNDERGRADUATE RESEARCH LAB 1B	389	395	-6	-	(B)
316	BIOLOGY LAB 1A	RL-1.1	BIOLOGY UNDERGRADUATE RESEARCH LAB 1A	500	390	209	-	(B)
317	SPECIMEN COLLECTION STORAGE	CL-3.1	SPECIMEN COLLECTION STORAGE	142	150	-8	-	
THIRD FLOOR: 14 Spaces Total				5,069	3,870	-18	1,216	
ANDERSON BUILDING: 46 Spaces Total				15,602	10,260	339	4,953	
LEGEND								
<div> <div></div> (A) - Concept Program Area total represents RL-4.1 (835 SF) + RL-4.2 (200 SF). <div></div> (B) - Concept Program Area total represents RL-1.1 (395 SF) + RL-1.2 (200 SF). <div></div> Program Space Type - Office & Support (OS) <div></div> Program Space Type - Research Laboratory <div></div> Program Space Type - Classroom Lab (CL) <div></div> Program Space Type - Classroom (CR) <div></div> Non-Programmed Building Support or Added Program Space </div>								

Program Room Data Sheets

The Room Data Sheets are still in an early stage of completeness. We have included the sheets relating only to program spaces affirmed in the Schematic Design Phase. The edits received from UAS have been incorporated in the data sheets. They will continue to serve as the design base for provisioning and will require ongoing review and updates and the detail of design is expanded in the next phase of design. They remain as the vehicle to elicit further discussion and development of each space in the building.

Program Room Data Sheet List**OFFICE & SUPPORT****OS-**

- 1.1-1.6 Tenured & Research Faculty Offices
- 2.1 Adjunct Faculty Shared Office
- 4.1 Lab Tech Shared Office (3)
- 5.1 Department Workroom / Administrative Office / Mail / Copy
- 6.1 Student Commons / Library / Breakroom/ Kitchenette / Vending
- 9.1 Department Shared Storage
- 11.1 Dive Locker/ Field Equipment Storage

RESEARCH LABS**RL-**

- 1.1 Biology Undergraduate Research Lab 1
- 2.1 Biology Undergraduate Research Lab 2
- 3.1 Biology Undergraduate Research Lab 3
- 4.1 Seawater Research Lab
- 4.2 Seaweed / Greenhouse / Culture Lab
- 4.3 Support Lab: Seawater Labs

CLASSROOM LABS**CL-**

- 1.1 General Biology Instructional Lab
- 1.2 Support Lab: General Biology
- 3.1 Specimen Collection Storage
- 4.1 Chemistry Instructional Lab
- 4.2 Chemistry Stock Storage
- 4.3 Chemistry Instrument Room

CLASSROOMS**CR-**

- 2.1 Classroom -32 Seat
- 3.1 Classroom -42 Seat

Office & Support**USE**

- Private Office for Tenured & Research Faculty.

OCCUPANCY / ADJACENCY

- Private Office -1 occupant, 1 visitors (24/7)
- Desire to be adjacent to lab.

HVAC REQUIREMENTS

- Temp.:** 69-79dF Humidity: Ambient
- Ventilation:** Office.

PLUMBING

- None

GASES (BUILDING SYSTEM)

- None

POWER

- 120v/

LIGHTING

- General Lighting:** 50 foot candles @ work plane (private office lighting levels TBD with user mock-ups)
- Task Lighting:** @ desk

DAYLIGHTING

- Required

COMMUNICATIONS

- Telephone:** 1
- Data:** 2
-

ARCHITECTURAL

- Floor:** Carpet
- Wall:** Painted GWB
- Ceiling:** ACT **Height:** TBD
- Doors:** Wood ~~with glass side light~~
- Windows:** Desirable
- Security:** Key lockable door
- Acoustics:** Acoustic privacy required

FURNISHINGS/ACCESSORIES

- ~~Whiteboard~~
- Blinds
- Desk: 1
- Credenza: 1
- Task chair with arms: 1
- Side chairs: 1
- Lateral File: 1 -2-drawer
- Pedestal File: 1 -2-drawer

BUILT-IN EQUIPMENT

- ~~40~~ 12" deep wall mounted shelving on adjustable standards.

EQUIPMENT

- Printer:1
- 1- PC & Monitor:1

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

- Furnishings will vary with the individual.
- Windows should be operable.
- Desireable to have individual heat control; thermostat.

OS-2.1

Office & Support

ADJUNCT FACULTY OFFICE

120 NSF

USE

- Shared Office for Adjunct Faculty

OCCUPANCY / ADJACENCY

- Shared Private Office -2 occupants typical (24/7)

HVAC REQUIREMENTS

- **Temp.:** 69-79dF Humidity: Ambient
- **Ventilation:** TBD, operable window.

PLUMBING

- None

GASES (BUILDING SYSTEM)

- None

POWER

- 120v/

LIGHTING

- **General Lighting:** 50 foot candles @ work plane (private office lighting levels TBD with user mock-ups)
- **Task Lighting:** @ desk

DAYLIGHTING

- Desired

COMMUNICATIONS

- **Telephone:** 4
- **Data:** 4

ARCHITECTURAL

- **Floor:** Carpet
- **Wall:** Painted GWB
- **Ceiling:** ACT **Height:** TBD
- **Doors:** Wood ~~with glass side light~~
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- ~~Whiteboard~~
- Blinds (if outside window)
- Desks: 2 typical (24"d x 60"w)
- Task chairs: 2 typical (4 max)
- Side chairs: 2
- Lateral File: 2 -2-drawer 30"w x 19"d

BUILT-IN EQUIPMENT

- 12" deep wall mounted shelving on adjustable standards.

EQUIPMENT

- PC & Monitor: 2
- Printer: 1

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

- Furnishings will vary with the individual.
- Windows should be operable.
- Desirable to have individual heat control; thermostat.

OS-4.1

Office & Support

LAB TECH SHARED OFFICE

140 NSF

USE

- Shared Office for 3 Lab Technicians.

OCCUPANCY / ADJACENCY

- Shared Private Office -3 occupants typical (24/7)
- ~~May need to serve as "concierge" for building depending on staffing plan. If so, locate by front entry. If not required, should be near labs they serve.~~

HVAC REQUIREMENTS

- **Temp.:** 69-79 dF Humidity: Ambient
- **Ventilation:** TBD, operable window.

PLUMBING

- None

GASES (BUILDING SYSTEM)

- None

POWER

- 120v/

LIGHTING

- **General Lighting:** 50 foot candles @ work plane (private office lighting levels TBD with user mock-ups)
- **Task Lighting:** @ desk

DAYLIGHTING

- Not Required

COMMUNICATIONS

- **Telephone:** 4
- **Data:** 4

ARCHITECTURAL

- **Floor:** Carpet
- **Wall:** Painted GWB
- **Ceiling:** ACT **Height:** TBD
- **Doors:** Wood with glass side light
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Whiteboard
- Blinds (if outside window)
- Desks: 3 2 typical (24"d x 60"w)
- Task chairs: 3 typical (4 max)
- Side chairs: 1
- Lateral File: 3 -2-drawer 30"w x 19"d

BUILT-IN EQUIPMENT

- TBD

EQUIPMENT

- PC & Monitor: 3 typ., 4 max (probably laptops)
- Printer: 1

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

USE

- Combined area for Administrative support open office, files & workroom space for building wide support & use; large copier, shared fax, shared printers, paper storage, mail processing, office supply storage

OCCUPANCY / ADJACENCY

- Administrative support open office for 2 and workroom space.
- Near main entry to act as building receptionist

HVAC REQUIREMENTS

- **Temp.:** 69-79 dF Humidity: Ambient
- **Ventilation:** TBD,

PLUMBING

- None

GASES (BUILDING SYSTEM)

- None

POWER

- 120v/

LIGHTING

- **General Lighting:** 50 foot candles @ work plane (private office lighting levels TBD with user mock-ups)
- **Task Lighting:**

DAYLIGHTING

- Desired

COMMUNICATIONS

- **Telephone:** 3
- **Data:** 4

ARCHITECTURAL

- **Floor:** Carpet
- **Wall:** Painted GWB
- **Ceiling:** ACT **Height:** TBD
- **Doors:** Wood with glass side light
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Whiteboard
- Blinds (if outside window)
- Modular workstations: 2
- Task chairs: 2
- Side chairs: 2
- Lateral Files: 4 -5-drawer
- Lockable Steel Supply Cabinets: 2
- Large layout worktable
- Supply storage cabinets
- Collating table
- Printer table or strand

BUILT-IN EQUIPMENT

- Mailboxes

EQUIPMENT

- Production Copier
- Fax Machine
- Printers

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

- Keep space flexible; no built-ins.

Office &
Support**USE**

- Multiple use interaction space. Serves as study lounge ~~with 3 provided desktop computers~~, as well as breakroom for the building with kitchenette and vending alcove. Library shelving and seating area.
- Space should adapt for use as small seminar and conference room.
- **OCCUPANCY / ADJACENCY**
- Student seating / study area -8 occupants (24/7)
- Area could be open to corridor; provide means to secure if desired.

HVAC REQUIREMENTS

- **Temp.:** 69-79 dF Humidity: Ambient
- **Ventilation:** TBD,
- **Air filtration:** normal filtration

PLUMBING

- Kitchen Sink -2 bowl with garbage disposal

GASES (BUILDING SYSTEM)

- None

POWER

- 120v/ computer workstation power
- 120v/ 4- 20 amp kitchen outlets minimum
- 120v for Vending machines

LIGHTING

- **General Lighting:** 50 foot candles @ work plane
- **Task Lighting:** TBD

DAYLIGHTING

- Not Required

COMMUNICATIONS

- **Telephone:** 1
- **Data:** ~~3 computer workstations~~, WiFi

ARCHITECTURAL

- **Floor:** Carpet w/ tile at kitchenette.
- **Wall:** Painted GWB
- **Ceiling:** ACT **Height:** TBD
- **Doors:** Wood with glass side light
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Whiteboard
- Blinds (if outside window)
- Computer table ~~or built-in counter for 3 desktop PC's~~ laptops only. Tables to reconfigure for conference functions.
- Computer chairs: 3
- Study/lunch tables: 3
- Side chairs: 9
- Soft seating for 2
- Shelving sections: 4 -3' wide sections
- Counter and storage cabinets at sink area.

BUILT-IN EQUIPMENT

○

EQUIPMENT

- ~~PC & Monitor: 3 desktop PC's provided~~ (laptops by users), WiFi connectivity
- Printer: 1
- Microwave
- Small Refrigerator (30" wide)
- ~~Coffee maker~~
- ~~Electric teapot~~
- Vending Machines- by vendor

SAFETY REQUIREMENTS

○

SPECIAL REQUIREMENTS / NOTES

- Must be ADA accessible
- Note: 2 vending machines to be housed within this space if possible.

OS-9.1

Office & Support

DEPARTMENT SHARED STORAGE

260 NSF

USE

Small short-term lockable storage & staging area for incoming & outgoing supplies, equipment

OCCUPANCY / ADJACENCY

- Temporary storage
- Near dock / service entry

HVAC REQUIREMENTS

- **Temp.:** TBD **Humidity:** TBD
- **Ventilation:** TBD

PLUMBING

- None

GASES (BUILDING SYSTEM)

- None

POWER

- 120v and 208/240v circuits.

LIGHTING

- **General Lighting:** 60 foot candles
- **Task Lighting:** None

DAYLIGHTING

- Not Required

COMMUNICATIONS

- **Telephone:** 1 (Note: phone could be in corridor)
- **Data:** None

ARCHITECTURAL

- **Floor:** VCT or sealed concrete
- **Wall:** Painted GWB or CMU
- **Ceiling:** Open **Height:** TBD
- **Doors:** HM, 36" active, 36" inactive
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Sorting table: 1
- Movable metal shelving

BUILT-IN EQUIPMENT

-

EQUIPMENT

-

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

-

OS-11.1

DIVE LOCKER / FIELD EQUIPMENT STORAGE 340 NSF

Office & Support

USE

Storage for diving equipment ~~and other scientific field equipment~~. Unisex shower

OCCUPANCY / ADJACENCY

- Storage
- Adjacent to vehicle dock
-

HVAC REQUIREMENTS

- **Temp.:** TBD deg F **Humidity:** Ambient
- **Ventilation:** Needs ventilation for wet equipment.

PLUMBING

- Large, deep sink for washing gear, minimum of 30" x 20" x 18" deep.
- Floor Drain
- Shower

GASES (BUILDING SYSTEM)

- None

POWER

- 120v/ GFCI

LIGHTING

- **General Lighting:** 60 f.c. sealed industrial fixtures
-

COMMUNICATIONS

- **Telephone:** No
- **Data:** No

ARCHITECTURAL

- **Floor:** VCT or Sealed Conc.
- **Wall:** MR GWB or CMU
- **Ceiling:** Epoxy painted MR GWB. **Height:** TBD.
- **Doors:** TBD
- **Security:** Key lockable door

FURNISHINGS/ACCESSORIES

- Industrial storage shelving; material should be rust and water proof, plastic or composite.

BUILT-IN EQUIPMENT

- TBD

EQUIPMENT

- TBD, Possible tank-fill compressor
- Minimum of (4) lockers for storing and drying scuba gear. Lockers to be ventilated and lockable.

SAFETY REQUIREMENTS

- TBD

SPECIAL REQUIREMENTS / NOTES

- Well ventilated
- Both heat and ventilation required to remove water from wet equipment.

Research Labs**USE**

- Flexible, general purpose, biology research bench lab. A generic approach would allow for better use over the life of the building. Undergraduate students serve as lab assistants, so teaching role is also present.

OCCUPANCY / ADJACENCY

- Research Lab with instructional aspects
- Adjacency TBD

HVAC REQUIREMENTS

- **Temp.:** 70 deg F +/- 2 deg **Humidity:** Ambient
- Ventilation:** Lab Standard -100% outside air; fume hood ~~probably not required if one is available elsewhere on floor.~~

PLUMBING

- Hot/cold water, cold water aspirator
- Lab Sinks (3)
- RO water with local polisher within room.
- ~~Seawater, filtered and unfiltered desired~~
- Garbage disposal and sediment traps

GASES (BUILDING SYSTEM)

- Compressed air- 15-30 psi
- Burning gas (propane?)

POWER

- 120/208/240 V (surge protected)
- Surface mounted raceway > 18" above bench top

LIGHTING

- **General Lighting:** Direct/Indirect preferred; 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Desired

COMMUNICATIONS

- **Telephone:** 2
- **Data:** Lab standard TBD 4 ports per lab, plus WiFi

ARCHITECTURAL

- **Floor:** VCT (acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** ACT **Height:** 10' desired
- **Doors:** Wood, 36" active, 18" inactive. W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Chalkboard / Whiteboard TBD
- Pegboard drying racks
- Soap Dispenser
- Paper towel dispenser
- Clock
- Pull-down blinds for light control

BUILT-IN EQUIPMENT

- Bench top: (TBD) epoxy countertops. ~~Metal or~~ Plastic Laminate base cabinets.
- Shelving: (TBD) wall mounted cabinets with glass doors. Bench mounted adjustable open reagent shelving
- Provide mix of 30" and 36" bench heights.

EQUIPMENT

- Fume Hood ~~unless supplied in shared equipment area~~
- Microscopes

SAFETY REQUIREMENTS

- Fire extinguisher
- First aid equipment
- Hazardous materials storage
- Safety Shower & Eyewash

SPECIAL REQUIREMENTS / NOTES

- Microscopy - typically 100-150X, but use at 1000-1250X as well.
- Floor space should be as flexible as possible.
- All built-in shelving, countertops and cabinets should be seawater proof; no stainless steel or metal.

USE

- Flexible, general purpose, biology research bench lab. A generic approach would allow for better use over the life of the building. Undergraduate students serve as lab assistants, so teaching role is also present.

OCCUPANCY / ADJACENCY

- Research Lab with instructional aspects
- Adjacency TBD

HVAC REQUIREMENTS

- **Temp.:** 70 deg F +/- 2 deg **Humidity:** Ambient
- Ventilation:** Lab Standard -100% outside air; fume hood ~~probably not required if one is available elsewhere on floor.~~

PLUMBING

- Hot/cold water, cold water aspirator
- Lab Sinks (2)
- RO water with local polisher within room.
- Seawater, filtered and unfiltered desired
- Garbage disposal and sediment traps

GASES (BUILDING SYSTEM)

- Compressed air- 15-30 psi
- Burning gas (propane?)

POWER

- 120/208/240 V (surge protected)
- Surface mounted raceway > 18" above bench top
-

LIGHTING

- **General Lighting:** Direct/Indirect preferred; 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Desired

COMMUNICATIONS

- **Telephone:** 2
- **Data:** Lab standard TBD 4 ports per lab, plus WiFi

ARCHITECTURAL

- **Floor:** VCT (acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** ACT **Height:** 10' desired
- **Doors:** Wood, 36" active, 18" inactive. W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Chalkboard / Whiteboard TBD
- Pegboard drying racks
- Soap Dispenser
- Paper towel dispenser
- Clock

- Pull-down blinds for light control

BUILT-IN EQUIPMENT

- Bench top: (TBD) epoxy countertops. Metal or Plastic Laminate base cabinets. Provide a mix of bench heights; 30" and 36".
- Shelving: (TBD) wall mounted cabinets with glass doors. Bench mounted adjustable open reagent shelving.
- Fume Hood.

EQUIPMENT

- TBD
- Microscopes

SAFETY REQUIREMENTS

- Fire extinguisher
- First aid equipment
- Hazardous materials storage
- Safety Shower & Eyewash

SPECIAL REQUIREMENTS / NOTES

- Microscopy - typically 100-150X, but use at 1000-1250X as well.
- Floor space should be as flexible as possible.

Research Labs**USE**

- Flexible, general purpose, biology research bench lab. A generic approach would allow for better use over the life of the building. Undergraduate students serve as lab assistants, so teaching role is also present.

OCCUPANCY / ADJACENCY

- Research Lab with instructional aspects
- Adjacency TBD

HVAC REQUIREMENTS

- **Temp.:** 70 deg F +/- 2 deg **Humidity:** Ambient

Ventilation: Lab Standard -100% outside air; fume hood ~~probably not required if one is available elsewhere on floor.~~

PLUMBING

- Hot/cold water, cold water aspirator
- Lab Sinks (2)
- RO water with local polisher within room.
- Seawater, filtered and unfiltered desired
- Garbage disposal and sediment traps

GASES (BUILDING SYSTEM)

- Compressed air- 15-30 psi
- Burning gas (propane?)

POWER

- 120/208/240 V (surge protected)
- Surface mounted raceway > 18" above bench top
-

LIGHTING

- **General Lighting:** Direct/Indirect preferred; 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Desired

COMMUNICATIONS

- **Telephone:** 2
- **Data:** Lab standard TBD 4 ports per lab, plus WiFi

ARCHITECTURAL

- **Floor:** VCT (acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** ACT **Height:** 10' desired
- **Doors:** Wood, 36" active, 18" inactive. W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Chalkboard / Whiteboard TBD
- Pegboard drying racks
- Soap Dispenser

- Paper towel dispenser
- Clock
- Pull-down blinds for light control

BUILT-IN EQUIPMENT

- Bench top: (TBD) epoxy countertops. Metal or Plastic Laminate base cabinets. Provide a mix of bench heights; 30" and 36".
- Shelving: (TBD) wall mounted cabinets with glass doors. Bench mounted adjustable open reagent shelving.
- Fume Hood.

EQUIPMENT

- TBD
- Microscopes

SAFETY REQUIREMENTS

- Fire extinguisher
- First aid equipment
- Hazardous materials storage
- Safety Shower & Eyewash

SPECIAL REQUIREMENTS / NOTES

- Microscopy - typically 100-150X, but use at 1000-1250X as well.
- Floor space should be as flexible as possible.

RL-4.1

Research Labs

SEAWATER RESEARCH LAB

885 NSF

Use

- Seawater tank room for research and teaching. A variety of tank sizes TBD.

OCCUPANCY / ADJACENCY

- Running seawater lab 6 occupants
- 1st floor- direct access to outside driveway desired to move tanks.

HVAC REQUIREMENTS

- Temp.:** 50 - 70 deg F **Humidity:** Ambient
- Ventilation:** Temperature control - Summer -; fresh air ventilation desired to control humidity. Temperature control to be on local thermostat.

PLUMBING

- Hot/cold water
- Hose Reel – hot & cold
- Seawater system (for flow-through tanks, Heath trays, and Living Streams). Trench drains for normal effluent and waste treatment (necessity for treatment to be confirmed).
- Large deep stainless steel sink for clean up area with grinder and sediment traps.
- Modular trench drains (removable grate system)

GASES (BUILDING SYSTEM)

- Compressed air (oil free)- 15-30 psi for aerating tanks (1 or 2 systems)
- Burning gas (propane?)

POWER

- 110v/240v gasketed drop cords
- Dedicated power
- Surge protection
- Room panel & emergency shunt
- Emergency power desired to supply aeration air with air stones (2 per lab) (Emergency power TBD)

LIGHTING

- General Lighting:** Full spectrum lighting: 75 foot candles (gasketed, moisture proof)
- Emergency Lighting:** TBD
- Control:** User will provide Timer/Lighting system for experiment diurnal controls for tanks

DAYLIGHTING

- Desired with control blinds

COMMUNICATIONS

- Telephone:** 2
- Data:** 2 ports at fixed bench; WiFi

ARCHITECTURAL

- Floor:** Sealed concrete (slope to trench drains)
- Wall:** waterproof epoxy painted filled CMU
- Ceiling:** MR GWB with 4'x4' fiberglass Unistrut grid to support piping, curtains, lights, etc. **Height:** TBD'
- Doors:** HM, 36" active, 36" inactive, w/ vision panels; insulated exterior roll-up doors 12'x12'
- Windows:** operable exterior with black-out curtains
- Security:** Key lockable door

FURNISHINGS/ACCESSORIES

- Tackboard /whiteboard
- Pegboard drying rack

- Net drying racks - for small dip nets
- Paper towel dispenser
- Soap Dispenser
- Clock

BUILT-IN EQUIPMENT

- Lab Bench: 10 LF, 316 Stainless steel countertops; 30" d. x 36" h., grooved with water resistant Poly pro base cabs w/doors.
- Reagent Shelving:10'

EQUIPMENT

- Water chillers & heaters (8 per lab)
- Conventional freezer 3'x3'x6' (2)
- Refrigerator 3'x3'x6' (2)
- Living stream rectangular tanks
- 1 meter to 2 meter round tanks
- Autoclave

SAFETY REQUIREMENTS

- Fire extinguisher
- First aid equipment
- Safety shower / Eyewash

SPECIAL REQUIREMENTS / NOTES

- Part of room will need to be subdivided to accommodate instrumentation and environments supporting research.
- Standby power source need to be supplied to all outlets in the research and seawater labs; inclusive of the seawater system.
- No metal of any kind; use epoxy or plastic materials.

RL-4.2

SEAWEED /GREENHOUSE /CULTURE LAB 200 NSF

Research Labs

USE

- Seaweed / Greenhouse space to replicate current facility.

OCCUPANCY / ADJACENCY

- Running seawater lab 3 occupants
- 1st floor- direct access to outside driveway desired to move tanks.

HVAC REQUIREMENTS

- **Temp.:** 50 - 70 deg F **Humidity:** Ambient
- **Ventilation:** Temperature control - Summer -; fresh air ventilation desired to control humidity. Temperature control to be on local thermostat.

PLUMBING

- Hot/cold water
- Hose Reel –hot & cold
- Seawater system. Provide in-line filters.
-

GASES (BUILDING SYSTEM)

- Compressed air (oil free)- 15-30 psi for aerating tanks (1 or 2 systems)
-

POWER

- 110v/240v gasketed drop cords
- Dedicated power
- Surge protection
- Room panel & emergency shunt
- Emergency power desired to supply aeration air with air stones (2 per lab) (Emergency power TBD)

LIGHTING

- **General Lighting:** Full spectrum lighting: 75 foot candles (gasketed, moisture proof)
- **Emergency Lighting:** TBD
- **Control:** User will provide Timer/Lighting system for experiment diurnal controls for tanks
-

DAYLIGHTING

- Required with control blinds; need to reduce ambient light.

COMMUNICATIONS

- **Telephone:** 1
- **Data:** 2 ports at fixed bench; WiFi

ARCHITECTURAL

- **Floor:** Sealed concrete (slope to trench drains)
- **Wall:** waterproof epoxy painted filled CMU
- **Ceiling:** MR GWB with 4'x4' fiberglass Unistrut grid to support piping, curtains, lights, etc. **Height:** TBD'
- **Doors:** HM, 36" active, 36" inactive. W/ vision panels; insulated exterior roll-up doors 12'x12'
- **Windows:** operable exterior with black-out curtains
- **Security:** Key lockable door

FURNISHINGS/ACCESSORIES

- Tackboard /whiteboard

- Pegboard drying rack
- ~~Net drying racks for small dip nets~~ Pegboard will suffice for purpose.
- Paper towel dispenser
- Soap Dispenser

BUILT-IN EQUIPMENT

Lab Bench: 6-7 LF.

EQUIPMENT

- Specialty tanks. Glass surge tank needs to be replicated or moved-in.
- Autoclave.
- (2) refrigerator sized incubators.

SAFETY REQUIREMENTS

- Fire extinguisher
- First aid equipment
- ~~Safety shower / Eyewash~~

SPECIAL REQUIREMENTS / NOTES

- Shelving and cabinets to be built-in.
- Use epoxy or plastic for sinks and shelves.

RL-4.3

Research Lab Support

SUPPORT LAB: SEAWATER LABS

210 NSF

USE

- Wet Lab for fish processing, service to Seawater Labs, drying various specimens ranging from crabs to fish, dissecting fish.

OCCUPANCY / ADJACENCY

- 2 occupants
- Adjoin Seawater Labs

HVAC REQUIREMENTS

- **Temp.:** 72 deg F **Humidity:** Ambient
- **Ventilation:** 100% outside air; dedicated exhaust system; ~~(1) Fume hood (4')~~ - expected use of biological preservatives, hydrocarbons, acids and bases w/ gas, air, and water outlets

PLUMBING

- Hot/cold water, cold water aspirator
- Filtered Sea water (stub out 2 locations)
- Hose bibb
- RO with polisher in room.
- ~~Sink in fume hood 18" x 18"~~
- Oversized garbage disposal and sediment traps
- 1-36" sink,

GASES (BUILDING SYSTEM)

- Compressed air- 15-30 psi ~~(also in fume hood)~~
- Air supply suitable for aeration
- Burning gas (propane)

POWER

- 120/208/240 V -TBD
- Surface mounted raceway > 18" above bench top

LIGHTING

- **General Lighting:** Full spectrum lighting: 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Not required.

COMMUNICATIONS

- **Telephone:** 2

- **Data:** Lab standard to be developed ; 3 laptops, WiFi, fiber optic cabling TBD

ARCHITECTURAL

- **Floor:** epoxy sealed concrete
- **Wall:** epoxy painted MR GWB or CMU
- **Ceiling:** WR ACT or MR GWB **Height:** TBD.
- **Doors:** Wood, 36" active, 18" inactive. W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

BUILT-IN EQUIPMENT

- Stainless bench top with raised edge: along side walls, 30" d., 36" h., grooved
- Shelving: ~~metal~~ cabinets, wall mounted, glass doors
- Base cabinets to be water resistant
- ~~4' Fume Hood w/ built-in chemical safety cabinet~~

EQUIPMENT

- Refrigerators (2)
- -20 freezers (2)
- Bench top drying oven with canopy hood
- Small Autoclave

SAFETY REQUIREMENTS

- Fire extinguisher
- First aid equipment
- Hazardous materials storage
- Eyewash

SPECIAL REQUIREMENTS / NOTES

- Needs to be very cleanable
- Flexible Casework
- No metal of any kind; use epoxy or plastic materials.

USE

- This is the primary biology teaching lab at UAS. It is intended to be a pure lab setting with students at lab tables, without a separate lecture seating area in the room. A demonstration bench will be at the head of the room with wall and base cabinets for storage at the perimeter. Flexible student bench systems will be considered.

OCCUPANCY / ADJACENCY

24 16-20 students, 1 instructor

Adjacency TBD

HVAC REQUIREMENTS

- **Temp.:** 72 deg F **Humidity:** Ambient
- **Ventilation:** TBD. ~~Fume hood probably not included.~~

PLUMBING

- Hot/cold water, cold water aspirator
- RO Water with local polisher within room.
- Running seawater for aquaria or small demo tanks
- No water or sink at student benches

GASES (BUILDING SYSTEM)

- Compressed air- 15-30 psi
- Burning gas (propane?). Not above bench/table.

POWER

- 120/208/220 V (surge protected)
- Surface mounted raceway 18" above bench top.
- Power & data drop cords (gasketed) location per casework layout.

LIGHTING

- **General Lighting:** Direct / Indirect: 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Desired

COMMUNICATIONS

- **Telephone:** 2
- **Data:** Lab standard, fiber optic cabling to attached Prep Room.

ARCHITECTURAL

- **Floor:** VCT(acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** WR ACT **Height:** TBD
- **Doors:** Wood, 36" active, 18" inactive. W/ vision panels
- **Security:** Key lockable door

- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES**BUILT-IN EQUIPMENT**

- Projection screen
- Bench top Prep area with sink 30"d. x 36" h.;
- Instruction bench top 30"d x 36"h
- Shelving: base cabinets, wall mounted, glass doors
- Epoxy countertops
- Microscope cabinet for 48 microscopes
- Fume Hood unless shared is available

EQUIPMENT**SAFETY REQUIREMENTS**

- Fire extinguisher
- First aid equipment
- Hazardous materials storage cabinets
- Eyewash
- Safety Shower
-

SPECIAL REQUIREMENTS / NOTES

- No projections above student tables/benches (air, gas or power).

USE

- Prep and Storage Lab supporting General Biology Instructional Lab.

OCCUPANCY / ADJACENCY

- 1 or 2
- Attached to General Biology Instructional Lab

HVAC REQUIREMENTS

- **Temp.:** 72 deg F **Humidity:** Ambient
- **Ventilation:** TBD Consider fume hood or BSC
- **Air filtration:** norm

PLUMBING

- Hot / Cold Water
- 5' dual compartment stainless steel Scullery Sink
- Garbage disposal and sediment traps

GASES (BUILDING SYSTEM)

- TBD

POWER

- 120v. (surge protected)
- Surface mounted raceway > 18" above bench top

LIGHTING

- **General Lighting:** Direct / Indirect: 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Not required

COMMUNICATIONS

- **Telephone:** 0
- **Data:** Lab standard, fiber optic cabling to attached Analytical Lab.
- **Telephone:** 0
- **Data:** Lab standard, fiber optic cabling to attached Analytical Lab.

ARCHITECTURAL

- **Floor:** Welded sheet vinyl (acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** Mylar faced WR ACT **Height:** 10' min.
- **Doors:** Wood, 36" active, W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Stool
- Specimen Storage Cabinets
- ~~Metal~~ Composite or Plastic Shelving

BUILT-IN EQUIPMENT

- Lab Bench 30"d x 36"h
- Pull-down snorkel exhaust -TBD
- Consider fume hood -TBD

EQUIPMENT

- Refrigerator (1)
- -20 freezer (1)
- ~~Ice Machine~~
- Small Autoclave
- Consider BSC

SAFETY REQUIREMENTS

- TBD
- Hazardous materials cabinets
- Eyewash

SPECIAL REQUIREMENTS / NOTES

CL-3.1

Classroom Lab Support

SPECIMEN COLLECTION STORAGE

180 NSF

USE

- Area allowance for storage of permanent comparative specimen collections. This space may be in a room or in alcoves off general circulation. Collection will be processed elsewhere.

OCCUPANCY / ADJACENCY

- 0
- Adjacent to Biology Instructional Labs

HVAC REQUIREMENTS

- **Temp.:** 72 deg F **Humidity:** Ambient
- **Ventilation:** TBD
- **Air filtration:** norm

PLUMBING

- None

GASES (BUILDING SYSTEM)

- None

POWER

- 120v. If in dedicated room
-

LIGHTING

- **General Lighting:** Direct / Indirect: 75 foot candles @ bench top
- **Emergency Lighting:** None
- **Task Lighting:** None

DAYLIGHTING

- Not desired

COMMUNICATIONS

- **Telephone:** 0
- **Data:** 0

ARCHITECTURAL

- **Floor:** VCT (acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** ACT **Height:** TBD
- **Doors:** Wood, 36" active, W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Stool
- Specimen Storage Cabinets (lockable-12
- Metal Shelving
- Processing table

BUILT-IN EQUIPMENT

-

EQUIPMENT

-

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

-

CL-4.1

Classroom Labs

CHEMISTRY INSTRUCTIONAL LAB A

865 NSF

USE

- This is the primary chemistry teaching lab at UAS. ~~Two sizes are possible based on availability of space—14 students or 24~~ 16 students at lab tables, without a separate lecture seating area in the room. A demonstration bench will be at the head of the room with wall and base cabinets for storage at the perimeter of the room. Need to maintain sightlines from student bench area to demo podium and chalkboard.

OCCUPANCY / ADJACENCY

Chemistry Lab, ~~14 or 24~~ 16 students, 1 instructor

Adjacency TBD

HVAC REQUIREMENTS

- **Temp.:** 72 deg F **Humidity:** Ambient
- **Ventilation:** 100% outside air. Multiple fume hoods ; 16-LF of common use fume hoods. 5-10 hoods or “scoop” hoods at student bench for lesser need. Add central vent on timer.

PLUMBING

- ~~6~~ 4 general sinks
- Hot/cold water, cold water aspirator
- RO Water with local polisher within room.
- Water and sink or sink trough at student benches

GASES (BUILDING SYSTEM)

- Compressed air- 15-30 psi
- Burning gas (propane?)

POWER

- 120/208/220 V (surge protected)

LIGHTING

- **General Lighting:** Direct / Indirect: 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** TBD

DAYLIGHTING

- Desired

COMMUNICATIONS

ARCHITECTURAL

FURNISHINGS/ACCESSORIES

- Large multi panel chalkboard at front of room.
- Tackboard
- Pegboard Rack
- Soap Dispenser
- Paper towel dispenser

- Clock
- Student benches- TBD
- Student seats (14 or 24)
- Instructor's stool (1)

BUILT-IN EQUIPMENT

- Projection screen
- Instruction bench top 30”d x 36”h
- Shelving: base cabinets, wall mounted, glass doors
- Epoxy countertops
- Consider linear fume hoods at student stations
- Drying oven
- Ice machine

EQUIPMENT

SAFETY REQUIREMENTS

- Fire extinguisher
- First aid equipment
- ~~Hazardous materials storage cabinets~~
- Eyewash
- Safety Shower

SPECIAL REQUIREMENTS / NOTES

- Provide accessible student stations as required.

CL-4.2

Classroom Lab Support

CHEMISTRY STOCK STORAGE A

375 NSF

USE

- Prep and Storage Lab supporting Chemistry Instructional Labs depending on size. Chemistry stock shelving, Hazardous materials storage cabinets, bench prep area, demonstration carts, refrigerator and freezer.

OCCUPANCY / ADJACENCY

- 1 or 2
- Attached to Chemistry Instructional Lab A or B

HVAC REQUIREMENTS

- **Temp.:** 72 deg F **Humidity:** Ambient
- **Ventilation:** 100% outside air. ~~4' fume hood~~
Add central vent on timer.
- **Air filtration:** norm

PLUMBING

- Hot / Cold Water
- Water Polisher
- Sink w/ RO water

GASES (BUILDING SYSTEM)

- ~~○ Compressed air 15-30 psi~~
- Burning gas (propane?)

POWER

- 120v. (surge protected)
- Surface mounted raceway > 18" above bench top

LIGHTING

- **General Lighting:** Direct / Indirect: 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Not required

COMMUNICATIONS

- **Telephone:** 1
- **Data:** Lab standard, fiber optic cabling to

attached Analytical Lab.

ARCHITECTURAL

- **Floor:** VCT(acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** WR ACT **Height:** 10' min.
- **Doors:** Wood, 36" active, W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Stool
- Storage Cabinets
- Shelving; glassware & chemicals
- Pegboard Rack
- Glassware storage
- Towel Dispenser
- Soap Dispenser

BUILT-IN EQUIPMENT

- Lab Bench 30"d x 36"h and wall cabinets
- ~~○ Consider fume hood TBD~~

EQUIPMENT

- Refrigerator (1)
- -20 freezer (1)
- Carts

SAFETY REQUIREMENTS

- Hazardous materials cabinets
- Eyewash

SPECIAL REQUIREMENTS / NOTES

-

CL-4.3

Classroom Lab Support

CHEMISTRY INSTRUMENT ROOM

185 NSF

USE

- Instrument lab area supporting Chemistry Instructional Lab.

OCCUPANCY / ADJACENCY

- 1 or 2
- Attached to Chemistry Instructional Lab

HVAC REQUIREMENTS

- **Temp.:** 72 deg F **Humidity:** Ambient
- **Ventilation:** 100% outside air. ~~Consider 4' fume hood~~
- **Air filtration:** norm

PLUMBING

- ~~Hot / Cold Water~~
- ~~Water Polisher~~
- ~~Sink~~

GASES (BUILDING SYSTEM)

- Compressed air- 15-30 psi
- Burning gas (propane?)

POWER

- 120v. (surge protected)
- 208/240 v also required.
- Several dedicated 120v circuits for instrument isolation.
- Surface mounted raceway > 18" above bench top

LIGHTING

- **General Lighting:** Direct / Indirect: 75 foot candles @ bench top
- **Emergency Lighting:** TBD
- **Task Lighting:** Under shelf above bench

DAYLIGHTING

- Not required

COMMUNICATIONS

- **Telephone:** 1
- **Data:** Lab standard, fiber optic cabling to attached Analytical Lab.

ARCHITECTURAL

- **Floor:** VCT(acid resistant)
- **Wall:** epoxy painted MR GWB
- **Ceiling:** WR ACT **Height:** 10' min.
- **Doors:** Wood, 36" active, W/ vision panels
- **Security:** Key lockable door
- **Acoustics:** TBD

FURNISHINGS/ACCESSORIES

- Stool
- ~~Pegboard Rack~~
- Towel Dispenser
- ~~Soap Dispenser~~

BUILT-IN EQUIPMENT

- Lab Bench 30"d x ~~36~~ 30"h and wall cabinets
- ~~Consider fume hood~~ TBD
- Snorkel hood for GC

EQUIPMENT

- Special Instrumentation and Equipment TBD- Balances, Mass Spec, GC, etc.
- Vibration free tables for analytical balances.

SAFETY REQUIREMENTS

- ~~Hazardous materials cabinets~~
- ~~Eyewash~~

SPECIAL REQUIREMENTS / NOTES

CR-2.1

Classroom

CLASSROOM -32 SEAT

640 NSF

OCCUPANCY / ADJACENCY

- Flexible classroom / seminar space for table, ~~tablet arm or theater~~ style seating - 25-16-32 students @ ~~tablet arm~~ 18" x 60" tables.
- Fixed lab bench teaching podium

OCCUPANCY / ADJACENCY

- 25-16-32 students, 1 instructor
- Adjacency TBD

HVAC REQUIREMENTS

- **Temp.:** 69-72 dF Humidity: Ambient
- **Ventilation:** Occupancy sensor based HVAC control system; low-system noise for un-reinforced voice lecturer
- **Air filtration:** normal filtration

PLUMBING

- Lab Sink and Lab Faucets at podium
- Hot & Cold Water

GASES (BUILDING SYSTEM)

- Compressed air
- Burning gas

POWER

- 120v power outlets spaced equally around room. Floor outlets to be flush with finished floor

LIGHTING

- **General Lighting:** dimmable or multiple switched luminaires lighting from 2 f.c. to 50 f.c. with silent electronic ballasts
- **Whiteboard Lighting:** 70 f.c. to 90 f.c.

DAYLIGHTING

- Desirable

COMMUNICATIONS

- **Telephone:** 1
- **Data:** TBD spaced equally around the room (1 per common use duplex outlet). Minimum 2 outlets at front of room. WiFi.
- **VTC:** distance learning capable-equipment TBD

ARCHITECTURAL

- **Floor:** Anti-static carpet
- **Wall:** Painted GWB with chair rail wall protection (FRP panels or 6" wide chair rails)
- **Ceiling:** ACT **Height:** TBD
- **Doors:** 2 pair of wood 36" Active leaf, 18" inactive; with glass side light
- **Security:** Key lockable door
- **Acoustics:** allow for natural speech; prevent sound from being transferred to adjacent classrooms.

FURNISHINGS/ACCESSORIES

- Tack board
- Clock
- Recessed projection screen
- Black-out blinds (if outside windows)
- ~~Tablet arm seating: 25 seats -TBD (10% to be left handed; 5% or 2 stations min. ADA)~~
- Table seating w/ ADA accommodation.

BUILT-IN EQUIPMENT

- Ceiling mounted video projector
- Projection screen
- Smartboard -TBD
- Multiple panel chalkboard at ~~front~~-west wall.
- Teaching area to accommodate lab bench demonstration podium with sink and gases.

EQUIPMENT

- AV equipment for projection of data, images, slides, overheads, & video- to be developed per UAS. -TBD

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

- Allow for teaching area at least 8' from front wall of classroom to first row of tables or seats.

CR-3.1

Classroom

CLASSROOM – 42 SEAT

845 NSF

OCCUPANCY / ADJACENCY

- Flexible classroom / seminar space for table, tablet arm or theater style seating – 40/20 students @ tablet arm.
- Movable teaching podium /desk

OCCUPANCY / ADJACENCY

- 40 students, 1 instructor
- Adjacency TBD

HVAC REQUIREMENTS

- **Temp.:** 69-72 dF Humidity: Ambient
- **Ventilation:** Occupancy sensor based HVAC control system; low-system noise for un-reinforced voice lecturer
- **Air filtration:** normal filtration

PLUMBING

- ~~○ Lab Sink and Lab Faucets at podium~~
- ~~○ Hot & Cold Water~~

GASES (BUILDING SYSTEM)

- ~~○ Compressed air~~
- ~~Burning gas~~

POWER

- 120v power outlets spaced equally around room. Floor outlets to be flush with finished floor

LIGHTING

- **General Lighting:** dimmable or multiple switched luminaires lighting from 2 f.c. to 50 f.c. with silent electronic ballasts
- **Whiteboard Lighting:** 70 f.c. to 90 f.c.

DAYLIGHTING

- Desirable

COMMUNICATIONS

- **Telephone:** 1
- **Data:** TBD spaced equally around the room (1 per common use duplex outlet). Minimum 2 outlets at front of room. WiFi.
- **VTC:** distance learning capable-equipment TBD

ARCHITECTURAL

- **Floor:** Anti-static carpet
- **Wall:** Painted GWB with chair rail wall protection (FRP panels or 6" wide chair rails)
- **Ceiling:** ACT **Height:** TBD
- **Doors:** 2 pair of wood 36" Active leaf, 18" inactive; with glass side light
- **Security:** Key lockable door
- **Acoustics:** allow for natural speech; prevent sound from being transferred to adjacent classrooms.

FURNISHINGS/ACCESSORIES

- Tack board
- Clock
- Recessed projection screen
- Black-out blinds (if outside windows)
- Tablet arm seating: 40/20 seats - (10% to be left handed; 5% stations min. ADA)

BUILT-IN EQUIPMENT

- Ceiling mounted video projector
- Smartboard -TBD
- Multiple panel chalkboard at front-east wall.
- Teaching area to accommodate movable podium and desk.

EQUIPMENT

- AV equipment for projection of data, images, slides, overheads, & video - to be developed per UAS. –TBD

SAFETY REQUIREMENTS

-

SPECIAL REQUIREMENTS / NOTES

- Allow for teaching area at least 8' from front wall of classroom to first row of tables or seats.