Westlake
Reed
Leskosky


# SUNY F-Wing Renovation
# Pre-Schematic Report

Commission No.:14074.00

October 9th, 2015

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## Executive Summary

Westlake Reed Leskosky was commissioned to complete Due Diligence and Conceptual Design studies for the renovation of the "F" Wing at the Campus Center Building at SUNY Old Westbury. The Due Diligence Report was previously issued on October 12th 2014, and included a review of the preliminary findings of the mechanical, electrical and plumbing infrastructure and system survey.

The programming and design development included participation by the Visual Arts department, the Maintenance and Facilities department, and Ray Maggiore, the Director of Capital Planning, and was facilitated by architects and engineers from Westlake Reed Leskosky. Other participants included an audiovisual specialist and an acoustician from WRL. A preliminary review of the progress documents was held at the SUNY Old Westbury offices on September 23rd, 2015.

The design team then developed a space program for the renovated facility, included in this report under Tab 2, which takes into account improvements to the facility as recommended in the Due Diligence report. The design team also worked with Nasco Construction to develop the preliminary Opinion of Probable Cost as shown in Tab 6 to reflect all renovation costs.

Using the program of new spaces, the design team has developed a recommended position and layout within a fully renovated facility that retains as much of the original structure as possible in order to allow for a greater level of finish quality throughout the renovation. The large 'commons' corridor has been redeveloped with wood flooring and back-lit ceiling panels to create a more open plan layout with a large entry and lobby space at the south, and an elevated student lounge at the north. The LED lighting integrated with the ceiling panels will enhance the experience of the space, and is intended to be programmed to change in relationship with the natural light that comes through the skylights. The lighting can also be programmed for different events, such that a separate color from warm or cool white could also be introduced into the space. In addition, the audiovisual narrative outlines an alternate 'soundscape' that could further enhance the experience of the commons corridor through the introduction of ambient sounds or music into the space, and also for special events as needed.

Structurally, it is proposed that the currently separate mezzanines be connected to allow for a greater programmatic area, creating an administrative mezzanine that is visually connected to both the 'commons' and the open studios. The open studios are proposed to reflect an aesthetic of beautiful functionality, with open ceilings to the structure above, clean, white walls that are conducive to the presentation of art work, and substantially better up and down lighting throughout. See Tab 7 for 3D model views of the interior, and a rendering of the proposed renovation.

In summary, we believe that there is significant potential for the current facility to be enhanced to meet the needs of the Visual Arts department in the coming years. We recommend the findings of this study be reviewed further with the various stakeholders to understand the pros and cons of a renovated facility.

# Project Team

## Owner

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516.876.3000

Ray Maggiore, Director of Capital Planning

## Design Team

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Sara Aguirre, Architectural Support
Stephanie Banfield, Structural Design
Omar Hawit, Mechanical Engineering
George Lin, Electrical Engineering
Bradlee Ward, Audiovisual Design
Jonathan Hopkins, Acoustical Design

## Cost Estimating

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Ed Hiney, Chief Estimator

## Overview

The renovation of the "F" Wing at the Campus Center Building at SUNY Old Westbury is intended to serve the needs of the growing Visual Arts department over the next several years. While student enrollment in the Visual Arts program is projected to outgrow the existing facility, the proposed design for the renovated building allows for significant growth and enhances the experience of the space with improved student lounge spaces, a better overall layout, and significantly enhanced lighting, among other elements noted below.

## 'Commons' Corridor

The existing corridor was significantly revised to create a more open plan layout, which is immediately evident upon entering at the south of the Visual Arts department as this space no longer reads as a 'corridor', but as an expansive art gallery showcasing both student and faculty work through an expression of simple, beautiful functionality.

With large folded triangular panels that are backlit with variable LED lighting and unbroken by mechanical fixtures, the ceiling enhances one's experience of the space and creates a significant opportunity for lighting that can work with the natural daylight of the skylights or be fully programmed for events. The careful shaping of the ceiling panels washes the display walls in light and breaks up the repetition of the corridor, while connecting spaces at the east and west sides to each other to create a unified department aesthetic.

The new wood floor in the Art Gallery continues this unified aesthetic as it extends throughout the full 'commons' area. Additionally, the glass west wall of the Art Gallery is fully operable, allowing the space to open up to the lobby, while an overhead door at the exterior east wall extends the Art Gallery into the exterior courtyard, and further still into the Amelie A. Wallace Gallery.

The 3D Fabrication Lab is also situated on this main lobby space, as it was noted by the faculty as the program element with the largest growth potential in the near term. The wall between the Fabrication Lab and the Art Gallery is also penetrated by large openings that create display vitrines for this exciting technology to be showcased on a rotating or permanent basis in the gallery very easily.

Continuing north, the three central bays act as a secondary gallery, with clean, white gypsum walls with plywood backing unbroken by doors, for use in pinup discussions and reviews or for the display of student and faculty work. At the north end of the 'commons', there is both a lower lounge level that connects to the open studios, and an elevated lounge area that connects to the 'G' wing corridor. These lounges provide space for students to congregate between classes and can serve as spaces for impromptu lectures or reviews if needed.

## Mezzanine and Open Studios

It is proposed that the structure of the facility remain mostly as-is, allowing for a greater level of finish quality to be employed throughout the renovation. The existing, separate mezzanines are however connected into one mezzanine space that not only adds viable program area, but allows for an administrative level with visual connection to both the 'commons' and the open studios.

The open studio areas are envisioned to remain mostly the same, but with significantly enhanced lighting through linear LED fixtures that provide ambient up-light and strong down-light to improve the learning and teaching experience. The walls throughout the open and shared studio spaces are a complementing balance of frameless glass walls that allow for light to penetrate deep under the mezzanine, and clean, white gypsum walls with plywood backing that allow for a significant amount of pinup space for student work and reviews.

Located between each of the open studios, lockers and sinks will serve to visually separate the spaces from each other, although they will maintain their physical connection. The existing brick floor will remain as it is in relatively good shape, and also compliments the industrial 'loft' aesthetic of the studios.

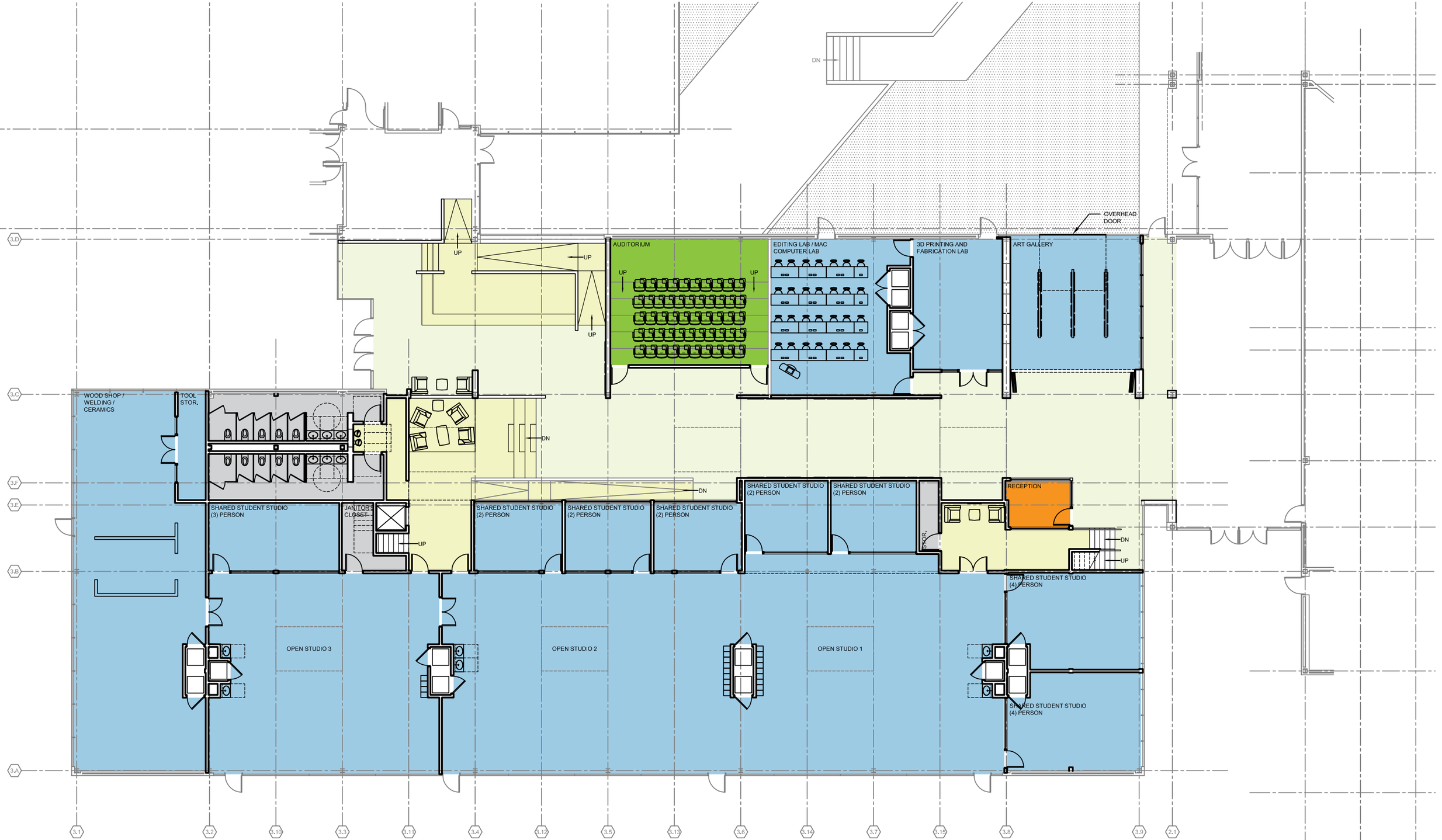
## Additional Program Elements

The seating and carpet in the Auditorium will be replaced, as well as the lighting and audiovisual systems to enhance the learning experience and to maintain a consistent aesthetic with the rest of the department. Here and throughout the rest of the "F" Wing, the finishes and layout will be improved to meet the growth needs of the department over the next several years as well as being adaptable to new technologies in the future.

**SUNY Old Westbury - 'F Wing'**

Visual Arts Program - Proposed Program
Prepared by: Westlake Reed Leskosky
Date: 10/09/2015

| Category | Space Name | Proposed Program Area | | | Notes |
|---|---|---|---|---|---|
| | | # Units | SF / Unit | Net Area | |
| **Visual Arts** | Open Studio 1 | 1 | 1,785 | 1,785 | (2) sinks required. Studio to accommodate (25) students. Preferably open to Studio 2 with reduction of sound transmission. |
| | Open Studio 2 | 1 | 1,935 | 1,935 | (2) sinks required. Studio to accommodate (25) students. Preferably open to Studio 1 with reduction of sound transmission. |
| | Open Studio 3 (Sculpture / Painting) | 1 | 1,465 | 1,465 | (2) sinks required. Studio to accommodate (25) students with easels. Separated from other open studios to minimize noise transmission and spread of debris. |
| | Open Studio Mezzanine | 0 | 0 | 0 | Converted into administrative spaces. |
| | Art Gallery | 1 | 570 | 570 | |
| | Shared Student Studios | | | | Shared studios to accommodate (1) table similar to a drafting table per person. Capable of supporting between 20 and 25 students overall. |
| | (2) Person | 5 | 200 | 1,000 | |
| | (3) Person | 1 | 300 | 300 | |
| | (4) Person | 2 | 400 | 800 | |
| | Editing Lab / Mac Computer Lab | 1 | 645 | 645 | Request is to accommodate 25-30 students. Not a requirement in program, but desired if possible. |
| | 3D Printing and Fabrication ('Fab Lab') | 1 | 380 | 380 | To include (12) makerbots with workstations, (5) laser cutters and (3) color 3D printers. To be coordinated with mechanical ventilation requirements. |
| | Photography Lab | 0 | 0 | 0 | Not required in new program. |
| | Wood Shop / Welding / Ceramics | 1 | 1,495 | 1,495 | Likely to require physical separation within space for equipment - safety information from cutsheets provided by SUNY to be confirmed with the building code. Wood shop to accommodate (5) students at a time. |
| | Tool Storage | 1 | 100 | 100 | Locking required. |
| | Dark Room | 0 | 0 | 0 | Not required in new program. |
| | **Subtotal** | | | 10,475 | |
| **General** | General Purpose Classroom | 0 | 0 | 0 | Not required as part of the visual arts program - will be relocated outside of the visual arts department. |
| | Auditorium | 1 | 650 | 650 | Requires renovation and upgrades to audiovisual systems. |
| | Projection Room | 0 | 0 | 0 | Not required in new program. |
| | **Subtotal** | | | 650 | |
| **Administration** | Reception | 1 | 95 | 95 | Reduced from existing as requested at meeting on 10/28/2014. |
| | Private Office (Visual Arts) | 8 | 100 | 800 | |
| | Private Office (General) | 0 | 0 | 0 | |
| | Shared Office | 1 | 270 | 270 | To accommodate (5) faculty. |
| | Conference / Meeting Room | 1 | 350 | 350 | |
| | Pantry | 1 | 70 | 70 | |
| | **Subtotal** | | | 1,585 | |
| **Support and Building Services** | Storage | 1 | 300 | 300 | Reduced from existing as requested at meeting on 10/28/2014. |
| | Men's Restroom | 5 | 50 | 250 | Layout revised to meet ADA requirements. |
| | Women's Restroom | 5 | 50 | 250 | Layout revised to meet ADA requirements. |
| | Janitor's Closet | 1 | 100 | 100 | Relocated to accommodate revised bathroom layouts. |
| | Mechanical / Electrical Room | 1 | 570 | 570 | |
| | **Subtotal** | | | 1,470 | |
| **Total** | **Total Net Area** | | | 14,180 | |
| | **Net to Gross Multiplier** | | | 1.52 | |
| | **Total Gross Area** | | | 21,565 | |

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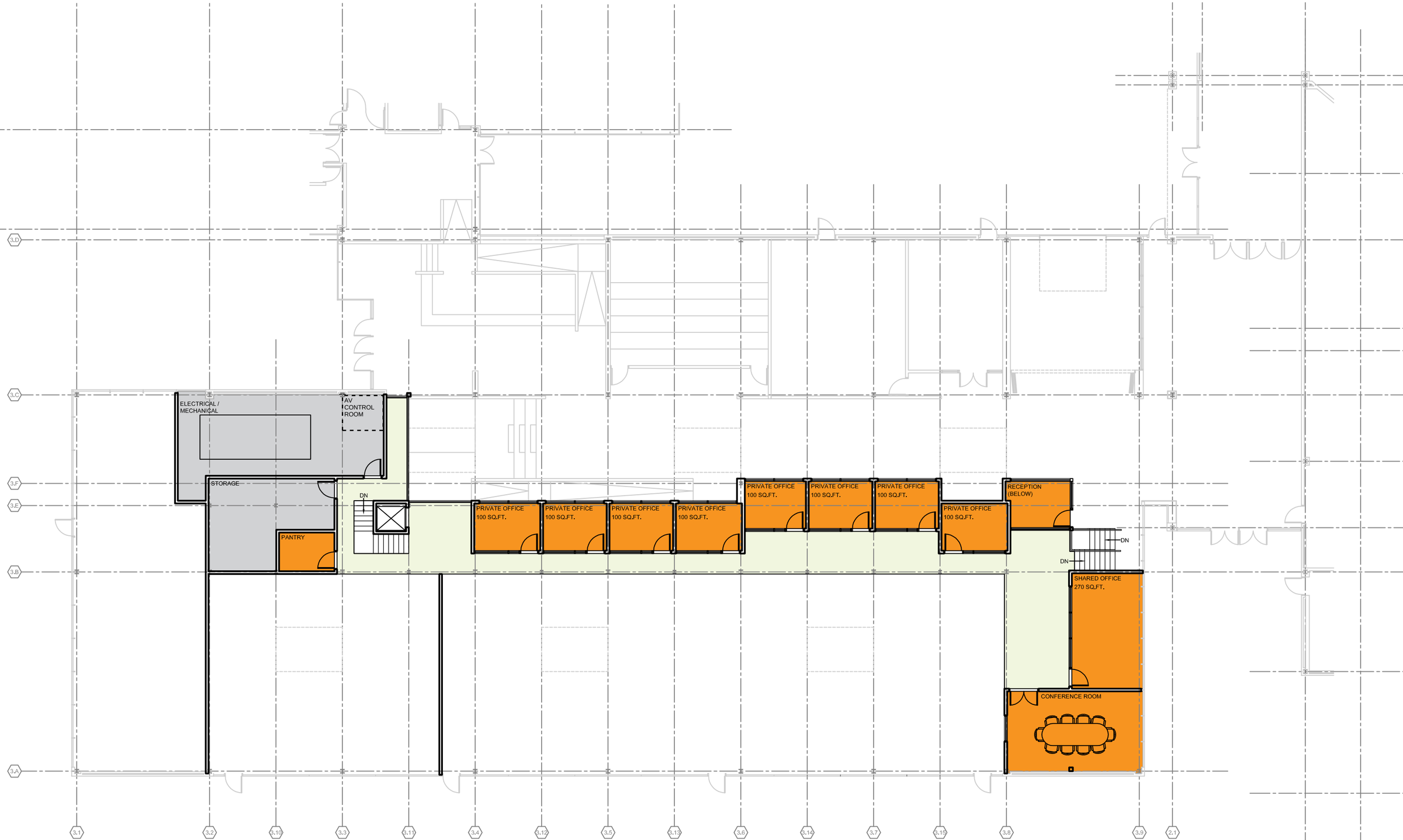
# SUNY - OLD WESTBURY

## PROPOSED PROGRAM LAYOUT - 1ST FLOOR

0 8' 16' 32'

PLAN NORTH

10/09/2015




0 8' 16' 32'

Westlake Reed Leskosky

# SUNY - OLD WESTBURY

PROPOSED PROGRAM LAYOUT - MEZZANINE

10/09/2015

PLAN NORTH

## Design Codes and Standards

The design and specification of work shall be in accordance with all applicable laws and regulations of the federal government. A summary of the codes and industry standards to be used in the design and construction follows:

- 2010 New York State Building Code (2006 IBC)
- AISC Steel Construction Manual
- ACI Building Code Requirements for Reinforced Concrete

Other recognized standards will be used where required to serve as guidelines for the design, fabrication and construction. In cases where conflicts between cited codes (or standards) exist, the requirements of the more conservative code shall be met.

## General

It is extremely difficult to determine the actual structural capacity of any existing system without original documents or testing. The first recommendation is to attempt to locate any additional original construction documents, specifically any original structural drawings. These will be invaluable with regard to determining original design loads, lateral systems, critical load paths and foundations, and will allow for a much less conservative structural design approach.

A site visit is strongly recommended to assess the condition of the existing structure and to identify unknown existing framing systems.

## Structural Scope

Revised Slab-on-Grade Elevations

The existing 5" slab-on-grade is set at various elevations. A majority of the slab is set at either 287'-0" or 290'-0". There are three areas where the existing slab set at 290'-0" will be lowered to 287'-0". Additional information is required to check the existing foundation wall along column lines 3.9 and 3.A since the lowered slab elevation will cause the wall to retain the site soils. For estimating purposes, assume a new concrete retaining wall with footing will be required.

In addition, the transition between Building 3 (set at 290'-0") and Building 4 (set at 293'-0") will be reworked. This will require a portion of the existing slab set at 292'-0" to be lowered to 290'-0". It will also require new slab, stairs, and ramps to be constructed over the existing slab set at 290'-0". This overbuild will be constructed using a 3" concrete slab over rigid insulation.

Expanded Mezzanine

Five existing beams will require reinforcement to support the expanded mezzanine. The existing columns have adequate capacity to support the expanded mezzanine but additional information is required to verify if the existing footings have adequate capacity. For estimating purposes, assume all existing footings are adequate.

In order to keep the new framing as thin as the existing, 12 new columns with new spread footings will be installed to support the expanded mezzanine. Heavy W8 beams will span between the new and existing columns to support a new 3-1/2" concrete slab on 3" composite deck (6-1/2" total thickness).

Elevator

A new elevator will be installed to connect the first floor with the expanded mezzanine. The shaft will be constructed using 8" cmu and will be used to resupport the existing mezzanine slab. The existing column spread footing directly adjacent to the new shaft will be underpinned by the new elevator pit.

The elevator overrun will require the shaft to extend through the existing roof. The shaft walls will be used to resupport the existing 3" roof deck. New 3" galvanized metal roof deck will be installed to cap the shaft. A steel hoist beam will be installed.

## Mechanical Narrative

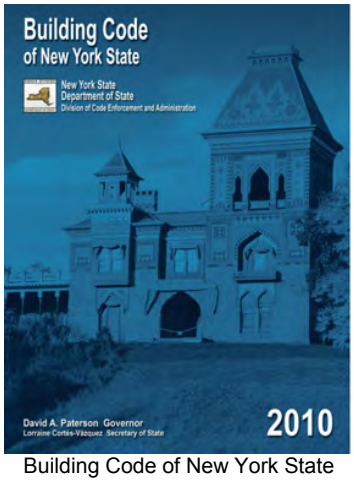
### Introduction

The mechanical systems for the renovation shall include, but not necessarily be limited to the following:

1. Ventilation
2. Heating
3. Air conditioning
4. Exhaust
5. Fire and Smoke Control

Refer to the Architectural Narrative for Program of Requirements.

NOTE: All References to mechanical requirements for AV, IT, Theater, electrical, HVAC, and plumbing equipment are preliminary and will be subject to change as a result of coordination with respective design disciplines.



Building Code of New York State

### Building Codes, Standards and References

International Code Council (ICC)

- 2010 New York State Building Code (2006 IBC)
- 2010 New York State Mechanical Code (2006 IMC)
- 2010 New York State Plumbing Code (2006 IPC)
- 2014 Energy Conservation Construction Code of New York State ECCCNYS (IECC 2012, ASHRAE 90.1-2010)

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE):

- Ventilation for Acceptable Indoor Air Quality – ASHRAE Standard 62.1-2010.
- Safety Standard for Refrigeration Systems – ASHRAE Standard 15-2010.
- Thermal Environmental Conditions for Human Occupancy – ASHRAE Standard 55-2010.

### Existing HVAC Systems

The mechanical central plant is relatively new, approximately four-years old, and generally in good condition. The boiler system consists of (10) 2-MMBH Aerco model Benchmark condensing type boilers. There is (1) 800-ton Carrier model Evergreen centrifugal chiller and (1) 400-ton centrifugal chiller. The new cooling towers are located outside within a screen area on the rooftop. The plant provided heating hot water and chilled water for the campus center building.

The rooftop air handling units are approximately 30 years-old, and well past the useful life. Any future projects in the building should systematically replace the air handling units during each major renovation.

For a more complete review of the existing mechanical, electrical and plumbing systems, please refer to the *MEP Infrastructure Review* issued by Westlake Reed Leskosky in October 2014.

## Proposed HVAC Design

### Weather Data

External design conditions used for the sizing of building HVAC systems will be as given in the 2009 ASHRAE Fundamentals Handbook.

City: JFK Airport
Latitude: 40.66°N
Longitude: 73.80°W
Elevation: 23 ft above sea level

*Table 1:* ***Summer Design Conditions***

| Cooling | | Dehumidification | |
|---|---|---|---|
| Design dry bulb | 89.7°F | Design dew point | 74.9°F |
| Mean coincident wet bulb | 73.5°F | Mean coincident dry bulb | 80.5°F |
| Enthalpy | 37 Btu/lb | Enthalpy | 39.9 Btu/lb |

*Table 2:* ***Winter Design Conditions***

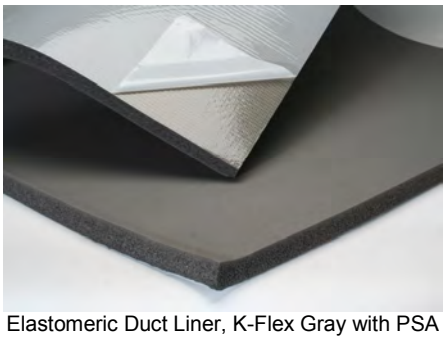
| | |
|---|---|
| Design Dry Bulb | 12.8°F |

Summer figures quoted above represent conditions that are exceeded for 0.4% of the year. Winter figures represent conditions that are exceeded for 99.6% of the year.

From the summer table, the highest outside air enthalpy is 39.9 Btu/lb. This will be used for outside air psychrometric calculations.

Any impact of possible long-term climate change on local climatic conditions at the site is not accounted for in the design.

MERV 13 Filters



Elastomeric Duct Liner, K-Flex Gray with PSA

### Indoor Air Quality

Outdoor air will be filtered as described in the filtration section below.

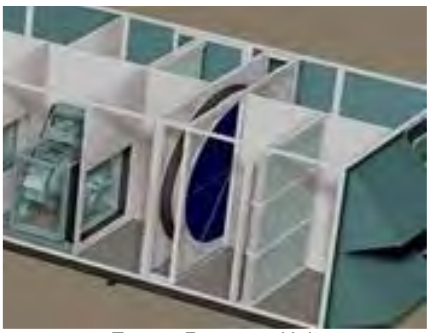
### Indoor Design Temperature and Humidity

*Table 3:* ***Indoor Design Conditions***

| Area | Temp. (F) | | RH (%) | | Comments |
|---|---|---|---|---|---|
| | Clg | Htg | Max | Min | |
| Classroom, Lab | 75 | 72 | 50 | - | |
| Auditorium | 75 | 72 | 50 | - | |
| Mechanical/Elec.l | 85 | 65 | - | - | |
| Lobby | 75 | 72 | 50 | - | |
| Storage | 75 | 72 | 50 | - | |

### Outside Air

Outside air will be supplied to continuously occupied areas in accordance with the requirements of ASHRAE Standard 62.1-2010.



Energy Recovery Unit

*Table 4:* ***Ventilation Requirements***

| Area | Minimum OA (People rate) | Minimum OA (Area rate) | Source for Criteria |
|---|---|---|---|
| Lab | 10 cfm/p | 0.12 cfm/sf | ASHRAE 62.1 |
| Class/Audit. | 7.5 cfm/pp | 0.06 cfm/sf | ASHRAE 62.1 |
| Art Class | 10 cfm/p | 0.18 cfm/sf | ASHRAE 62.1 |
| Mech/Elec | - | 0.12 cfm/sf | ASHRAE 62.1 |
| Lobby | 5 cfm/pp | 0.06 cfm/sf | ASHRAE 62.1 |
| Storage | - | 0.06 cfm/sf | ASHRAE 62.1 |

### Heat Gain to Conditioned Spaces

| Area | Ltg W/sf | Eqpm | Source | Occ.s | Occupant (Btu/pp) | |
|---|---|---|---|---|---|---|
| | | | | | Sen | Lat |
| Lab | 1.2 | TBD | NYIT | 28 sf/pp | 250 | 200 |
| Class. | 1.2 | TBD | NYIT | 28 sf/pp | 250 | 200 |
| Audit. | 1.3 | 1 W/sf* | WRL | Seat ct. | 205 | 155 |
| Mech | 1.5 | 0.5W/sf* | ASHRAE | None | 250 | 200 |
| Lobby | 1.3 | 3kW | ASHRAE | 25 sf/pp | 250 | 200 |
| Storage | 0.8 | 0* | ASHRAE | None | 250 | 200 |

*Heat gains due to equipment are based on ASHRAE recommendations and past WRL experience. Heat gains for occupants are based on values listed in the ASHRAE Fundamentals Handbook for different levels of activity.

Enthalpy Wheel

### Infiltration

The building will be pressurized to minimize infiltration. Currently, an allowance for 5% over-pressurization is provided. For example, only 95% of supply air will be returned / exhausted, with the balance exfiltrating from the building. Although pressurization is provided, an allowance for infiltration is included in heating and cooling load calculations (0.1 cfm/sf of exposed wall).

Indoor Air-Handling Units, McQuay Vision

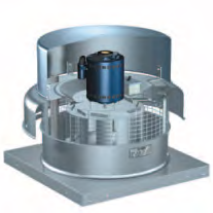
### Filtration and Air Quality

Particulate filtration will be provided at all air-handling units and fan coil units. Air handling units and outside air units will be provided with a 1-inch MERV 8 pre-filter and 4-inch MERV 13 final-filter. Fan coil units will be provided with 1-inch MERV 8 filters.

### Acoustics

*Table 5: Acoustic Requirements*

| Area | Background noise level (NC) | Acoustic Privacy (STC) |
|---|---|---|
| Classroom / Lab | NC-35 | See Arch |
| Lecture Auditorium | NC-30 | See Arch |
| Mechanical/Electrical | N/A | See Arch |



Exhaust Fan

| | | |
|---|---|---|
| Lobby | NC-35 | See Arch |
| Control Room | NC-25 | See Arch |
| Storage | N/A | See Arch |

Proper control of background noise from HVAC and plumbing equipment is critical to the success of any auditorium project. The following acoustic measures will be employed, based on close collaboration with the acoustic consultant:

- Appropriate isolation of mechanical equipment
- Duct lining
- In-line sound attenuators
- Appropriate fan selection
- Appropriate controls to minimize pressure fluctuations

Variable Frequency Drives, ABB

## Fire Protection

Fire/smoke dampers will be provided as needed to maintain appropriate life safety ratings at partitions. Smoke detection will be provided to shut down the AHU as required by the mechanical code.

## Proposed HVAC Systems

### *Air Handling Equipment*

The air handling system is comprised of (1) central, indoor, variable air volume (VAV), four-pipe hydronic, dedicated outside air system. The unit will be located above the restrooms at the mezzanine level. The unit will include air dampers, smoke detectors, 2-in pre-filters, 4-in final-filters, hydronic pre-heat coil, chilled water cooling coil, supply fan, exhaust fan, enthalpy wheel, and factory-mounted controls. Fans will be direct-drive, plenum-type, with premium-efficiency motors and factory-mounted variable-frequency drives. The casings shall have double-wall construction, with foam-injected panels.

Option 2. Four-Pipe Fan Coil Unit

The enthalpy wheel recovers the energy of the exhaust air and transfers that energy into the supply air which not only reduces the operating energy but also helps improve humidity conditions in the winter.

Currently, no active humidification is planned for the units. The winter season may bring humidity as low as 15% relative humidity. For critical rooms, local electric steam humidification will be considered.

| (Qty) Unit | Service | Type | CFM* |
|---|---|---|---|
| DOAS-1 | Outside Air | DOAS | 9,600 |

*Airflows will be determined at a later phase of design. Values shown are rough estimates only.

Air Terminal Unit, Titus DESV

### *Zone Heating and Cooling - Fan Coil Units*

VAV or constant-volume terminal units associated with will provide independent ventilation control for individual spaces. Terminal units shall be factory-lined with foil-faced or fiber-free insulation. Controls shall be factory-mounted. Terminal units will be located above lay-in tile ceilings or open ceilings in the corridor for maintenance access. The units will be similar to Titus DESV.

System Zoning DOAS-1

| Vent. Zone | Ventilation Area | Area (SF) | Vent* (CFM) |
|---|---|---|---|
| A | Shared Student Studios | 2,200 | 840 |
| B | Lecture Hall / Audit. | 650 | 360 |
| C | Editing Lab | 690 | 270 |
| D | 3D Printing and Fab. Lab | 410 | 160 |
| E | Art Gallery | 560 | 210 |
| F | Corridor/Restroom | 6,700 | 750 |
| G | Private Office at Mezz. | 1,000 | 90 |
| H | Shared Office | 270 | 30 |
| I | Conference Room | 360 | 120 |
| J | Wood/Weld/Ceramics | 1,700 | 700** |
| K | Open Studio 3 | 1,500 | 1100 |
| L | Open Studio 1 & 2 | 3,650 | 3000 |

*Airflows will be determined at a later phase of design. Values shown are rough estimates only.
**Equipment that requires dedicated exhaust will impact the design.

Dedicated Split Units

Four-pipe fan coil units will be provided with outside air delivered from a dedicated outside air units for smaller spaces. Four-pipe fan coils allow for heating or cooling operation in each zone served. This works well to provide independent control of the multiple smaller zones that are difficult to reach with air distribution (e.g. dressing rooms, classroom, and private offices).

New Copper Pipe and Fiberglass Insulation

| (Qty) Unit | Service | Type | CFM* |
|---|---|---|---|
| FC-1&2 | Open Studio 1 | Lg. Vert. | (2)2,500 |
| FC-3&4 | Open Studio 2 | Lg. Vert. | (2)2,500 |
| FC-5&6 | Open Studio 3 | Lg. Vert. | (2)2,500 |
| FC-7&8 | Wood/Weld/Ceram | Lg. Vert. | (2)2,500 |
| (18) FC-C | Small Office, Studio | Console | - |
| (6) FC-V | Med. Vert. | Med. Vert. | - |
| (2) AC | Vestibule | Air Curtain | - |

*Airflows will be determined at a later phase of design. Values shown are rough estimates only.

High Volume Low Speed De-stratification Fan

De-stratification fans will be considered for the high bay spaces. Especially useful during heating in the winter, the fans will force warm air down toward the occupied volume of the room, increasing heating efficiency and improving the passive cooling and natural ventilation. One type of de-stratification fan suggested is a HVLS (High Volume Low Speed), similar to Big Ass Fan model Powerfoil, can have blades as large as 20ft diameter. Another type is of de-stratification fan is the jet throw type. Similar to the AirPear model Airius, these compact fans throw a jet of air from the top of the high bay to the floor area.

Compact, Jet-Throw Type De-stratification Fan

***Dedicated DX Split Systems***

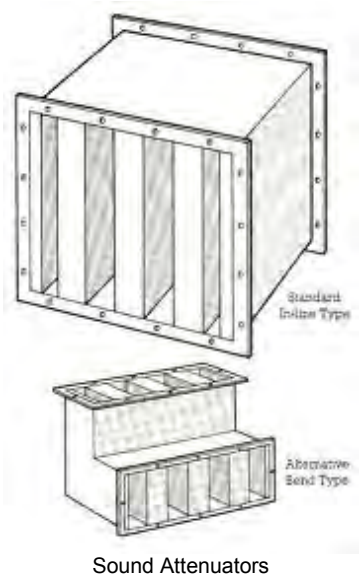
A split air conditioning unit will be provided to handling the 24/7 cooling needs of the AV/IT Rooms and Data Centers.

***Distribution Systems - Ductwork***

Ductwork shall be constructed of galvanized steel per SMACNA duct construction standards. Ductwork shall be externally insulated

with 1½-inch thick fiberglass duct wrap insulation, with integral vapor barrier. Ductwork shall be internally lined with 1-inch or 2-inch thick flexible elastomeric duct liner unless otherwise noted. Flexible ductwork above acoustic ceiling tiles shall be 5-feet in length.

Within the high bay spaces, fabric ducting will be used. The flexible material is less susceptible to damage. The use of fabric opposed to steel will reduces the equipment weight hanging from the structure and allows for a light, simple support system. The porous fabric can deflect the dust from settling on the ductwork, which would be otherwise difficult to clean in the high ceiling areas. The fabric can also be washed for a thorough cleaning after years of use. The product will be similar to Verona model offered by DuctSox.



Sound Attenuators

***Acoustics***

The criteria listed are allowable background noise from HVAC equipment. Other equipment directly in a space is not accounted for. For example, in the workshop, carpentry equipment may cause the NC level to rise above the HVAC background noise level significantly.
Ductwork shall be sized to a maximum velocity of 1,500 fpm for both supply and return. The maximum friction loss shall be 0.1" per 100 ft. Branch and final runout velocity criteria are listed below.

| NC level | Branch velocity (fpm) | Final runout velocity (fpm) |
|---|---|---|
| 25 | 800 | 400 |
| 30 | 1000 | 600 |
| 35 | 1200 | 750 |
| 40 | 1300 | 1000 |
| 45 | 1400 | 1200 |


Fabric Ductwork

***Distribution Systems - Piping***

Heating hot water and chilled water piping shall be copper; Type L above, with brazed, wrought copper fittings may be used for heating water. Dielectric unions shall be provided at connections of dissimilar metals. Hot water piping shall be insulated with fiberglass pipe insulation, with factory-applied all service jacket. Insulation located in areas exposed to view or weather, or otherwise subject to damage shall be covered with aluminum jacketing.

***Outdoor Air Delivery Monitoring***

Carbon dioxide sensors will be used to adjust the outside air volumes in spaces that have highly variable occupant loads. These spaces would include the classroom/conference rooms. The sensor will be mounted in the breathing zone between 42 and 72" above finished floor. An outdoor air, airflow monitoring station will be required at each air handling unit.

***Controls***

Controls for all new HVAC systems shall be fully monitored and controlled by the existing building automation system, compatible with the existing building automation systems at the site. Factory-mounted controls for the air handling units, terminal units and fan

coil units shall communicate with the building automation system through an open-protocol interface. The following functionality will be provided:

- Scheduling
- Warm-up/cool-down
- Equipment monitoring/operation
- Temperature monitoring
- Carbon dioxide level monitoring
- Remote monitoring
- Energy measurement
- Outside air temperature
- Outside airflow
- Humidity control
- Energy metering of the Auditorium

Building Automation System

Control strategies on the airside include, but are not limited to: enthalpy differential economizer control, demand controlled ventilation control with CO2, occupancy scheduling, supply air reset, building pressurization. Functionality will include: Scheduling: optimum start, optimum stop, and pre-cooling scenarios, Energy measurement: component level data collection for fans and chilled/hot water usage, Maintenance: monitoring of filter pressure drop and other scheduled maintenance requirements.

## Plumbing Narrative

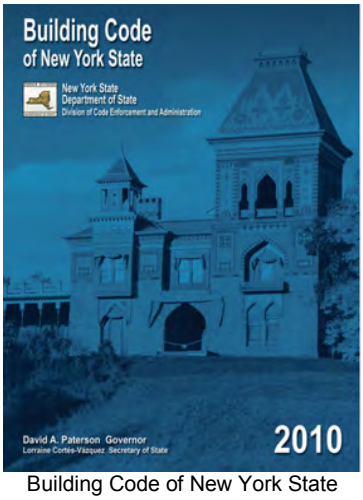
### Introduction

The mechanical systems for the renovation shall include, but not necessarily be limited to the following:

1. Waste and Vent Piping
2. Domestic Hot and Cold Water Piping
3. Plumbing Fixtures
4. Water Heater

Refer to the Architectural Narrative for Program of Requirements.

NOTE: All References to mechanical requirements for AV, IT, Theater, electrical, HVAC, and plumbing equipment are preliminary and will be subject to change as a result of coordination with respective design disciplines.



Building Code of New York State

### Building Codes, Standards and References

International Code Council (ICC)

- 2010 New York State Building Code (2006 IBC)
- 2010 New York State Mechanical Code (2006 IMC)
- 2010 New York State Plumbing Code (2006 IPC)
- 2014 Energy Conservation Construction Code of New York State ECCCNYS (IECC 2012, ASHRAE 90.1-2010)

## Existing Plumbing Systems

During the time of the survey, the building was in the process of being re-roofed. The storm drainage system visible primary roof drains only, no secondary or overflow was visible. There were no scupper drains apparent for overflow.

The building is not currently sprinkled. Depending on the scope of any remodels renovations or additions, the State fire marshal may require the building to be sprinkled. However, it is not likely the scope will be large enough to trigger such an upgrade.

For a more complete review of the existing mechanical, electrical and plumbing systems, please refer to the *MEP Infrastructure Review* issued by Westlake Reed Leskosky in October 2014.


Under-sink PP or PE Neutralization Tank (right) and Under-sink Clay Trap (left)

## Proposed Plumbing Design

### Domestic Water System

The domestic cold water system will be distributed through branch piping connected to the building mains. Each branch pipe shall be provided with a branch shut-off valve (ball valve). Separate shutoff valves will be provided for each of the restrooms and labs.

Domestic Water System shall be designed and sized not-to-exceed maximum water velocity of 6 feet per second at a maximum friction loss not over 3psi/100 ft.

System will be designed to prevent water hammer conditions by providing air chambers/shock arrestors for fixtures, and shock


Faucet with Vacuum Breaker Spout with Male Hose Thread and Pail Hook

arrestors for quick closing valves. Shock arrestors shall be PPP, Inc. and will be accessible.

All water connection to mechanical equipment shall be done through approved type backflow prevention devices.

Hose bibbs will be provided with vacuum breakers.

Piping service will be solder Type "L" copper, hard temper with wrought copper fittings, approved lead-free solder, 125 psi maximum service pressure, 250°F maximum service temperature.

### Waste and Vent System

The building shall be provided with a conventional waste and vent system. Each fixture shall be trap and vented. All fixtures shall drain by gravity through soil, waste and vent stacks, house drains and house sewers, to 5'-0" outside of the building for civil engineer for connection to site utility. The domestic waste system will convey waste from the new plumbing fixtures by gravity through soil, waste, and vent piping connected to the building waste line under the floor slab.

Most floor drains or floor sinks will be provided with automatic trap primers. Access panels will be provided for the trap primers. Access panels will be consistent with the architectural specifications.

Roof receptors will be provided for any adding rooftop HVAC equipment producing condensate.

### Condensate Drainage System

The condensate drain system will drain all clean water drainage from any mechanical cooling equipment.

All concealed equipment requiring condensate removal will be equipped with a secondary drain pan and overflow piping that shall discharge to an observable location.

The primary condensate will be tied into the sanitary sewer system as an indirect waste with an air gap fitting. Condensate is required to be insulated as specified.

### Plumbing Fixtures

The plumbing fixtures will be water conserving throughout, and meet ADA requirements. When possible, the New Academic Building plumbing fixtures will be used as the basis of design.

- The mop sink will be a precast terrazzo 12" depth with a 6" dropped front and a rigid vacuum breaker spout male hose thread and pail hook.
- An emergency eyewash will be provided as needed in the laboratory/shop spaces.
- Under-mount sinks will be provided for shop/lab areas with casework, stainless steel, wrist blade handles and gooseneck faucet.
- All lavatories in the will be equipped with metering faucets with 0.5-gpm aerators. Hard-wired, sensor operated.
- The water closets will be low-flow, 1.28-gpm flush valve type.

Terrazzo Mop Basin

New Academic Bldg Restroom:
Drinking Fountain, with dual bowl ADA

New Academic Bldg Restroom:
Lavatories with Hard-wired, Sensor-Operated Faucets

Hard-wired, sensor operated.

- The urinals will be ultra-low flow 0.125-gpm flush type. Hard-wired, sensor operated.

### Storm Drainage

Alteration of the existing storm water system is not anticipated, and not currently within the scope of the project.

### Fire Protection

The building is not fully sprinkled. Providing such a system is not anticipated, and not currently within the scope of the project.

New Academic Bldg Restroom:
Urinals with Hard-wired, Sensor-Operated Flush Valves

New Academic Bldg Restroom:
Water Closet with Hard-wired, Sensor-Operated Flush Valves

This narrative summarizes the electrical systems for the renovation of the F Wing at the SUNY Old Westbury campus in Old Westbury, New York.

## SUNY Old Westbury F Wing Renovation

### Introduction

The electrical systems for the renovation shall include, but not necessarily be limited to the following:

1. Building electrical service and distribution system
2. Emergency lighting
3. Interior lighting
4. Fire alarm devices
5. Infrastructure for information technology (IT) systems

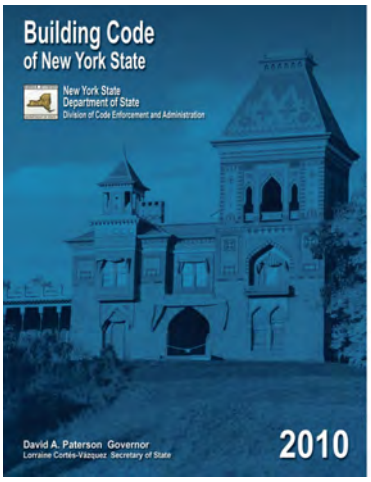
### Building Codes, Standards, and References

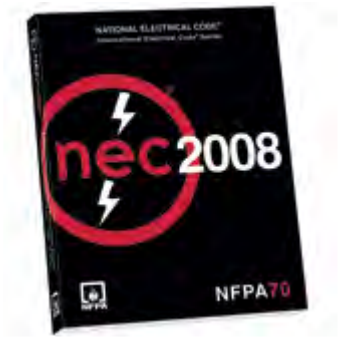
1. 2010 Building Code of New York State
2. 2014 Energy Conservation Construction Code of New York State
3. 2008 NFPA 70: National Electrical Code
4. 2007 NFPA 72: National Fire Alarm Code
5. 2005 NFPA 110: Emergency and Standby Power Systems
6. IES 10th Edition: The Lighting Handbook

### Design Criteria

All electrical work shall be designed in accordance with the following criteria:

- Owner's specific program requirements.
- Voltage drop calculations per demand load, not to exceed 2% on feeder conductors, 3% on branch circuit conductors and 5% overall.
- Branch circuit ratings not less than the non-continuous load plus 125% of the continuous load.
- Maximum of six (6) general convenience receptacles per 20 ampere branch circuit.
- Dedicated circuits for larger power consumption equipment, i.e., copiers, printers, microwave ovens, refrigerators, etc.
- New equipment specified as Underwriters Laboratories (UL) labeled and listed.
- Specification grade wiring devices with cover plates and finishes as specified by the Architect.
- Motors less than 1/2 horsepower connected to single phase circuits.
- Motors 1/2 horsepower and larger connected to three phase circuits.
- Flexible conduit, minimum 1/2" trade size and 6' length used for all motor connections.
- Intermediate metal conduit (IMC) with threaded couplings and fittings used in slabs, in exterior walls, and for exposed surface applications to a height of 8 feet above finished floor.
- Electrical metallic tubing (EMT) with compression type couplings and fittings used generally for concealed applications, interior partition walls and above the 8 foot demarcation as noted above.
- Schedule 40 polyvinyl chloride (PVC), minimum 1" trade size



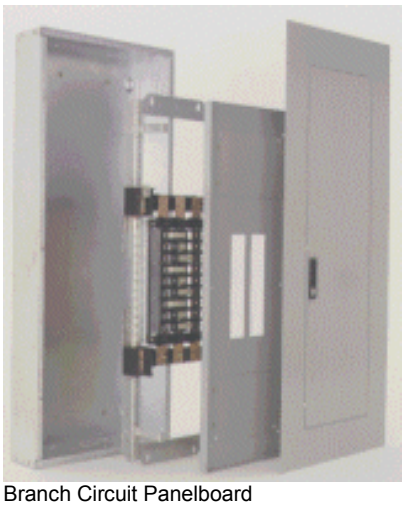




Building Code and Electrical Code

THHN Copper Conductors

with cemented couplings and fittings, and cover requirements per NEC used for underground raceways on site.
- Underground cables of any classification installed in raceway systems, sized to allow for future growth.
- Raceways penetrating exterior building walls with internal and external seals to resist moisture.
- Minimum size of raceways 3/4" trade size for power and 3/4" trade size for control and auxiliary systems.
- Power and control wiring utilizing single insulated conductors installed in raceway systems.
- Copper conductors with sizes stated in American Wire Gauge (AWG) notation.
- Minimum conductor sizes #12 AWG for power and lighting circuits, #10 AWG for all dimming circuits, #14 AWG for mechanical control circuits, and #16 AWG for auxiliary systems or as recommended by system manufacturers.
- Conductor insulation code grade type THHN/XHHW/THWN, rated 90 degrees Celsius.
- NEMA1, branch circuit panelboards for general loads as manufactured by Cutler-Hammer Products/ Eaton Corporation, GE Electrical Distribution & Control, Siemens Energy & Automation, or Square D.
- Distribution equipment with adequate fault interrupting ratings.
- Receptacles located in bathrooms, kitchens/concessions and outdoors shall be protected by ground-fault circuit-interrupter protection for personnel. All exterior receptacles shall also have weatherproof covers.

Typical PVC and EMT Raceway



Branch Circuit Panelboard

### Building Electrical Service and Distribution System

The existing electrical distribution equipment in the project scope area will be removed and replaced. A single electrical room will be created for the majority of panelboards. It may be desirable to locate a panelboard within a classroom space if the classroom contains a large number of equipment requiring power. Feeders for the panelboards will originate from the existing 480V main distribution panel and existing 208V distribution panel in the main electrical room.

### Emergency Electrical Service and Distribution System

A 480Y/277V emergency panelboard is expected to be sufficient to serve life safety emergency lighting loads. No other loads, including standby loads are expected to be part of the project scope. The source for the emergency panelboard will originate from the existing emergency distribution panelboard located in the main electrical room.

### Lighting Systems

All interior lighting fixtures, controls, and circuits wil be removed and replaced within the project scope area. As much as possible, lighting fixtures system consisting of LED sources will be specified. Lighting will be selected in coordination with the Architect for aesthetics.

Occupancy Sensor

The layout and quantity of lighting fixtures will be based on two factors: the recommended levels as listed in the IES Lighting Handbook edition

and the lighting power density requirements prescribed in the Energy Conservation Construction Code of New York.

Lighting control devices shall consist of a combination of occupancy sensors, daylight sensors, and toggle switches. Room controllers which integrate occupancy sensors, daylight sensors, and emergency lighting are planned for use in classrooms. Emergency shunt relays will be used to allow local control of emergency lighting under normal power conditions. During power outages, the emergency shunt relays will bypass local controls and automatically turn on the emergency lighting.

A more comprehensive detail of specific lighting fixtures, target footcandles, and lighting power density for each room will be available in the design development phase.

Specifically, the corridor lighting design will consist of color changing LED lighting concealed behind ceiling panels. In classrooms, pendant linear LED lighting fixtures will consist of continuous rows of fixtures in order to achieve visual comfort and uniformity of illumination.


Daylight Sensor


Room Controller

## Fire AlarmSystem

The existing fire alarm devices in the project scope area will be removed and replaced with new fire alarm devices. The devices will mainly consist of audio/visual notification appliances. A few manual pull stations in the corridors will provide means to activate the existing fire alarm system.

The existing fire alarm system is a modern addressable system: the Simplex 4100U. All devices added to this system will be compatible with the Simplex 4100U.


Fire Alarm Audio/Visual Notification Appliance

## Infrastructure for Information Technology System

The following criteria will be followed:

1. Data outlet raceways shall be 3/4” conduit minimum.
2. Wall back boxes shall be 4 -11/16” square.
3. 120V, normal single phase 20A power shall be provided for projectors.
4. Poke thru boxes shall be 8” minimum. Prototype shall be Wiremold Evolution.
5. Rack and IT room power branch circuits and loads will be coordinated with Telecomm Engineer.

Wiremold Evolution Poke-Thru Device

## Executive Summary

This report highlights the mechanical, electrical, and plumbing systems in the F-wing and central plant by which it is served. The information reviewed includes that provided by the facility engineers, archived plans and a site survey conducted on August 11, 2014. Our findings are only preliminary, and must be verified for use in new design projects. There is a photo summary from the survey at the end of the document.

The mechanical central plant is relatively new, approximately four-years old, and generally in good condition. The boiler system consists of (10) 2-MMBH Aerco model Benchmark condensing type boilers. There is (1) 800-ton Carrier model Evergreen centrifugal chiller and (1) 400-ton centrifugal chiller. The new cooling towers are located outside within a screen area on the rooftop. The plant provided heating hot water and chilled water for the campus center building.

The rooftop air handling units are approximately 30 years-old, and well past the useful life. Any future projects in the building should systematically replace the air handling units during each major renovation.

The building is not currently sprinkled. Depending on the scope of any remodels renovations or additions, the State fire marshal may require the building to be sprinkled. However, it is not likely the scope will be large enough to trigger such an upgrade.

The elevator machine equipment appears to be located in the “boiler room” or central plant room, which is no longer code compliant. Similarly, the emergency power equipment is located in the main electrical room, which could be interpreted as a code violation. There is a risk that an AHJ require that the equipment room be brought up to code in order to pass permit inspection.

The storm drainage system visible primary roof drains only, no secondary or overflow or overflow scuppers were visible.

The shops are in need of updated and may pose potential hazards. There is a shortage of emergency plumbing fixtures. The exhaust and filtration systems are lacking. Dust collection, welding hood, oven exhaust, compressed air, and spray booth exhaust systems are some of the systems that we would recommend be added or updated.

The electrical service is centralized for the building to serve all wings. Services include both normal and electrical power. The main service resides in the main electrical room located in the basement of Wing H. The condition of the service is adequate; however the electrical equipment manufacturer, Federal Pacific Electric, is not in existence anymore. It may be difficult to obtain parts and to service the equipment. Consideration should be given to replace the equipment in the future.

The 200 kw generator serves life safety loads in the building as well as a standby UPS Data Center load in Wing G. A study should be commissioned to determine the load on the generator. This would help in establishing limits for future growth of the Data Center and any renovation projects that may add load to the generator.

Wing F electrical service resides in Room 119F. The equipment is also made by Federal Pacific Electric. Future growth is not available in the panelboards for additional circuits. There is a code deficiency in the room; Panel 3HP-1 does not meet the 36" frontal clearance required by the National Electrical Code. If a renovation project occurs in Building F, the recommendation is to replace the electrical panels and provide a new electrical room to comply with clearance requirements.

The fire alarm system for the building is located in the main electrical room of Wing H. It is recently installed and is a modern analog addressable system.

Lighting in Wing F has passed its useful life. Some lighting levels in the space appear to be low. If a renovation project occurs in Building F, the recommendation would be to replace the lighting system in its entirety along with new code compliant lighting controls.

## Mechanical Systems Narrative

### Central Plant

The central plant is about 4-years old, and in good condition. The boiler system consists of (10) 2-MMBH Aerco model Benchmark condensing type boilers. There is (1) 800-ton Carrier model Evergreen centrifugal chiller and (1) 400-ton centrifugal chiller. The new cooling towers are located outside within a screen area on the rooftop. The cooling tower serves only the chiller; there are no heat pumps as per facility engineers.

During the time of the survey, the chilled water plant was supply only 50F to the chilled water coils, indicating that the unit was operating with a temperature reset; it should be noted that the survey occurred on August 11, 2014 and the outside air temperature ranged from ~66F to ~84F in the afternoon, which is above the average of 80F.

During the time of the survey, the central plant appeared to have water ponding due to a leak near the chiller. However, the facility engineers explained that the issue had been addressed, and the ponded water was get residual that needed to be cleaned-up.

### Elevator Machine Equipment

The elevator machine equipment appears to be located in the “boiler room” or central plant room. This is common for buildings or this era, but this is no longer acceptable. Code requires a 2-hr rated elevator machine room dedicated for housing this equipment, and disallows any utilities from running through this dedicated room. The room requires a dedicated HVAC system to maintain temperature, and if emergency power is available it should be provided to the unit. So, there is a risk that an AHJ require that the equipment room be brought up to code in order to pass permit inspection.

### Air Handling Units

Air handling units appear to be in fair working order. However, the units are about 30-years old, and well past the useful life expectancy of 15-25 years for air handling units. There is visible rust along base rail, and the roof mounted units appear to be showing symptoms of weathering. Giuseppe Scutifero (9/16/2014 email) with SUNY facilities verified that five units serve the F-wing of the campus center building. Information for those units received is shown in the table below. The units appear to run as single zone, constant volume.

| | | Elect. | Entering Air | | Leaving Air | | Cooling Coil | | Supply Fan | | | Return Fan | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | Service | V-Ph | DB F | WB F | DB F | WB F | EWT F | LWT F | HP | A | CFM | HP | A |
| AC-1-3 | F-119 "Painting Studio" | 460-3 | 81 | 67 | 55 | 54 | 44.0 | 53.4 | 7.5 | 9.3 | 5800 | 5 | 5.9 |
| AC-2-3 | F-117 "Painting Studio" | 460-3 | 81 | 67 | 55 | 54 | 44.0 | 53.4 | 7.5 | 9.3 | 5800 | 5 | 5.9 |
| AC-3-3 | F-113 "Painting Studio" | 460-3 | 81 | 67 | 55 | 54 | 44.0 | 53.4 | 7.5 | 9.3 | 5800 | 5 | 5.9 |
| AC-4-3 | F-121 "Project Studios" | 460-3 | 81 | 67 | 55 | 54 | 44.0 | 51.3 | 7.5 | 9.3 | 4500 | 5 | 5.9 |
| AC-5-3 | F-102 + Office + "Screening Room" | 460-3 | 82 | 68 | 55 | 54 | 44.0 | 54.0 | 10 | 14.7 | 12800 | 3 | 7.2 |

Any future projects in the building should systematically replace the air handling units during each major renovation. Because the envelope improvements will help reduce the heating and cooling loads, it is not likely that there will be issues with the hydronic distribution system for most space types that are not heavily driven by internal loads (e.g. computer, technology, server rooms). The recommended

replacements would be similar 4-pipe air handling units, with improved MERV 8/13 filtration and variable speed fans to capitalize on energy saving of part load conditions.

**Shops**

The shops appear to serve multiple functions, from ceramics to painting to woodworking to welding. The spaces were not originally intended for the variety of uses we see today. The three large rooms F-119, F-117 and F-113 used to be one large volume used as a painting studio. The shops are in need of updated and may pose potential hazards. There is a shortage of emergency plumbing fixtures. The exhaust and filtration systems are lacking. Dust collection, welding hood, oven exhaust, compressed air, and spray booth exhaust systems are some of the systems that we would recommend be added or updated.

## Plumbing Systems Narrative

### Storm

During the time of the survey, the building was in the process of being re-roofed. The storm drainage system visible primary roof drains only, no secondary or overflow was visible. There were no scupper drains apparent for overflow.

### Natural Gas

The gas service shows that annual expense totaling about $90,000 per year. The average cost of the natural gas is about $0.93/therm. This average include supply and delivery (distribution) service charges. It should be noted that the gas rate reduces as the usage increases.

National Grid gas service to SUNY College Campus Center, Usage History

| Date | Usage Therms | Cost Dollars | Rate Dollar/Therm |
|---|---|---|---|
| 8/1/2013 | 824 | $ 797.82 | $ 0.97 |
| 9/1/2013 | 947 | $ 889.46 | $ 0.94 |
| 10/1/2013 | 1050 | $ 1,103.13 | $ 1.05 |
| 11/1/2013 | 16856 | $ 13,423.84 | $ 0.80 |
| 12/1/2013 | 32384 | $ 26,219.98 | $ 0.81 |
| 1/1/2014 | 12913 | $ 11,272.16 | $ 0.87 |
| 2/1/2014 | 9843.5 | $ 11,922.61 | $ 1.21 |
| 3/1/2014 | 9843.5 | $ 11,922.61 | $ 1.21 |
| 4/1/2014 | 5017.5 | $ 4,943.41 | $ 0.99 |
| 5/1/2014 | 5017.5 | $ 4,943.41 | $ 0.99 |
| 6/1/2014 | 239 | $ 342.96 | $ 1.43 |
| 7/1/2014 | 531 | $ 611.03 | $ 1.15 |
| 8/1/2014 | 565 | $ 570.02 | $ 1.01 |
| 9/1/2014 | 756 | $ 658.29 | $ 0.87 |
| **Totals** | **96787** | **$ 89,620.71** | **$ 0.93** |

### Domestic Water

The water service shows that annual expense totaling about $33,000 per year. The average cost of the water is about $3.95/kGal. It should be noted that the water rate increases as the usage increases, from as little as $175 for the first 100kgal to as much as $4.25/kGal for all usage over 800kGal.

Village of Old Westbury water service to SUNY College, Usage History

| Date | Usage kGal | Cost Dollars | Rate Dollar/kGal |
|---|---|---|---|
| 11/1/2012 | 3918 | $ 15,401.50 | $ 3.93 |
| 5/1/2013 | 2990 | $ 11,457.50 | $ 3.83 |
| 11/1/2013 | 4709 | $ 18,763.25 | $ 3.98 |
| 5/1/2014 | 5007 | $ 20,029.75 | $ 4.00 |
| **Totals** | **16624** | **$ 65,652.00** | **$ 3.95** |

The existing fixtures are in poor condition, and need replacement. There is an opportunity to capitalize on replacement of the obsolete fixtures with new low-flow water conserving fixtures. We would recommend that any project scope that affects the toilet rooms replace the fixtures with sensor operated, low-flow type similar to those used in the New Academic Building.

The water pressure available in the building will likely be above 60-psi. Provided the distribution downstream of the meter and backflow preventer is of minimal lengths and the piping is of appropriate size then this pressure should be adequate to serve plumbing fixtures, including flush valve fixtures, without the need for a domestic water booster pump. We are told by the facility engineers that there are no booster pumps currently used on campus.

The pressure should be tested and systems reevaluated at the start any new construction projects and within one year prior to completion of any construction projects. Below is a summary of the reviewed water pressure data.

Steve Griffin notes from Friday, May 15, 2009 the following OWWD test results for the fire hydrant in front of the cooling tower at west end (near F Wing) of Campus Center (Hydrant # 60).

- Static Pressure = 68 psi
- Residual pressure = 63 PSI
- Water Flow = 1200 GPM

A more recent hydrant test was performed at hydrant #63A at the east end of campus center across from the Library loading dock on April 8, 2011. The results of that test were:

- Static Pressure = 65 psi
- Residual Pressure = 64 psi
- Water Flow = 1300 GPM

Signed copies of reports from the OWWD for either of these tests are not available.

**Fire Suppression**

The building is not currently sprinkled. Depending on the scope of any remodels renovations or additions, the State fire marshal may require the building to be sprinkled. However, it is not likely the scope will be large enough to trigger such an upgrade.

Provided the fire suppression distribution piping is sized adequately, the aforementioned pressure should be adequate to serve most spaces in two-story building. We are told by the facility engineers that there are no fire water booster pumps currently used on campus.

## Electrical Systems Narrative

**Electrical Service**
Electrical service is provided from underground feeders to electrical distribution equipment in the Main Electrical Room in the basement of Wing H. The service is a primary selective, secondary radial system. Two 13.2 kV primary feeders are connected to a load break selector switch, which allows one feeder to be in operation. From the load break selector switch, the primary feeder connects to a 1500 kVA, 13.2 kV delta primary, 480Y/277V wye secondary transformer. The secondary feeder from the transformer connects to a 2000A, 3-phase, 4-wire 480Y/277V Federal Pacific Electric main distribution panel (MDP). The main switch for MDP is a 2000A main fused bolted pressure switch.

The 2000A, 480Y/277V MDP provides power to all wings of the building. Power is provided to loads via conduit and wire feeders. Examples of MDP loads include HVAC power (HP) panelboards, motor control centers (MCC), and 208Y/120V lighting and appliance panelboards (LP) via a 225 kVA step down transformer. Circuit protection at the MDP consists of fused switches. The MDP also contains a 750 kVA delta primary, 208Y/120V wye secondary transformer section. This transformer provides power to a 2500A, 208Y/120V, 2000A distribution panelboard (DP).

Distribution panelboard DP has a 2000A main fused switch and a 2500A rated distribution section. Like MDP, DP serves all wings of the building. Power is provided to loads via conduit and wire feeders. Examples of DP loads include lighting and appliance panelboards (LP) and power panelboards (PP).

**Emergency Power Distribution**
Emergency power is provided from an outdoor 200KW diesel powered emergency generator. The emergency feeder to the building is protected by a 150A circuit breaker at generator output distribution bus. The emergency power feeder connects to the emergency input terminal of a 200A automatic transfer switch (ATS). From a 150A fused switch at DP, a normal power feeder is connected to the normal input terminal of the 200A ATS. The output feeder of the ATS connects to a 100 kVA delta primary, 208Y/120V wye secondary transformer. From the transformer, the feeder continues to a 400A emergency distribution panelboard (EDP).

There is no main switch at panel EDP. The fuses ahead of the ATS input feeders appear to serve as the overcurrent protection device for panel EDP. Examples of EDP loads include emergency lighting panelboards (ELP) and emergency power panelboards (EPP). SUNY building personnel report that Wing ‘G’ has a 30kVA data center UPS which is also connected to the generator.

The emergency electrical equipment was located in the main electrical room. There may be a possible code violation regarding the existing electrical emergency power gear, depending on how the jurisdiction defines Level 1 in NFPA 110. Level 1 is basically an electrical installation where loss of power would be catastrophic and result in death or serious injury. The requirement for 2-hr fire separate room for emergency gear applies to Level 1 installations. In new construction, we typically design the ATS and the emergency board in a separate room with 2 hr fire rated walls. While the existing condition is not planned to be reconfigured, we would be changing out the emergency panel in the Wing F electrical room. So, there is a risk that an AHJ require that the existing emergency power equipment in the main electrical room be brought up to code in order to pass permit inspection.

**Electrical Service Wing F**
Electrical service is provided from panelboards inside Elec Room F119A. These panelboards are RP-1, 3LP-1, 3HP-1, and 3ELP-1. In addition, other equipment inside Elec Room F119A consists of a Siemens Apogee Building Control panel, various mechanical combination motor starter and disconnect switches, motor starters, and unknown enclosures labeled DGP6 and DGP7.

Panelboard RP-1 is a Cutler Hammer PRL-1, 208Y/120V, 3-phase, 4-wire panelboard. It contains a 60A main circuit breaker panel with 15 utilized circuits and 3 adjacent single pole spaces. According to the circuit directory, connected loads include a roof fan, pumps, paint booth, welder, fans, and AC units.

Enclosures DGP6 and DGP7 information was not available at the time of this report.

Panelboard 3LP-1 is a two section Federal Pacific Electric, 208Y/120V, 3-phase, 4-wire, 225A main lugs only panelboard. Each section consists of 38 circuits. Panel circuits are 100% utilized; no spaces and spares are available. Connected loads listed on the circuit directory include receptacles, lighting, unit heaters, fans, pumps, and misc. equipment.

Panelboard 3HP-1 is a two section Federal Pacific Electric, 480Y/277V, 3-phase, 4-wire, 100A main lugs only panelboard. Each section consists of 14 circuits. Panel circuits are 100% utilized; no spaces and spares are available. Connected loads listed on the circuit directory include AC units, pumps, and step down transformers.

Panelboard 3ELP-1 serves power to Wing F. Panelboard 3ELP-1 is a Federal Pacific Electric 208Y/120V, 3-phase, 4-wire, 100A main lugs only panelboard with 4 utilized circuits and 8 spaces. The configuration of the spaces are four contiguous spaces on the left hand side plus four contiguous spaces on the right hand side.

**Fire Alarm System Wing F**
The fire alarm control panel for the building resides in the main electrical room of Wing H. The control panel is a Simplex 4100U, and it is an analog addressable type of system. The fire alarm panel sends a notification to Campus Police, whom then contacts the local fire department.

Existing fire alarm devices observed in the spaces include manual pull stations, smoke detectors, and bells.

**Lighting System Wing F**
Typical lighting fixtures in the spaces consist of fluorescent fixtures. Most fixtures appear to be showing their age; they are suspected to be original with the construction of the building. (circa 1973). Lighting control is via toggle switches.

## Electrical Systems Assessment and Recommendations

**Electrical Service**
No revisions to the electrical service are required. Building personnel have not reported any issues with the electrical service equipment. However, maintaining the equipment may be an issue since Federal Pacific Electric has been defunct manufacturer for a long time. Replacement parts may be difficult to obtain easily. Building personnel may wish to consider a main service replacement at some date in the future to have up to date equipment for parts and service.

Possible future projects that would add to the system's reliability and service life include replacement of building feeder wiring and distribution equipment in all wings of the building. Also, if not already in place, a preventive maintenance plan should be implemented to extend the life and reliability of the electrical gear.

**Emergency Power Distribution**
The existing emergency generator size should be evaluated to determine how much room is available for future loads. At a glance, the generator appears to be sized for life safety loads in all wings plus standby loads for the data center UPS in Wing G. The evaluation would be helpful for the Data Center in Wing G.

Typically, Data Center loads will increase over time instead of getting smaller. It is expected that loads in the other wings would be much smaller than the Data Center loads; the other wing's loads are expected to only comprise of life safety loads.

**Electrical Service Wing F**

One code deficiency was observed in the Electrical Room 119F. Panel 3HP-1, is not compliant with the National Electrical Code's 36" clearance requirement in front of the panelboard.

In addition, most of the panelboards have reached their limit on available circuits. There is little room for the additional growth of circuits needed if space in Wing F becomes renovated. Typically, a renovation project would require additional circuits for new loads.

In order to allow for future spares and spaces and to address the code deficiency, a new electrical room with new panelboards should be considered for installation. Another reason for new panelboards is due to the issue of parts for Federal Pacific Electric. As mentioned earlier in the report, Federal Pacific Electric is no longer in existence and parts may be difficult to obtain and be expensive. In addition to the new electrical panels, the feeders to the panels from the distribution panelboards should be replaced.

**Fire Alarm System Wing F**

No replacement of the fire alarm panel is needed. The system, the Simplex 4100U is modern and recently installed.

**Lighting System Wing F**

The lighting system is likely original with the building construction and is inefficient with modern lighting design. Lighting level appears to be low in the main corridor and there are some areas in the shops where lighting appears to be obstructed from view due to pipes and other building elements. The fluorescent lenses of some fixtures are showing their age; the lenses have become worn and are not as reflective as if they were new.

In terms of lighting control, there is no automatic shutoff of lighting in the spaces. It appears that local toggle switches are the only control device.

If the space in Wing F becomes renovated, the lighting in the space will be required to be compliant to modern building codes. This entails replacement of lighting fixtures with more energy efficient fixtures and lamps. It would also require automatic shutoff of lighting fixtures. One common method for automatic shut-off in facilities is through the use of lighting occupancy sensors. Daylight harvesting should be considered for the lighting near exterior windows.

Another feature to consider implementing is daylight harvesting. Daylight harvesting is typically achieved with lighting fixtures fifteen feet from an exterior window. By the use of a photocell sensor for these lighting fixtures, the photocell can control the lights to be off. In this state, the photocell senses that enough sunlight is filtered through the window; this eliminates the need for the lights to be on. There are spaces with a high volume of glazing in the Wing F space that could be a candidate for daylight harvesting.

## Photos

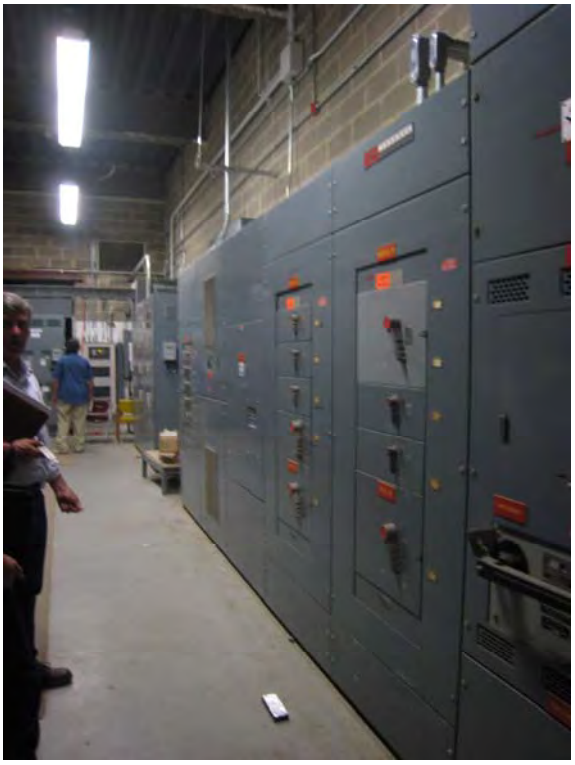


*Figure 1: Wing H Main Elec Room:  Main Switchboard*


*Figure 2: Electrical Room 119F:  Panel RP-1*

*Figure 3: Electrical Room 119F: Panel 3LP-1 Section #1*


*Figure 4: Electrical Room 119F: Emergency Panel 3ELP-1*


*Figure 5: Elec Room 119F: Panel 3HP-1 Section 1*

*Figure 6: Elec Room 119F: Panel 3HP-1 Section 1 - NEC Clearance Violation*

*Figure 7: Wing F Typical fluorescent lighting*

*Figure 8: Wing H Main Electrical Room:  Simplex 4100U Fire Alarm Control Panel*

*Figure 9: Wing F main corridor - low lighting level*

*Figure 10: Wing F lighting in shop area - obstructions*


*Figure 11: Emergency Electrical Gear in the Main Electrical Room*

*Figure 12: Re-roofing, No Overflows Visible*

*Figure 13: Rooftop Air Handling Units, Rust*

*Figure 14: Elevator Machine Equipment in Boiler Room*

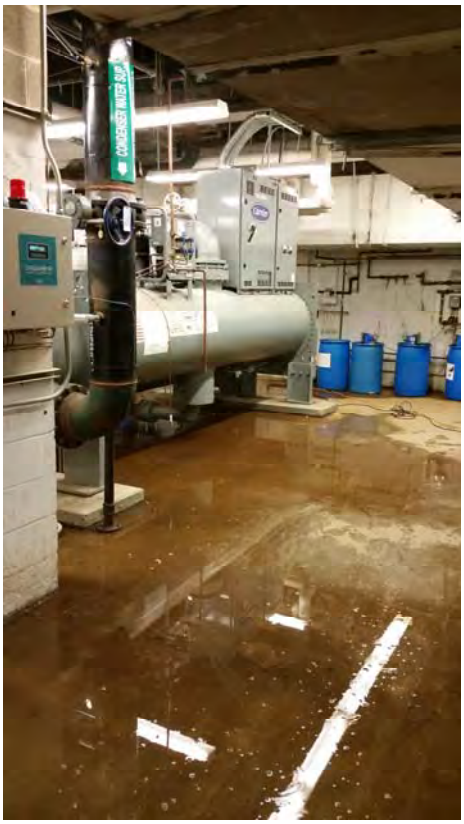


*Figure 15: Central Plant:  Water Leakage*

*Figure 16: Central Plant:  Boilers*


*Figure 17: Central Plant: System Pumps*


*Figure 18: Central Plant: Chiller*

*Figure 19: Central Plant: Chiller*

*Figure 20: Typical Restroom: Lavatories*

*Figure 21: Typical Restroom: Water Closets*

*Figure 22: Typical Restroom: Urinal*

*Figure 23: Typical Restroom: Partitions*

*Figure 24: New Academic Bldg Restroom: Lavatories*

*Figure 25: New Academic Bldg Restroom: Urinal*

*Figure 26: New Academic Bldg: Water Closet*

*Figure 27: New Academic Bldg Standard: Stainless Partitions*


*Figure 28: New Facility Standard: Drinking Fountain*

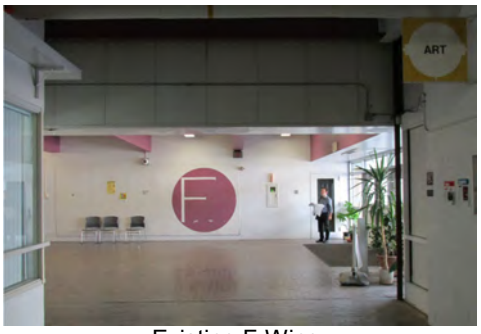
*Figure 29: Typical Lab Sinks*

*Figure 30: Former Paint Studio*

## Introduction

This narrative describes the scope of work and pre-schematic opinion of probable cost (OPC) for the audiovisual (AV) systems for the renovation of the State University of New York's F-Wing located in Old Westbury, New York. It is based on our careful review of the project requirements. It is also based on our prior design experience for similar spaces. Please contact WRL immediately with any comments, corrections, or additions.

Cost estimates in this report include installation and integration by a qualified AV integrator unless noted. These estimates do not include electrical installation, conduit, etc. Estimates do not include taxes and are based on equipment being bid directly to the construction manager or owner. General contractor overhead / profit markup has not been included.



Existing F-Wing

## Programming

The primary function of the space will be to house SUNY Old Westbury's Visual Arts Department.

The spaces requiring audiovisual functionality are the commons corridor, the auditorium, and possibly the gallery, teaching labs/studios, and offices.

There is an existing garden area which has not been addressed in this plan. We would be happy to provide information for audiovisual elements in the garden upon request.


Existing Corridor

The large commons corridor will serve as an entry point to the Visual Arts Department. It has been designed with great care to make an impact on both students and faculty as well as attracting perspective students.

It will provide access to all department classrooms, offices, studios, and art galleries. It will also function as a gathering place for students and faculty and will have displays of current projects along the wall. A reception desk/area will be located near the main entrance.

The small auditorium will be used for lectures, audiovisual presentations, occasional film screenings, and other special events. It is not anticipated that the space will be used for distance learning, 1st run film presentations, or musical performances.

The gallery will be used primarily for exhibition of student and faculty work on a rotating basis. Alternatively, the space will be used for occasional special events, gallery talks, or receptions.

There is an operable wall between the commons corridor and the gallery allowing it to open for special events.

### Existing Conditions

This report is based on the assumption that no existing equipment or infrastructure will be reused.

### Applicable Codes and Design Standards

- Americans with Disabilities Act
- National Electric Code 2011
- ANSI InfoComm 1M2009 Audio Coverage Uniformity in Enclosed Listener Areas
- ANSI InfoComm 2M2010 Standard Guide for AV Design and Coordination
- ANSI InfoComm 3M2011 Projected Image Contrast Ratio
- ANSI InfoComm 4M2012 AV Energy Management Standard
- ANSI InfoComm 5M2013 Audiovisual Systems Performance Verification Standard

## Audiovisual Scope and Cost Estimate by Area:

### Commons Corridor $122,160

### Introduction:

The proposed AV systems for the commons corridor include a large video display at the end north end of the corridor to display programming from the campus digital signage system, or any other local content as needed.


Proposed commons corridor

Although not a part of the program, this display could be easily adapted for use with personal devices (student laptops, iPads, etc.) should that area be used as a "huddle space".

The systems also include a video display near the main entrance/reception which will display announcements.

Add/alternate #1 below provides loudspeakers above the acoustical ceiling of the corridor which will normally play an ambient soundscape, and could also be used on demand for special exhibits, music, or other local programming, announcements, etc. Add/alternate #2 provides interactive video displays along the corridor to be used in conjunction with or replace the pinup boards on the east and west walls.

<u>Audio System</u>

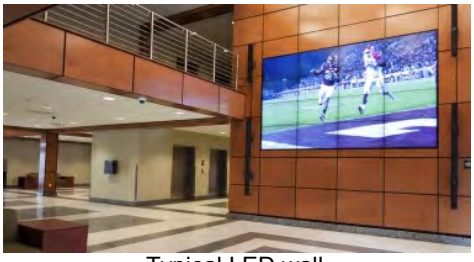
Loudspeakers will be provided to the left and right of the video display at the north end of the corridor. These loudspeakers will be available for use when material presented in this area has audio content. The system will have integrated digital processing to tailor the loudspeaker's response within the space.

The corridor will have a local wall panel for inputs to the system and for control. There will also be an input/control panel located at the reception desk. More detail on these panels is provided below.

## Video System

The video system for the corridor includes a large video display at the north end of the corridor. Normal programming to this display will be from the campus digital signage system. Alternatively, there will be connection points at the reception desk and locally in the corridor for displaying local content when needed for special events.

The system will also include a video display near the main entrance/reception to display announcements. Programming to this display will be from the campus digital signage system or locally from the reception area.



Typical LED wall


Digital signage display

## AV Control System

A simple control system will be provided to startup the system in its normal mode each day. A simple control panel will be located at the reception desk for local control when the system is used for special events or local programming.

## Miscellaneous Equipment

The commons corridor will be equipped with a wall panel at the north end of the corridor near the video display. The reception desk will also be equipped with a wall panel. These panels will allow connectivity to the video display as well as the loudspeakers in that area.

In an attempt to provide flexibility and to accommodate future distribution technology, these panels will contain the following tie lines and connection points:

- Line inputs - 2
- Video inputs - 1
- AV network/CAT-6 patch - 2
- Technical power

Typical wall panel and system control

All back end audiovisual equipment for the corridor AV system will be located in an AV equipment rack located in the projection room just off the corridor.

Isolated technical power and power sequencing / switching (by others) will be required at all locations where AV equipment will be utilized. This has not been included in this cost estimate.

Typical AV power sequencing and switching system and isolation transformer

## Add/Alternate #1 - Corridor Sound $46,800

In addition to making a lasting visual impact, we have provided an add/alternate which takes the corridor design one step further to make an aural impact on students, faculty, and perspective students.

We are proposing an ambient soundscape based on appealing, natural sounds. Words used to describe our concept include surprise, movement, transport, contrast, nature, clouds, wind, trees, and birds.

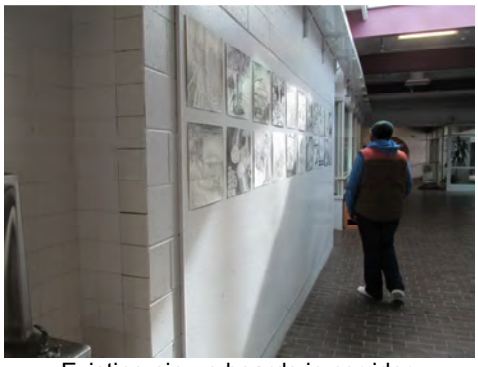
Our initial plans would involve a commission by Australian sound designer / media artist, Roger Alsop. His website is https://sites.google.com/site/rogeralsop/ and a link to an applicable sample project is https://rogeralsop.bandcamp.com/track/usedlost.

In addition to this aural design element, the equipment necessary would also be available for use for special events, paging, gallery talks, and other presentations in the corridor.

Technically, the system would consist of a series of loudspeakers mounted out of sight above the acoustic ceiling elements as well as necessary playback and processing equipment.

Local inputs and control of this system would be via the wall panel and touch panel located at the reception desk.

## Add/Alternate #2 - Interactive Displays $143,640



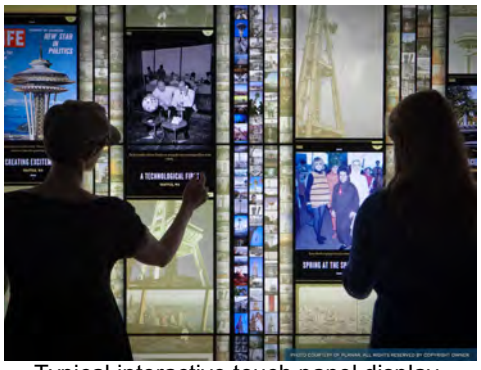
Existing pin-up boards in corridor

We have provided an add/alternate that provides interactive element to the corridor. We propose 6 interactive touch panel displays located along the corridor to be used in conjunction with or replace the pinup boards on the east and west walls.

These displays would allow anyone viewing the display to take a closer look by zooming in on a digital image of the work on display. There would also be the ability to navigate to further information about the piece or the artist, view the artist's digital portfolio, or view similar works.

Real time links could also be made active allowing potential students to learn more about the Visual Arts Department program and navigate to admissions information, etc.

While not a WRL project, we provide the following link as an example of the type of interactive display we have in mind: https://youtu.be/8lTcJXLL3dI



Typical interactive touch panel display

**Auditorium:** **$164,760**

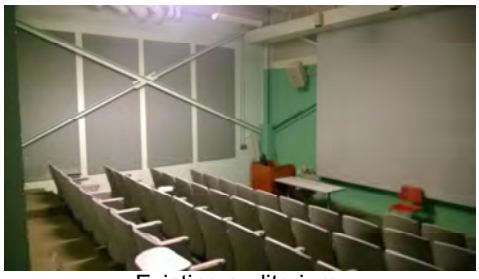
**Introduction:**

The proposed AV systems for the auditorium will be capable of serving multiple types of events within the auditorium as listed in the programming section above.

This will include a video presentation allowing the display of slides and videos. It will include a sound system for playback of prerecorded presentations as well as light amplification for live presenters within the auditorium.

The system will also include basic audio and video recording capabilities.

Connection points and control for the systems will be available via a wall/floor panel within the room, in an AV lectern, as well as in the projection booth.



Existing auditorium

Audio System

The auditorium will be equipped with an audio delivery system.

Recessed ceiling, wall, and/or pendant loudspeakers will be utilized based on the architectural design of the space, allowing for even audio coverage throughout the space. For budgeting purposes, a left / right loudspeaker and sub pair has been provided on the front wall.

A 5.1 surround sound system will be provided allowing for occasional film screenings. This will include additional side, rear, center, and subwoofer loudspeakers and necessary processing equipment.

Amplification and processing equipment will be located in the projection booth. This will include an automatic mixing system to eliminate the need for an audio operator for typical events. The system will also have integrated digital processing to tailor the loudspeaker's response within the space.

Audio recording of events in each gallery will be possible in the central control room.

A wired lectern microphone has been provided in AV lectern as well as one handheld wired microphone and two direct injection boxes.

2 wireless microphone transmitter and receiver pairs will be provided with the receivers and with antenna distribution equipment permanently installed in the projection booth and remote antennas installed the auditorium.

Connections in and out of the audio system will be available as described in the miscellaneous equipment section below.

Typical ceiling and pendant mounted loudspeakers

Typical wall mounted and recessed loudspeakers

Typical wireless system components

## Video System

The video system for the auditorium will include a video projector and 20' wide ceiling recessed motorized projection screen. Connections to the projector will be available in the AV lectern within the auditorium and in the projection room as described in the miscellaneous equipment section below.

A pan, tilt, zoom (PTZ) HD video camera will be mounted within the auditorium to allow the recording of presentations.

The head end control and processing for the video system will be located in the projection room.

Video switching and a preview monitor will be provided which will be used to route video sources to the projector and a recording deck.

A video recording deck will be provided to allow recording of events within the space.

A video playback deck will be provided to allow prerecorded programming and PowerPoint/Keynote presentations, etc. to be displayed on the screen. Control of this deck will be possible from the touch panel in the AV lectern as well as the projection booth.

Master control room

Typical PTZ HD camera

## AV Network and Control System

Control of the AV system will be via a control system in the projection booth. Local control will also be possible via a touch screen in the AV lectern.

This estimate includes any required AV network switches, cable infrastructure, custom fiber and RJ45 network patch bays and control system programming by the AV contractor.

Typical AV touch panel controller

## Audiovisual Support Systems

This estimate also includes an assisted listening system with an appropriate number of receivers for the space as specified by the ADA and FERPA. It will also include rechargeable AA batteries, charging cases for the receivers, headphones and neck loops. This system can be used when special events are held in the galleries.

- Assistive listening transmitters - 1
- Antenna system
- Assistive listening receivers with batteries, charger, etc. - 4
- Neck loop receivers - 2
- Headphones - 8
- Signage - 1

Typical assistive listening system

## Miscellaneous Equipment

An AV equipment rack will be provided within the projection booth to house the system components. This rack will include light/power modules, rack drawers, panels, etc. as required.

Custom cable assemblies, additional cabling as needed, patch cables, and mounting hardware.

Typical wall panels / boxes

The auditorium will be equipped with a floor or wall pockets/panels strategically located within the room. An interface panel will also be provided within the projection booth

These panels will allow connectivity of a combination of data, audio, and video to the AV system.

In an attempt to provide flexibility and to accommodate future distribution technology, these panels will contain the following tie lines and connection points:

Microphone/line inputs - 2
Line outputs - 1
AV network/CAT-6 patch - 2
Technical power

Typical AV equipment rack

An AV lectern will be provided. This lectern will contain a touch panel to control the system. It will also contain a microphone, connection points for a laptop and other AV presentation equipment, a document camera, and a media player.

Typical AV lectern

Mic stands, cables, adapters, etc. will be provided as required to complete a functional system. These cables will be branded with the center's name and contact information as possible.

**Gallery - Add/Alternate #3: $41,280**

**Introduction:**

To provide AV functionality within the gallery, we have provided an alternate for an AV system in the gallery.

Existing gallery AV

Audio System

Recessed ceiling, wall, and/or pendant loudspeakers will be utilized based on the architectural design of the space, allowing for even audio coverage throughout the space. For budgeting purposes, a total of 8 pendant loudspeakers will be provided.

Amplification and processing equipment will be located in the projection booth. The system will receive programming from the projection booth, locally via wall / ceiling panels, and paging from a central location. The system will also have integrated digital processing to tailor the loudspeaker's response within the space.

To accommodate events for which the operable wall will be opened, a room combine option will be available allowing the systems to function together as one system for these events.

Audio recording of events in the gallery will be possible via the equipment in the projection booth.

2 wireless microphone transmitter and receiver pairs will be provided with the receivers and with antenna distribution equipment permanently installed in the projection booth and

remote antennas installed in the gallery. These microphones will be available on an as needed basis for special events in the gallery.

The gallery will have local wall, ceiling, and/or floor panels for inputs to the system and for control. More detail on these panels is provided below.

Video System

Infrastructure will be provided to allow the use of existing or future video projection/display equipment at a minimum of four locations within the gallery. Each location will provide connection and interface to the control system as well as local inputs.

Typical AV touch panel controller

Given the rotating nature of the exhibits in the gallery, no permanent projectors or displays will be installed.

Control of the video systems will be via the control system in the projection booth. Local control will also be possible via a wall mounted or wireless touch screen in the gallery.

A pan, tilt, zoom (PTZ) HD video camera will be mounted within the space to allow for monitoring of activity within as well as the recording of functions/events in the gallery.

Typical PTZ HD camera

AV Network and Control System

Control of the AV system will be via the control system in the projection booth. Local control will also be possible via a touch screen in the gallery.

This estimate includes any required AV network switches, cable infrastructure, custom fiber and RJ45 network patch bays and control system programming by the AV contractor.

Miscellaneous Equipment

The gallery will be equipped with a floor or wall, floor, and ceiling pockets/panels strategically located at 4 locations within the room. An interface panel will also be provided within the projection booth

These panels will allow connectivity of a combination of data, audio, and video to the AV system. A connection point for the AV lectern from the auditorium will also be provided for special events and gallery talks.

In an attempt to provide flexibility and to accommodate future distribution technology, these panels will contain the following tie lines and connection points:

Microphone/line inputs - 2
Line outputs - 1
AV network/CAT-6 patch - 2
Technical power

**Other Spaces - Add/Alternate #4: $143,040**

## Introduction:

To provide AV functionality for other spaces within the department, we have provided an alternate for AV systems there. AV requirements are not listed in the program and have been based on photographs and what we have provided in the past for similar arts education facilities. This information and cost should be used as "typical provisions", realizing that further programming will be necessary to determine specific needs for SUNY.

Spaces which have been considered include:

- Editing Lab / Mac Computer Lab
- 3 Open Studios
- 8 Shared Student Studios
- Shop
- Circulation
- Conference / Meeting Room
- 10 Private Offices

The proposed AV systems include a permanently installed audio system throughout which will allow paging.

Video connectivity and distribution will also be provided at key locations to be used in teaching and collaboration.

An audiovisual lectern will be provided in the computer classroom.

An audio / video teleconference system could be provided if there is interest in distance learning, web streaming, and remote collaboration.

A digital signage system will be provided, allowing announcements and other visual media to be displayed at key locations.

Existing AV support in Studio

Existing Editing Room

Audio System

The spaces will be equipped with an integrated, multi-zone audio delivery/paging system.

Recessed ceiling, wall, and/or pendant loudspeakers will be utilized based on the architectural design of each space, allowing for even audio coverage throughout the space. For budgeting purposes, a total of 78 recessed loudspeakers will be provided.

A local interface will be provided in the conference room and computer lab, allowing the loudspeakers to be used for presentations from equipment within those rooms.

Amplification and processing equipment will be located in the projection room.

Typical AV lectern

Video System

A permanently installed video display will be provided within the 3 open studios and the conference room. These will allow students, faculty, and visiting artists to collaborate by easily viewing content from their laptops or other personal devices. These will setup in a typical "huddle space" configuration with simple access and local control.

A permanently installed video display and an interactive "whiteboard" display will be installed in the computer classroom. Interface to these displays will be from the AV lectern within the room.

A digital signage system, allowing pre-programmed announcements or other material to be shown on monitors at key locations. For budgeting purposes, three monitors have been provided in circulation areas.

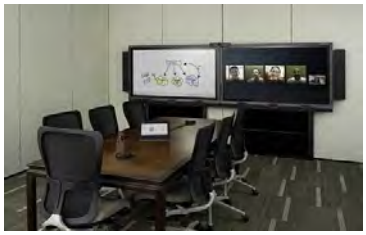
Typical interactive display


Digital signage display

## AV Network and Control System

Basic control of these AV systems will be via local controls. Expanded control will be provided in the editing / computer lab and conference room.

This estimate includes any required AV network switches, cable infrastructure, custom fiber and RJ45 network patch bays and control system programming by the AV contractor.



Video conference system

## Miscellaneous Equipment

Formal programming has not been done for these room, so the above systems will change drastically throughout the programming and schematic design phases of the project. In anticipation, we have included an allowance within the budget for limited additions to the above systems, and we understand some of what is listed may not actually be useful in this setting, and will be removed.

# Opinion of Probable Cost Summary:

| | |
|---|---|
| **Commons Corridor** | **$122,160** |
| **Auditorium** | **$164,760** |
| | |
| **Subtotal** | **$286,920** |
| **Add/Alternate #1 - Corridor Sound** | **$46,800** |
| **Add/Alternate #2 - Interactive Displays** | **$143,640** |
| **Add/Alternate #3 - Gallery** | **$41,280** |
| **Add/Alternate #4 - Other Areas** | **$143,040** |
| | |
| **Project Total With Add/Alternates:** | **$661,680** |

END OF REPORT

This draft narrative summarizes the acoustic design elements for the renovation of the F Wing at SUNY Old Westbury. A description of the proposed acoustic measures that would have significant cost impact on the project are listed below:

## Program

The acoustic design is based on the following anticipated programmatic uses:

Open/Private/Shared Studios
Artistic Studios, Drafting, Multi-Media, Future Flexible use

Auditorium
Amplified Presentations, Lectures, Informal film screening, Multi-Media presentations

Conference Rooms
In-person meetings, Conference Calls

Other spaces with typical uses:
Offices, Wood/Metal/Ceramics Shop, Classrooms, Computer Lab, Art Gallery

The school has expressed a desire to "future-proof" the Studios to allow for future technologies. Acoustics should provide speech privacy between learning spaces and public spaces, and good speech intelligibility for instruction. Auditorium should also provide a space with good speech intelligibility via the audio system.

## Sound Isolation

To isolate the Studios and classrooms other activity in the building for core learning spaces, we recommend the following sound isolation constructions:

Demising Walls–6" studs with two layers of 5/8" gypsum board on each side (four total layers), batt insulation in stud cavities. Partition to run full height sealed to structure above.

Corridor Walls – 3-5/8" studs with three total layers of 5/8" gypsum board (1 on one side, 2 on the other), batt insulation in stud cavity. Partition to run full height sealed to structure above.

Acoustic Doors – Doors in demising walls should be avoided to preserve acoustic isolation. If there is a strong desire to have direct access between classrooms STC-50 rated door assemblies should be used in all demising wall openings.

Studio entry, Shop/Lab, and Conference Room Doors should be hollow metal or solid core wood with full perimeter acoustic gaskets including a drop bottom seal.

Auditorium – Demising walls between Auditorium and quiet spaces such as offices Photography Lab should be constructed of double 4" stud walls (1" clear airspace between studs), and 2 layers of 5/8" gypsum board on either side (4 total layers. Batt insulation in stud cavity. Partition to run full height sealed to structure above.

Windows – Glazing assemblies in demising or corridor walls should match the acoustic isolation described for partitions, in this case STC-45 rated window assemblies for corridor walls, and STC-50 rated windows for demising partitions.

## Room Acoustics

Auditorium - To facilitate good speech intelligibility and high fidelity audio reproduction, the Auditorium should include an allowance for 800 square feet of 2" thick fabric wrapped fiberglass acoustic panels or other highly absorptive treatment. This treatment would be distributed around the walls and ceiling locations TBD based on design.

Studios - It is assumed that all existing Studios have acoustic decking (cellular deck). This treatment will be adequate for all studios. Studios without this acoustic decking should include ACT (NRC 0.8 or higher) over the footprint of the room, or equal area treatment (1" thick fabric wrapped fiberglass panels or equal) evenly distributed on walls.

Conference Rooms and Offices – Conference Rooms and office should include ACT (NRC 0.8 or higher) or equal area surface mounted acoustic treatment. Carpet preferred.

Public Areas – Current design includes a backlit, micro-perforated acoustic ceiling with a minimum NRC or 0.7.

### MEP Noise and Vibration Control

Recommended maximum background noise levels due to mechanical systems are as follows:

Studios/Classrooms/Labs – NC30
Auditorium – NC-25
Private Offices – NC30
Conference Rooms – NC-30
Shop – NC-35
Art Gallery – NC-35
Public Circulation Areas – NC-35

Duct design and routing, diffusers, mechanical equipment locations, etc will be reviewed as the design develops to meet these targets.

ASHRAE standard vibration isolation for all reciprocating equipment as well as transformers should be utilized.

**SUBJECT:** **GENERAL NOTES & QUALIFICATIONS**
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:**

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| | |
|---|---|
| RENOVATION, GENERAL CONSTRUCTION | $3,210,500 |
| RENOVATION, MEP | $2,230,500 |
| **TOTAL PROJECT COST** | **$5,441,000** |
| ADD ALTERNATE #1 - ELEVATED AND LOWERED LOUNGES | $ 260,900 |
| ADD ALTERNATE #2 - DYNAMIC LED'S AT NEWMAT CEILING | $ 211,600 |
| ADD ALTERNATE #3.1 - CORRIDOR AV | $ 164,100 |
| ADD ALTERNATE #3.2 - AUDITORIUM AV | $ 221,200 |
| ADD ALTERNATE #3.3 - CORRIDOR SOUND | $ 62,800 |
| ADD ALTERNATE #3.4 - INTERACTIVE DISPLAY AV | $ 192,900 |
| ADD ALTERNATE #3.5 - GALLERY AV | $ 55,400 |
| ADD ALTERNATE #3.6 - OTHER AREAS AV | $ 192,100 |
| **TOTAL PROJECT COST W/ ADD ALTERNATES** | **$ 6,802,000** |
| DEDUCT ALTERNATE #1 - RETAIN EXISTING MEZZANINE | $ 705,700 |
| DEDUCT ALTERNATE #2 - REDUCE FINISHES | $ 646,500 |
| DEDUCT ALTERNATE #3 - ROOFTOP MECH & OTHER VE ITEMS | $ 100,000 |
| **TOTAL PROJECT COST W/ DEDUCT ALTERNATES** | **$ 3,988,800** |

1. ALL PRICES ARE BASED ON OCTOBER 2015 CONSTRUCTION COSTS.

2. ESCALATION SHOULD BE CONSIDERED AT 3% PER ANNUM, ADDED TO THE ABOVE BUDGET WHEN BID DATE IS DETERMINED.

3. THE FOLLOWING ITEMS ARE NOT INCLUDED:

   a) PROFESSIONAL FEES
   b) FURNITURE, FURNISHINGS AND MOVABLE EQUIPMENT
   c) HAZARDOUS MATERIAL ABATEMENT
   d) CONSTRUCTION CONTINGENCY COSTS
   e) ABNORMAL SUBSURFACE CONDITIONS
   f) ESCALATION
   g) FIRE SPRINKLER SYSTEM

4. THIS ESTIMATE IS BASED ON THE FOLLOWING;

| DRAWING # | DATE |
|---|---|
| PRE-SCHEMATIC REPORT | 10/09/15 |
| EXISTING PROGRAM LAYOUT DRAWINGS | 10/09/15 |
| PROPOSED PROGRAM LAYOUT DRAWINGS | 09/25/15 |

**N A S C O**
**C O N S T R U C T I O N  S E R V I C E S  I N C.**

**SUBJECT:** **SUMMARY - RENOVATION, GENERAL CONSTRUCTION**
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT
**GSF:** 21,565

| ITEM | DESCRIPTION | AMOUNT | $/SF |
|---|---|---|---|
| | REMOVALS | $167,325 | $7.76 |
| | SUBSTRUCTURE | | |
| | Foundations | $71,900 | $3.33 |
| | Slabs on Grade | $6,000 | $0.28 |
| | SHELL | | |
| | Superstructure | $257,810 | $11.96 |
| | Exterior Closure | $20,100 | $0.93 |
| | INTERIORS | | |
| | Interior Construction | $869,994 | $40.34 |
| | Stairs | $20,000 | $0.93 |
| | Interior Finishes | $754,775 | $35.00 |
| | Specialties | $41,691 | $1.93 |
| | SERVICES | | |
| | Conveying Systems | $90,000 | $4.17 |
| | EQUIPMENT AND FURNISHINGS | | |
| | Equipment | $15,000 | $0.70 |
| | Furnishings | $75,478 | $3.50 |
| | SUBTOTAL | $2,390,073 | $110.83 |
| | GENERAL CONDITIONS - 8.0% | $191,227 | $8.87 |
| | SUBTOTAL | $2,581,300 | $119.70 |
| | FEE - 5.0% | $129,100 | $5.99 |
| | SUBTOTAL | $2,710,400 | $125.69 |
| | DESIGN CONTINGENCY - 15.0% | $406,600 | $18.85 |
| | SUBTOTAL | $3,117,000 | $144.54 |
| | BONDS & INSURANCE - 3.0% | $93,500 | $4.34 |
| | TOTAL COST | **$3,210,500** | $148.88 |

**N A S C O**
**C O N S T R U C T I O N  S E R V I C E S  I N C.**

**SUBJECT:** RENOVATION, GENERAL CONSTRUCTION
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **REMOVALS** | | | | | |
| | a. Remove Interior Finishes & Partitions | 21,565 | SF | 3.00 | 64,695 | |
| | b. Remove HVAC | 21,565 | SF | 1.00 | 21,565 | |
| | c. Remove Electrical | 21,565 | SF | 1.00 | 21,565 | |
| | d. Misc. Removals as required for Structural Work | 1,100 | SF | 5.00 | 5,500 | |
| | e. Remove SOG For New Columns | 12 | LOC | 750.00 | 9,000 | |
| | f. Remove Mezzanine Stairs | 3 | FLTS | 2,500.00 | 7,500 | |
| | g. Temporary Shoring - Allow | 1 | LS | 35,000.00 | 35,000 | |
| | h. Demo Roof Opening For New elevator Shaft | 1 | LOC | 2,500.00 | 2,500 | |
| | | | | | | 167,325 |
| | **SUBSTRUCTURE** | | | | | |
| | Foundations | | | | | |
| | Foundation earthwork - Elevator Pit | 1 | EA | 3,500.00 | 3,500 | |
| | Foundation structural concrete - Elevator Pit | 1 | EA | 10,000.00 | 10,000 | |
| | Foundation earthwork - Support Columns | 12 | EA | 750.00 | 9,000 | |
| | Foundation structural concrete - Support Columns | 12 | EA | 1,200.00 | 14,400 | |
| | Undedpinning - Allow | 1 | LS | 35,000.00 | 35,000 | |
| | | | | | | 71,900 |
| | Slabs on Grade | | | | | |
| | Restore SOG @ New Footings | 12 | LOC | 500.00 | 6,000 | |
| | | | | | | 6,000 |
| | **SHELL** | | | | | |
| | Superstructure | | | | | |
| | Floor construction: | | | | | |
| | Structural steel, allow 10 lbs/sf | 23,400 | LBS | 7.50 | 175,500 | |
| | Metal floor deck, 3" | 2,290 | SF | 4.00 | 9,160 | |
| | 3" NW concrete (on metal deck) | 2,290 | SF | 10.00 | 22,900 | |
| | Reinforce Existing Beams - Allow | 5 | EA | 10,000.00 | 50,000 | |
| | New Roof Deck @ Elevator Shaft | 50 | SF | 5.00 | 250 | |
| | | | | | | 257,810 |
| | Exterior Closure | | | | | |
| | Elevator Shaft Walls - Assume Lt. Ga Stud, Densglass, Insulation & EIFS | 260 | SF | 60.00 | 15,600 | |
| | Roofing @ Elevator Bulkhead | 50 | SF | 30.00 | 1,500 | |
| | Repair & Flash Roofing @ New Bulkhead | 60 | SF | 50.00 | 3,000 | |
| | | | | | | 20,100 |

**SUBJECT:** RENOVATION, GENERAL CONSTRUCTION
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **INTERIORS** | | | | | |
| | Interior Construction | | | | | |
| | Interior partitions | 21,565 | SF | 20.00 | 431,300 | |
| | Full Height Glazed Walls @ Mezzanine | 2,000 | SF | 125.00 | 250,000 | |
| | Interior doors | 21,565 | SF | 5.00 | 107,825 | |
| | Fireproofing | 21,565 | SF | 2.00 | 43,130 | |
| | Caulking & Selants | 21,565 | SF | 0.25 | 5,391 | |
| | Firestopping | 21,565 | SF | 1.00 | 21,565 | |
| | Rough Blocking | 21,565 | SF | 0.50 | 10,783 | |
| | | | | | | 869,994 |
| | Stairs | | | | | |
| | Metal pan stairs, landings & railings | 2 | FLTS | 10,000.00 | 20,000 | |
| | | | | | | 20,000 |
| | Interior Finishes | | | | | |
| | Interior finishes, including flooring, ceilings, tiling, painting, etc. | 21,565 | SF | 35.00 | 754,775 | |
| | | | | | | 754,775 |
| | Specialties | | | | | |
| | Toilet Accesories | | | | | |
| | Gang Bathrooms | 2 | EA | 5,000.00 | 10,000 | |
| | Housekeeping | 1 | LS | 1,500.00 | 1,500 | |
| | Signage | 21,565 | SF | 0.25 | 5,391 | |
| | Fire Protection specialites | 21,565 | SF | 0.15 | 3,235 | |
| | Misc. Specialties | 21,565 | SF | 1.00 | 21,565 | |
| | | | | | | 41,691 |
| | **SERVICES** | | | | | |
| | Conveying Systems | | | | | |
| | 2 stop Freight elevator | 1 | EA | 90,000.00 | 90,000 | |
| | | | | | | 90,000 |
| | **EQUIPMENT AND FURNISHINGS** | | | | | |
| | Equipment | | | | | |
| | Auditorium Seating - Allow | 50 | EA | 300.00 | 15,000 | |
| | | | | | | 15,000 |
| | Furnishings | | | | | |
| | Fixed furnishings/casework | 21,565 | SF | 3.50 | 75,478 | |
| | | | | | | 75,478 |

**N A S C O**
**C O N S T R U C T I O N  S E R V I C E S  I N C.**

**SUBJECT:** RENOVATION, GENERAL CONSTRUCTION
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **ADD ALTERNATE #1** | | | | | |
| | New ramp and stairs at lower and raised lounge areas at north end of commons: | | | | | |
| | a. Remove SOG @ ADA Ramps & Stairs | 1,200 | SF | 10.00 | 12,000 | |
| | b. Temporary Shoring - Allow | 1 | LS | 15,000.00 | 15,000 | |
| | c. Foundation earthwork - ADA Ramps | 1,200 | SF | 20.00 | 24,000 | |
| | d. Foundation structural concrete - ADA Ramps | 1,200 | SF | 50.00 | 60,000 | |
| | e. Underpinning - Allow | 1 | LS | 15,000.00 | 15,000 | |
| | f. ADA Ramp Slabs & Landings & Stairs on Styrofoam Fill | 1,200 | SF | 50.00 | 60,000 | |
| | g. Ramp Railings | 110 | LF | 75.00 | 8,250 | |
| | SUBTOTAL | | | | | $194,250 |
| | GENERAL CONDITIONS - 8.0% | | | | | $15,550 |
| | SUBTOTAL | | | | | $209,800 |
| | FEE - 5.0% | | | | | $10,500 |
| | SUBTOTAL | | | | | $220,300 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $33,000 |
| | SUBTOTAL | | | | | $253,300 |
| | BONDS & INSURANCE - 3.0% | | | | | $7,600 |
| | TOTAL COST | | | | | **$260,900** |

**SUBJECT:** RENOVATION, GENERAL CONSTRUCTION
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **DEDUCT ALTERNATE #1** | | | | | |
| | Retain existing mezzanine structure and layout | | | | | |
| | a. Misc. removals as required for Structural Work | 1,100 | SF | 5.00 | 5,500 | |
| | b. Remove SOG for New Columns | 12 | LOC | 750.00 | 9,000 | |
| | c. Remove Mezzanine Stairs | 3 | FLTS | 2,500.00 | 7,500 | |
| | d. Temporary Shoring - Allow | 1 | LS | 35,000.00 | 35,000 | |
| | e. Demo Roof Opening For New Elevator Shaft | 1 | LOC | 2,500.00 | 2,500 | |
| | f. Foundation Earthwork - Elevator Pit | 1 | EA | 3,500.00 | 3,500 | |
| | g. Foundation Structural Concrete - Elevator Pit | 1 | EA | 10,000.00 | 10,000 | |
| | h. Foundation Earthwork - Support Columns | 12 | EA | 750.00 | 9,000 | |
| | i. Foundation Structural Concrete - Support Columns | 12 | EA | 1,200.00 | 14,400 | |
| | j. Underpinning - Allow | 1 | LS | 35,000.00 | 35,000 | |
| | k. Restore SOG @ New Footings | 12 | LOC | 500.00 | 6,000 | |
| | l. Floor construction: | | | | | |
| | Structural Steel, allow 10 lbs/sf | 23,400 | LBS | 7.50 | 175,500 | |
| | Metal floor deck, 3" | 2,290 | SF | 4.00 | 9,160 | |
| | 3" NW concrete (on metal deck) | 2,290 | SF | 10.00 | 22,900 | |
| | Reinforce Existing Beams - Allow | 5 | EA | 10,000.00 | 50,000 | |
| | New Roof Deck @ Elevator Shaft | 50 | SF | 5.00 | 250 | |
| | m. Exterior Closure | | | | | |
| | Elevator Shaft Walls - Assume Lt. Ga Stud, Densglass, Insulation & EIFS | 260 | SF | 60.00 | 15,600 | |
| | Roofing @ Elevator Bulkhead | 50 | SF | 30.00 | 1,500 | |
| | Repair & Flash Roofing @ New Bulkhead | 60 | SF | 50.00 | 3,000 | |
| | n. Metal pan stairs, landings & railings | 2 | FLTS | 10,000.00 | 20,000 | |
| | o. 2 stop Freight elevator | 1 | EA | 90,000.00 | 90,000 | |
| | SUBTOTAL | | | | | $525,310 |
| | GENERAL CONDITIONS - 8.0% | | | | | $41,990 |
| | SUBTOTAL | | | | | $567,300 |
| | FEE - 5.0% | | | | | $28,400 |
| | SUBTOTAL | | | | | $595,700 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $89,400 |
| | SUBTOTAL | | | | | $685,100 |
| | BONDS & INSURANCE - 3.0% | | | | | $20,600 |
| | TOTAL COST | | | | | **$705,700** |
| | **DEDUCT ALTERNATE #2** | | | | | |
| | Target reduction in finishes: | | | | | |
| | Framed Glazing (instead of Frameless) | | | | | |
| | Less Glazing | | | | | |
| | Newmat Ceiling throughout Commons Only | | | | | |
| | a. Interior finishes, including flooring, ceilings, tiling, painting, etc. | 21,565 | SF | 20.00 | 431,300 | |
| | b. Full Height Glazed Walls @ Mezzanine | 2,000 | SF | 25.00 | 50,000 | |
| | SUBTOTAL | | | | | $481,300 |
| | GENERAL CONDITIONS - 8.0% | | | | | $38,500 |
| | SUBTOTAL | | | | | $519,800 |
| | FEE - 5.0% | | | | | $26,000 |
| | SUBTOTAL | | | | | $545,800 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $81,900 |
| | SUBTOTAL | | | | | $627,700 |
| | BONDS & INSURANCE - 3.0% | | | | | $18,800 |
| | TOTAL COST | | | | | **$646,500** |

**N A S C O**
**C O N S T R U C T I O N  S E R V I C E S  I N C.**

**SUBJECT:** **SUMMARY - RENOVATION, GENERAL CONSTRUCTION**
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT
**GSF:** 21,565

| ITEM | DESCRIPTION | AMOUNT | $/SF |
|---|---|---|---|
| | Fire Protection | | |
| | Plumbing | $215,650 | $10.00 |
| | Mechanical | $754,775 | $35.00 |
| | Electrical | $646,950 | $30.00 |
| | Communication/Security | $43,130 | $2.00 |
| | SUBTOTAL | $1,660,505 | $77.00 |
| | GENERAL CONDITIONS - 8.0% | $132,795 | $6.16 |
| | SUBTOTAL | $1,793,300 | $83.16 |
| | FEE - 5.0% | $89,700 | $4.16 |
| | SUBTOTAL | $1,883,000 | $87.32 |
| | DESIGN CONTINGENCY - 15.0% | $282,500 | $13.10 |
| | SUBTOTAL | $2,165,500 | $100.42 |
| | BONDS & INSURANCE - 3.0% | $65,000 | $3.01 |
| | TOTAL COST | **$2,230,500** | $103.43 |

**SUBJECT:** RENOVATION, MEP
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **Fire Protection** | | | | | |
| | Fire protection system, complete | 21,565 | SF | N/A | | |
| | **Plumbing** | | | | | |
| | Plumbing system, complete | 21,565 | SF | 10.00 | 215,650 | 215,650 |
| | **Mechanical** | | | | | |
| | Mechanical system, complete | 21,565 | SF | 35.00 | 754,775 | 754,775 |
| | **Electrical** | | | | | |
| | Electrical system, complete | 21,565 | SF | 30.00 | 646,950 | 646,950 |
| | **Communication/Security** | | | | | |
| | Communication/security systems, complete | 21,565 | SF | 2.00 | 43,130 | 43,130 |

**SUBJECT:** RENOVATION, MEP
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **ADD ALTERNATE #2** | | | | | |
| | Dynamic White LED's behind Newmat Ceiling Panels (Lighting Upgrade from Static White LED) | 3,150 | SF | 50.00 | 157,500 | |
| | SUBTOTAL | | | | | $157,500 |
| | GENERAL CONDITIONS - 8.0% | | | | | $12,600 |
| | SUBTOTAL | | | | | $170,100 |
| | FEE - 5.0% | | | | | $8,500 |
| | SUBTOTAL | | | | | $178,600 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $26,800 |
| | SUBTOTAL | | | | | $205,400 |
| | BONDS & INSURANCE - 3.0% | | | | | $6,200 |
| | TOTAL COST | | | | | **$211,600** |
| | **DEDUCT ALTERNATE #3** | | | | | |
| | Mechanical System, Complete<br>Rooftop Mechanical Units & Other Value Engineering Items (To Be Determined) | 21,565 | SF | 3.45 | 74,399 | |
| | SUBTOTAL | | | | | $74,399 |
| | GENERAL CONDITIONS - 8.0% | | | | | $6,001 |
| | SUBTOTAL | | | | | $80,400 |
| | FEE - 5.0% | | | | | $4,000 |
| | SUBTOTAL | | | | | $84,400 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $12,700 |
| | SUBTOTAL | | | | | $97,100 |
| | BONDS & INSURANCE - 3.0% | | | | | $2,900 |
| | TOTAL COST | | | | | **$100,000** |

**N A S C O**
**C O N S T R U C T I O N  S E R V I C E S  I N C.**

**SUBJECT:** AUDIO VISUAL - ALTERNATES
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **ADD ALTERNATE #3.1** | | | | | |
| | Common Corridors | 1 | LS | 122,160.00 | 122,160 | |
| | SUBTOTAL | | | | | $122,160 |
| | GENERAL CONDITIONS - 8.0% | | | | | $9,740 |
| | SUBTOTAL | | | | | $131,900 |
| | FEE - 5.0% | | | | | $6,600 |
| | SUBTOTAL | | | | | $138,500 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $20,800 |
| | SUBTOTAL | | | | | $159,300 |
| | BONDS & INSURANCE - 3.0% | | | | | $4,800 |
| | TOTAL COST | | | | | **$164,100** |
| | **ADD ALTERNATE #3.2** | | | | | |
| | Auditorium | 1 | LS | 164,760.00 | 164,760 | |
| | SUBTOTAL | | | | | $164,760 |
| | GENERAL CONDITIONS - 8.0% | | | | | $13,140 |
| | SUBTOTAL | | | | | $177,900 |
| | FEE - 5.0% | | | | | $8,900 |
| | SUBTOTAL | | | | | $186,800 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $28,000 |
| | SUBTOTAL | | | | | $214,800 |
| | BONDS & INSURANCE - 3.0% | | | | | $6,400 |
| | TOTAL COST | | | | | **$221,200** |
| | **ADD ALTERNATE #3.3** | | | | | |
| | Corridor Sound | 1 | LS | 46,800.00 | 46,800 | |
| | SUBTOTAL | | | | | $46,800 |
| | GENERAL CONDITIONS - 8.0% | | | | | $3,700 |
| | SUBTOTAL | | | | | $50,500 |
| | FEE - 5.0% | | | | | $2,500 |
| | SUBTOTAL | | | | | $53,000 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $8,000 |
| | SUBTOTAL | | | | | $61,000 |
| | BONDS & INSURANCE - 3.0% | | | | | $1,800 |
| | TOTAL COST | | | | | **$62,800** |

**N A S C O**
**C O N S T R U C T I O N  S E R V I C E S  I N C.**

**SUBJECT:** AUDIO VISUAL - ALTERNATES
**PROJECT:** SUNY F WING RENOVATION
**LOCATION:** SUNY COLLEGE AT OLD WESTBURY
**TYPE EST.:** CONCEPTUAL ESTIMATE
**CLIENT:** WESTLAKE REED LESKOSKY

**EST. NO:** 5-0264
**EST. BY:** FL
**CHKD. BY:** EH
**DATE:** 10/09/15
**REV. DATE:** MT

| ITEM | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT | TOTAL |
|---|---|---|---|---|---|---|
| | **ADD ALTERNATE #3.4** | | | | | |
| | Interactive Displays | 1 | LS | 143,640.00 | 143,640 | |
| | SUBTOTAL | | | | | $143,640 |
| | GENERAL CONDITIONS - 8.0% | | | | | $11,460 |
| | SUBTOTAL | | | | | $155,100 |
| | FEE - 5.0% | | | | | $7,800 |
| | SUBTOTAL | | | | | $162,900 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $24,400 |
| | SUBTOTAL | | | | | $187,300 |
| | BONDS & INSURANCE - 3.0% | | | | | $5,600 |
| | TOTAL COST | | | | | **$192,900** |
| | **ADD ALTERNATE #3.5** | | | | | |
| | Gallery | 1 | LS | 41,280.00 | 41,280 | |
| | SUBTOTAL | | | | | $41,280 |
| | GENERAL CONDITIONS - 8.0% | | | | | $3,320 |
| | SUBTOTAL | | | | | $44,600 |
| | FEE - 5.0% | | | | | $2,200 |
| | SUBTOTAL | | | | | $46,800 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $7,000 |
| | SUBTOTAL | | | | | $53,800 |
| | BONDS & INSURANCE - 3.0% | | | | | $1,600 |
| | TOTAL COST | | | | | **$55,400** |
| | **ADD ALTERNATE #3.6** | | | | | |
| | Other Areas | 1 | LS | 143,040.00 | 143,040 | |
| | SUBTOTAL | | | | | $143,040 |
| | GENERAL CONDITIONS - 8.0% | | | | | $11,460 |
| | SUBTOTAL | | | | | $154,500 |
| | FEE - 5.0% | | | | | $7,700 |
| | SUBTOTAL | | | | | $162,200 |
| | DESIGN CONTINGENCY - 15.0% | | | | | $24,300 |
| | SUBTOTAL | | | | | $186,500 |
| | BONDS & INSURANCE - 3.0% | | | | | $5,600 |
| | TOTAL COST | | | | | **$192,100** |

Westlake
Reed
Leskosky

# SUNY - OLD WESTBURY

INTERIOR RENDERING - ALL WARM WHITE LIGHTING

10/09/2015

Westlake
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Leskosky

# SUNY - OLD WESTBURY

INTERIOR RENDERING - ALL COOL WHITE LIGHTING

10/09/2015

Westlake
Reed
Leskosky

# SUNY - OLD WESTBURY

INTERIOR RENDERING - WARM WHITE AT THE SKYLIGHTS WITH WHITE ELSEWHERE

10/09/2015

Westlake
Reed
Leskosky

# SUNY - OLD WESTBURY

INTERIOR RENDERING - COOL WHITE AT THE SKYLIGHTS WITH WHITE ELSEWHERE

10/09/2015