

Predesign Report

## NORTHROP PRIMARY SCHOOL BUILDING

Center for Deaf and Hard-of-Hearing Youth and Washington School for the Deaf

State Project No. 2022-746

OFM Project No.

September 15, 2022



architects

o 360 943 6774 f 360 352 7005  
www.msgsarch.com

510 capitol way south  
olympia, washington 98501



# Center for Deaf and Hard of Hearing Youth Northrop Primary School Building Renovation PREDESIGN REPORT

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# Center for Deaf and Hard of Hearing Youth Northrop Primary School Building Renovation PREDESIGN REPORT

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## PREDESIGN CONTRIBUTORS

### Project Steering Committee

Shauna Bilyeu, Superintendent, *Center for Deaf and Hard of Hearing Youth Washington School for the Deaf*  
(360)418-0402  
VP (360)334-5448

Dane Bevan, Director of Maintenance & Construction, *Center for Deaf and Hard of Hearing Youth Washington School for the Deaf*

### State of Washington Department of Enterprise Services

Glen Gipe, Project Manager, *Engineering & Architectural Services*  
glen.gipe@des.wa.gov  
360-701-7429

### Primary Consultant Contact

Bill Sloane, AIA Principal, Project Architect, MSGS Architects  
bills@msgsarch.com  
360-943-6774 ext-108

### Project Design Team

ARCHITECT | MSGS ARCHITECTS  
Bill Sloane, AIA Principal, Project Architect  
Gene LaVaque, AIA  
Kathy Leonard, CSI | CDT

COST ESTIMATING | PROJECT DELIVERY ANALYSTS  
William Jones, PE

STRUCTURAL ENGINEER | PCS-STRUCTURAL  
Jeff Klein, SE

MECHANICAL ENGINEER | BCE  
Scott Zimbleman, PE

ELECTRICAL/IT ENGINEER | BCE  
Ben Hedin, PE





# Center for Deaf and Hard of Hearing Youth Northrop Primary School Building Renovation PREDESIGN REPORT

## 1.0 EXECUTIVE SUMMARY

In 2009, the Washington Center for Deaf & Hard of Hearing Youth (CDHY) was established to provide statewide leadership for the coordination and delivery of educational services to children who are deaf or hard of hearing. One of the (3) responsibilities of the CDHY is to manage and direct the activities of the Washington School for the Deaf (WSD)<sup>1</sup>. WSD is currently undergoing a major step forward in providing primary and secondary education to Washington State's deaf students. Working with the Washington State Department of Archeology and Historic Preservation (DAHP), four historic buildings on the campus, built early in the last century, have been allowed to be demolished, to provide room for a new Kindergarten through twelve-grade school building with a new gymnasium for physical education as part of the project. This project is called the Academic and Physical Education Buildings. The conditions for the approval of the demolition of the four existing buildings is that one historically significant building, at least 50 years old or older, be retained on the WSD campus, and renovated in a manner that the building can be used by WSD for at least another 50 years.

The building chosen is the Northrop Primary School Building, built in 1953 in a mid-century modern architectural style, popular with architects and the general public in this time period. The building was built to a high quality standard, using poured in place concrete bearing walls with waffle concrete slab floors and roof. The entire building is covered in a traditional standard red brick veneer, to match the now demolished red brick buildings on campus at the time the Northrop building was built.

This report provides analysis of the existing condition of the Northrop Primary Building and includes budgeting costs for renovating the 24,000 SF building to meet current environmental, energy, accessibility and structural requirements that will allow the building to provide functional educational and administrative space for the next fifty years. Part of the building will also house a museum of history that will display many of the objects and tools used during the more than 120 year history of the Washington School for the Deaf..

**Current Deficiencies.** Critical to any classroom or office environment is good indoor air quality. Any hazardous materials within a building must be removed. Currently, the Northrop Primary School building has:

- Asbestos Floor tile
- Asbestos insulation on plumbing pipes
- Lead paint
- PCB's in the ballast of the light fixtures

The above hazardous materials must be abated, removed from the building. Encapsulating any of the above is not a long term solution. These hazardous materials must be removed physically from the building.

As important as indoor air quality, all parts of the building must be fully accessible per the standards of the Americans with Disability Act (ADA) at a minimum. A better solution would provide 'Universal Design and Accessibility', a standard that goes above and beyond the minimum requirements of the ADA.

While the building was built to a high quality standard back in 1953, the structure's ability to withstand the seismic forces created during an earthquake are inadequate. The building is long and narrow, 275' long x 56'

wide. There are plenty of strong walls to resist seismic forces in the long direction, the 275' direction, but

insufficient walls in the narrow 56' width. Additional structural braces are needed here.

Finally, this well maintained building has many mechanical & electrical infrastructure elements, including lights, heating systems, & controls that are up to seventy plus years old that need to be replaced.

**Opportunities & Goals.** The goal of this project is to renovate the existing building into a facility that enables the Washington School for the Deaf to enhance current operations such as the Child Care program, the Speech Pathologist services, Audiologist services and provide administration offices for on going operations. Flexibility needs to be built into the renovation as there will transitional services needed while the new K-12 education building is being designed and built. Some of the existing rooms in the Northrop Primary School building will need to operate as classrooms for specific periods of time. A portion of the building will become a museum of historical artifacts, used on the WSD campus over the past 100+ years. In summary, the opportunities and goals of this project are:

Northrop Primary School Building:

- To provide an accessible, high-quality educational, early intervention services, pre-school programs and administration services building for use by the Washington School for the Deaf.
- To increase capacity of primary and secondary education programs to serve more deaf students in the State of Washington.
- To provide state-of-the-art classrooms for teaching deaf students.
- To provide access to safe, outdoor, nature-based play space.
- To provide museum space to display historical artifacts from the hundred plus years that the Washington School for the Deaf has been in existence.
- To provide a sustainably built and operating LEED™ Silver certified building while striving towards a net-zero ready facility.
- To provide a 50-year facility.
- To accommodate children, students, and families with special needs.
- To build consistently with the quality standard of major construction over the past dozen years; and
- To be sensitive toward neighborhood and the community fabric adjacent to the campus.



### Alternatives considered

Washington School for the Deaf and the Predesign Team have considered three alternatives defined in 3.0 Analysis of Alternatives, and identified below:

- Alternative #1: No Action
- Alternative #2: Upgrade the building envelope and interior finishes; make the building fully accessible, upgrade the electrical lights and infrastructure. Provide a new air cooled Variable Refrigerant Flow (VRF) mechanical system, both heating and air conditioning. Reconfigure the existing rooms in the building for pre-school services, early intervention services, administration services, general education services and an historical museum.
- Alternative #3: Upgrade the building envelope and interior finishes; make the building fully accessible, upgrade the electrical lights and infrastructure. Provide a ground source open loop water cooled Variable Refrigerant Flow (VRF) mechanical system, both heating and air conditioning. Reconfigure the existing rooms in the building for pre-school services, early intervention services, administration services, general education services and an historical museum.

### Preferred Alternative and Why

After considering the above three alternatives, it was determined that the preferred alternate is Alternative #3. To support this decision, the following key points are summarized as:

- Alternative #1 – no action – will increase operation and maintenance costs over the next 50 years as the building slowly falls apart.
- Alternative #2 – renovating / reconfiguring the building and making the building fully accessible is a value added solution. An air cooled Variable Refrigerant Flow mechanical system is an excellent system.
- Alternative #3 – renovating / reconfiguring the building and making the building fully accessible is identical to Alternative #2. It differs in that the Variable Refrigerant Flow (VRF) mechanical systems uses

an existing aquifer below the WSD campus that provides 300 gallons per minute of water as a source for both heating and cooling the building. Operating this type of VRF system is going to have very low annual costs because the source of energy to heat and cool the building comes from the naturally available below ground aquifer.

**Project Schedule Summary**

The project schedule based on the 2023-25 Biennium. Detailed Project Schedule is found in Section 4.0

<u>Phase</u>	<u>Start</u>	<u>Complete</u>
Consultant Selection	April, 2023	April, 2023
Design	April, 2023	January, 2024
Bidding	February, 2024	March, 2024
Construction	May, 2024	May, 2025
Occupancy	July, 2025	

**Basic Project Cost Summary**

The costs below are based on construction as scheduled above for this 24,928 gross square foot (GSF) building. Detailed budget costs are addressed in 5.0 Budget Analysis and Appendix C4 – C100.

<u>Cost Summary:</u>	<u>Category</u>	<u>Budget</u>
	Acquisition	\$ 0
	Consultant Services	\$ 1,912,371
	Construction Contracts (MACC)	\$ 7,880,783
	Construction Contingency	\$ 788,078
	WA State Sales Tax	\$ 736,853
	<u>FF&amp;E, Art Work, Proj. Mgmt</u>	<u>\$ 356,307</u>
	Total (rounded)	\$ 12,886,000

1. CDHY’s (2) other responsibilities are: 1) **Outreach services:** To provide statewide leadership and support of the coordination of regionally delivered educational services in the full range of communication modalities for children who are deaf and hard of hearing, and: 2) **Professional Development:** To expand system capacity at the local and statewide level by collaborating with appropriate public and private partners for the training and professional development of educators serving children who are deaf and hard of hearing.









# Center for Deaf and Hard of Hearing Youth Northrop Primary School Building Renovation PREDESIGN REPORT

## 2.0 PROBLEM STATEMENT

The Washington School for the Deaf (WSD) has provided educational and residential services to students with deafness and hearing loss since 1886. In 2009, the Washington Center for Deaf & Hard of Hearing Youth (CDHY) was established to provide statewide leadership for these students. To this end, a new Academic and Physical Education Building is being designed and built on WSD's campus. This required the demolition of (4) historic brick masonry building. As these building were more than 50 years, and therefore historically significant, Washington State's Department of Archeology & Historic Preservation agreed to allow for the demolition of the (4) existing historic building if at least one other historical building on campus is saved and renovated / refurbished to meet administrative and academic needs of WSD for the next 50 years. The building chosen is the Northrop Primary School building, designed in 1952 and built in 1953 in a Mid-Century Modern architectural style. This building will need to be renovated to meet the environmental, accessibility, energy and societal requirements of the early 21<sup>st</sup> century. As the state emerges from pandemic status, with the building of the new Academic and Physical Education Building and the renovation of the Northrop Primary School Building, WSD is poised to provide quality education for Washington State's deaf and hard of hearing youth for many years into the future. Having these two new and renovated facilities on line to meet both current and projected demand is critical to maintaining a vibrant and robust pre-K through 12<sup>th</sup> grade education system.

Since the soon to be realized new Academic and Physical Education Building is designed to provide educational facilities for students from kindergarten to 12<sup>th</sup> Grade, the function of the Northrop Primary School building must change. Childcare and Pre-School classrooms are needed at WSD that the Northrop Building can accommodate. Licensed Speech Pathologists (LSP's) and Audiologists need facilities to test existing and new students. Administration offices are needed for the WSD campus. A high degree of flexibility should be designed into the renovated building as classrooms will be needed while proposed and new construction projects expand the capacity of WSD to deliver high quality services to their students. Instruction, assistive technology, and accommodations need to be individually designed and available in all learning environments to help deaf and hard of hearing students use their strengths to become confident, independent and full participants in their educational experiences.

Finally, as the Washington School for the Deaf has been providing educational services to deaf and hard of hearing Washington students since 1886, almost 140 years of history, the creation of an Historical Museum within the Northrop Primary School building will provide a showcase of artifacts and historical records of WSD long and successful history to their students across multiple generations.

**Current Facilities and Deficiencies.** Critical to any classroom or office environment is good indoor air quality. Any hazardous materials within a building must be removed. Currently, the Northrop Primary School building has:

- Asbestos Floor tile
- Asbestos insulation on plumbing pipes
- Lead paint
- PCB's in the ballast of the light fixtures

The above hazardous materials must be abated, removed from the building. Encapsulating any of the above is not a long term solution. These hazardous materials must be removed physically from the building. As important as indoor air quality, all parts of the building must be fully accessible per the standards of the Americans with Disability Act (ADA) at a minimum. A better solution would provide 'Universal Design and Accessibility', a standard that goes above and beyond the minimum requirements of the ADA.

While the building was built to a high-quality standard back in 1953, the structure's ability to withstand the seismic forces created during an earthquake are inadequate. The building is long and narrow, 275' long x 56' wide. There are plenty of strong walls to resist seismic forces in the long direction, the 275' direction, but insufficient walls in the narrow 56' width. Additional structural braces are needed here. Finally, this well-maintained building has mechanical and electrical infrastructure, lights, air handling systems, controls and fire alarm systems that are seventy plus years old and need to be replaced with new more energy efficient systems.

**Mechanical Systems.** The heating system for the building is a gas-fired boiler that feeds hot water into radiators/convectors throughout the building. The system is original, although the boiler has been replaced within the last five years. The very large original boiler still remains in the lower-level mechanical room, disconnect from the hydronic heating system. The radiators/convectors are original to the building, at 70 years old, well past their useful life. There is no ventilation of any kind in the building, other than opening the operable windows.

There is a central exhaust system that exhausts air from the restrooms and draws air from the classrooms into the central hallway and exhausts the air up through the roof. Individual window air conditioner units are installed in almost every room of the building, retrofitted after the building was completed. Mechanical controls are pneumatic, a very old system of control now obsolete. The controls do not control the window air conditioners that are not tied into any central control system. The lack of central control of the mechanical system and the lack of any Dedicated Outside Air System to ventilate the building with fresh outside air both violate the current requirement of the Washington State Energy Code, 2018 Edition. For a full discussion of the mechanical issues in this building, please refer to the MECHANICAL EXISTING CONDITIONS NARRATIVE in Appendix 'A'.

**Electrical Systems.** In general, the existing lighting system has been upgraded at least once since the building was built. However, the existing T8 fluorescent light tubes, compact fluorescent lamp, metal halide and high pressure sodium lamps use much more electrical energy than is currently allowed by the Washington State Energy Code. Interior lighting is all individually manually controlled, which does not allow for automatic shut down in unoccupied spaces or daylight harvesting.

Much of the electrical power system, other than the new service feeders and associated dry transformer, date back to the original 1953 construction of the building. As such, all the original electrical infrastructure is well past its expected lifespan of 30 years. The existing electrical service capacity of 440 Amps at 208 volts AC will require being upsized in order to use electricity for the new mechanical in lieu of the current fossil fuel based natural gas. For a full discussion of the electrical issues in this building, please refer to the ELECTRICAL EXISTING CONDITIONS NARRATIVE in Appendix 'A'.

**Security and Safety.** Feeling safe is fundamental for a positive school climate and learning environment. [RCW 28A.320.125\(link is external\)](#) requires all public school districts and public schools to have current school safety plans and procedures in place. This law is the result of efforts over the last few years by Washington State's Office of Superintendent of Public Instruction (OSPI) whose office has worked with the State Legislator to create School Safety and Security requirement for all Kindergarten through 12<sup>th</sup> Grade schools.

Northrop Primary School Building has had security retrofits installed over the past. Access Control and Closed Circuit Television (CCTV) systems are recent additions to the building that currently function. Proximity card

readers are in place at the primary entrance points and CCTV cameras cover the exterior perimeter of the facility. Interior CCTV cameras monitor entrances and public spaces. Most of these systems are adequate and function as designed.

Many of the Access Control and CCTV conduits are surface mounted when these improvements were installed. As with most school districts, WSD relies on a close partnership with the city police department for rapid response and preventative steps. With the advancement of security cameras, and the increased need for observation, response plans with the city need to include police access to the surveillance system.

The existing Fire Alarm system is functional and can be reused.

**Energy / Economy of Environmental Systems.** Economic and environmental factors have resulted in more emphasis on energy control systems for complex facilities such as primary and secondary school campuses. The complexity of functions in the facility required different systems to achieve a LEED™ Silver certification, mandated to be achieved by state law. These systems also include lighting and access scheduling as well. The current facility was not designed to accommodate, monitor, and control the growing technical and space needs for housing and securing the expanded systems.

The renovated Northrop Primary School facility should have the proper data and video infrastructure to properly manage security, energy control systems, and overall operational requirements.



## Washington School for the Deaf Mission, Goals, Objectives

### Mission

*Washington School for the Deaf provides a comprehensive educational program that includes a commitment to promoting the acquisition, maintenance and study of American Sign Language and English for all deaf and hard of hearing children.*

### Mission Statement

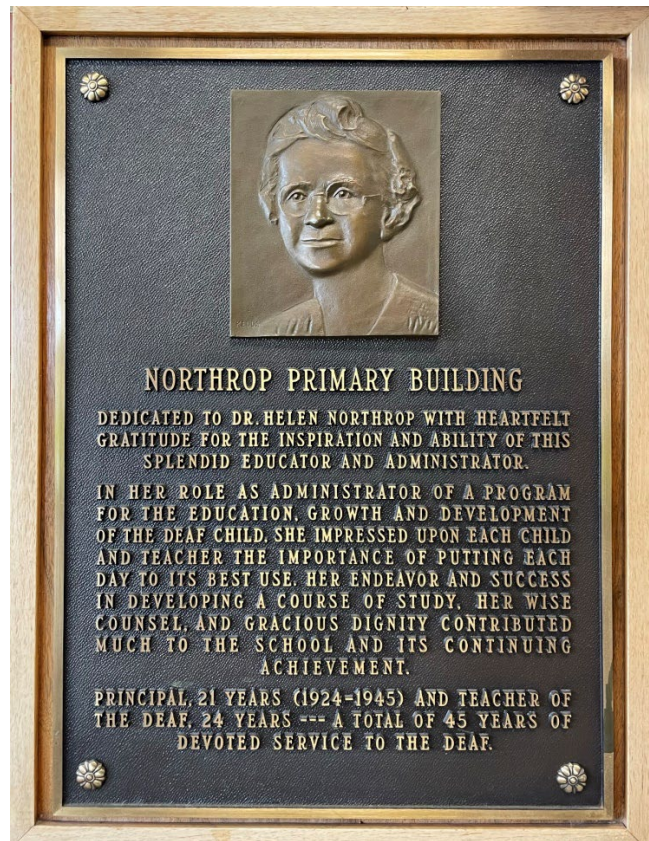
*The mission of the Washington School for the Deaf counseling program is to advocate for the healthy development of each student's interpersonal/intrapersonal, academic and career needs through the comprehensive and collaborative program so that students develop the resiliency capital to be successful bilingual Deaf adults.*

### Problem Solution

In general, renovations of the existing Northrop Primary School facility will address the following issues:

- Provide Childcare and Pre-School classrooms for deaf and hard of hearing students.
- Address identified building accessibility and life-safety concerns for students, staff and faculty by renovating and remodeling the facility to current codes.
- Meet state and regulatory requirements for energy use, ventilation, and security.
- Ensure state compliance with security and energy regulatory requirements and increase the support efficiency of facilities operations.
- Provide for flexibility in design to allow the building to be used for both classroom and administrative roles, based on WSD 's need.
- Provide an historic museum of artifacts and documents from the 140 year history of the Washington School for the Deaf.







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### 3.0 ANALYSIS OF ALTERNATIVES (including the preferred alternative)

As the Washington School for the Deaf waits for the completion of the design and construction of the new Academic and Physical Education Building, the demolition of the (4) older buildings on campus to make room for the new building has created a need for classroom space on the WSD campus. This predesign report looks at the proposed use of the Northrop Primary School building after the Academic and Physical Education building is complete and functioning. This report examines three potential alternatives of the Northrop building. An advantages/disadvantages matrix of the alternatives is provided later in this section. Because the Northrop building already exists and cannot be relocated, the alternates considered are:

- Alternative #1: No Action
- Alternative #2: Upgrade the building envelope and interior finishes. This means replacing the single glazed aluminum framed windows with dual glazed insulated units within a thermally broken aluminum window frame. The building has historic status, so the new windows must look like the existing windows. Upgrade the thermal insulation in the exterior walls to the requirements of the WSEC; make the building fully accessible, at a minimum meeting the American with Disability Act (ADA) or to the standard of Universal Design; bring the building into full compliance with the soon to be released 2021 Washington State Energy Code (WSEC), which will require upgrading the electrical lights and electrical infrastructure; full compliance with the 2021 WSEC will also require providing a new mechanical system that included a Dedicated Outdoor Air ventilation system. The mechanical system examined that complies with the 2021 WSEC is an air cooled Variable Refrigerant Flow (VRF) mechanical system, that provides both heating and air conditioning.
- Alternative #3: Upgrade the building envelope and interior finishes; make the building fully accessible, upgrade the electrical lights and infrastructure. Provide a ground source open loop water cooled Variable Refrigerant Flow (VRF) mechanical system, for both heating and air conditioning.

#### Alternative No. 1 - No Action

##### Advantages

- Initial capital cost savings to taxpayers.
- Avoids disruption to campus during construction.

##### Disadvantages

- Current classrooms have a hazardous material finish, in vinyl asbestos tile on all the floors. Hazardous materials also exist in the existing light fixtures, and in the existing insulation around plumbing and mechanical pipes.
- The current building uses far more electrical energy for lighting and the mechanical system than is allowed under the current Washington State Energy Code.
- Extensive deferred maintenance, repair, and utility costs associated with a 70 year-old building make the operating expenses of this building much more costly than a renovated building.

**Alternative No. 2 – Upgrade the building envelope and interior finishes; revise the layout of the building for new program requirements; make the building fully accessible, upgrade the electrical lights and infrastructure. Provide a new air cooled Variable Refrigerant Flow (VRF) mechanical system, both heating and air conditioning.**

#### **Advantages**

- Renovating an existing building to extend the useful life of the building captures all the original embodied energy used to build the building in the first place. This reduces current energy consumption levels.
- Making the building fully accessible per the requirements of the Americans with Disabilities Act (ADA) provides an inclusive and equitable curriculum to the entire diverse student population of WSD.
- Revising the interior layout of the building to serve new program requirements will make the building more compatible with the new Academic and Physical Education Building currently being designed and constructed on the WSD campus. An historical museum of the history of the WSD will also be created, per the Memorandum of Understanding between the Department of Enterprise Services (DES), the Center for Deaf and Hard of Hearing Youth (CDHY) and the Department of Archeology and Historic Preservation (DAHP).
- Replacing the original single glazed windows with new dual glazed insulated units within a thermally broken aluminum window frame will result in a better insulated envelope for the building. Coupled with installing new higher R-value insulation in the exterior walls, energy requirements for heating and cooling the building will decrease, resulting in lower operating costs monthly and annually.
- Replacing the older retrofitted light fixtures, primarily fluorescent T8 lamps, with new Light Emitting Diode (LED) lamped fixtures will reduce the energy consumption of the lighting significantly and will bring the energy consumed by lighting into compliance with the 2021 Washington State Energy Code (WSEC).
- Replacing the heat only boiler and radiator hydronic system with a new air cooled Variable Refrigerant Flow (VRF) mechanical system that provides both heating and cooling will reduce energy consumption by the mechanical system and bring the energy consumed by the mechanical system into compliance with the 2021 Washington State Energy Code (WSEC).
- The new mechanical system will provide Dedicated Outside Air System (DOAS) ventilation as required by the 2021 WSEC. Fresh air introduced into the building reduces the levels of CO<sub>2</sub> in the building and keeps students, teachers and staff more alert because of the reduced CO<sub>2</sub> levels.
- The new mechanical system will use electricity as its energy source, eliminating the burning of fossil fuel based natural gas, a contributor to green house gases.

#### **Disadvantages**

- The capital cost of construction will have to be borne by Washington State taxpayers.
- The campus will be disrupted during construction.

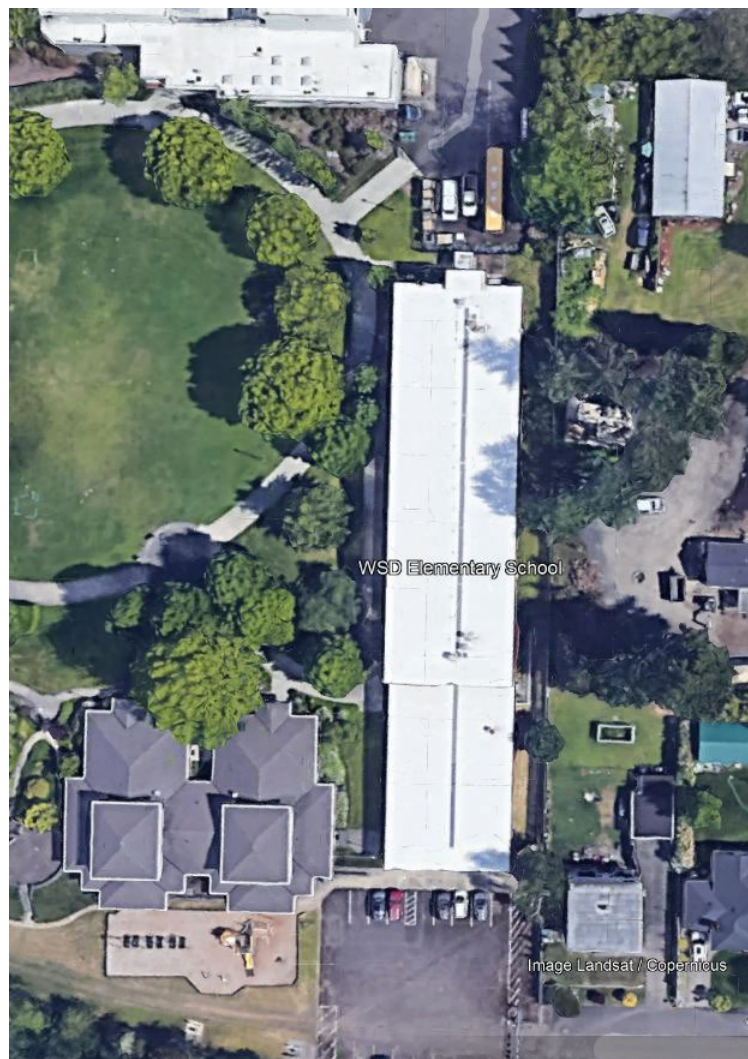
**Alternative No. 3 – Upgrade the building envelope and interior finishes; revise the layout of the building for new program requirements; make the building fully accessible, upgrade the electrical lights and infrastructure. Provide a ground source open loop water cooled Variable Refrigerant Flow (VRF) mechanical system, both heating and air conditioning.**

**Advantages**

- All advantages listed above under Alternative No. 2.
- Using the naturally occurring and available 300 gallon per minute aquifer below the Castell Building (adjacent to the Northrop building on the WSD campus) to heat and cool the Northrop Primary School building would reduce the energy consumption of the mechanical system to a very low level of electrical energy use, sufficient for some small electric pumps and electric fans to provide supply and exhaust air to the building.

**Disadvantages**

- The capital cost of construction will have to be borne by Washington State taxpayers.
- The campus will be disrupted during construction.



The Northrop Primary School Building – white roof

## Cost Estimates

The on-going challenges of the “No Action” option is continual repairs on sub-standard facilities, including costs of meeting current infrastructure required for technology, security, and life safety.

The budget required for Alternative 2 and 3 are very similar in cost, with Alternative 3 only \$121,000 more expensive than Alternative 2 on renovation/retrofit costs of \$7.7 million, or a 1.5% increase in overall renovation cost, a small increase in the total cost of the project.

## Life Cycle Cost Model

OFM’S Life Cycle Cost model tool was used to compare the life cycle cost between renovating the Northrop building to meet all accessibility, energy, technology security and life safety requirements using Alternative #2 new air cooled Variable Refrigerant Flow (VRF) mechanical system compared to the same renovations above using Alternative # 3 new ground source open loop water cooled VRF mechanical system for 50 years into the future. As stated above, the increase in construction cost for Alternative #3 over Alternative #2 in today’s dollars is \$121,000, that represent a 1.5% increase in the total renovation cost of \$7.7 million.

Looking at the ‘Financial Analysis of Options’ in the Life Cycle Cost Model (LCCM) – Appendix B-9, the total expense to renovate, maintain and operate the Northrop Primary School Building over 30

years is \$182,000 less expensive for Alternative #2 than Alternative #3. However, when looking at the 50-year horizon for renovation, maintenance and operating expenses, the time horizon required by OFM for Pre-Design studies, Alternative #3 will cost the State \$1.426 million less than Alternative #2. For this reason, this report recommends using Alternative #3 for renovating the building.

## Schedule Estimate

There is no impact difference on the schedule between alternative #2 and alternative #3.

## Conclusion

The analysis of the advantages and disadvantages, chart on next page, favors Alternative No. 3 over the other alternates. The biggest advantages is the reduced operation cost of the building over the 50 year lifespan of the building because of the use the existing 300 gallon per minute aquafer that provides both a heat and cooling source from the naturally occurring below grade aquafer.

Alternative 1

Alternative 2

Alternative 3

Renovate bldg & install an Air-Cooled VRF mech. system

Renovate bldg & install an H<sub>2</sub>O-Cooled VRF mech. sys

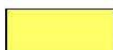
**ADVANTAGES/DISADVANTAGES**

Do Nothing

	Alternative 1	Alternative 2	Alternative 3
<b>Campus and Community Connectivity</b> Relationship to existing building entries, campus pathways, and campus communal outdoor spaces			
<b>Campus Presence</b> Strong sense of welcome through visibility to building's entrypoints			
<b>Master Plan Compatibility</b> Scale and use aligned with master plan intentions			
<b>Program Relationships</b> Classroom Space Requirements Historical Museum Exhibition space WSD Support staff accommodation WSD Admin. Staff accommodation			
<b>Constructibility, Maintenance &amp; Operation</b> Total Construction costs, maintenance costs and operating cost over 50 years			
<b>Utility Extension/Availability</b> Costs and resources to bring in or extend utilities and infrastructure			
<b>Code &amp; Jurisdictional Implications</b> Energy Code & ADA Code compliance			
<b>User Accessibility</b> Travel from parking and other buildings on campus			
<b>Sustainability Opportunities</b> Natural daylighting strategies, photovoltaic panel implementation, energy use			
<b>COST</b>	\$0.00	\$7,760,000	\$7,881,000



Most Advantageous



Not a Differating Factor



Disadvantages to the Project

## Cultural and Historical Assessments

**Historical Significance.** In May, 2021, as part of a Memorandum of Understanding (MOU) between the Washington State Department of Archeology and Historic Preservation (DAHP), State of Washington Department of Enterprise Services (DES) and the Center for Deaf and Hard of Hearing Youth (CDHY), the governing agency of the Washington School for the Deaf, a MOU was signed by all three agencies that stipulates that in exchange for the demolition of four historically significant buildings on the WSD campus, the Northrop Primary School building will be renovated and creatively reused for WSD needs, including the display of historic objects from the more than 110 year history of the Washington School for the Deaf in a new “Alumni Museum”. (See Appendix XX, Memorandum of Understanding).

At the same time as the Memorandum of Understanding was signed, DAHP sent out a letter stating that the Northrop Primary School building was being nominated to the State and National Register of Historic Places.

**Archaeological Resources.** The Code of Federal Regulation, 36 CFR 800 (as amended December 19, 2014), of the regulations that implements Section 106 of the National Historic Preservation Act of 1966, and Title 27 Revised Code of Washington, Chapter 27.44 Indian Graves and Records, Chapter 27.53 Archaeological Sites and Resources, and Title 68 Chapter 60.050 Protection of Historic Graves, as well as Governor’s Executive Order Number 21-02 Archaeological and Cultural Resources, as well as the Memorandum of Understanding cited above, requires that all ground disturbing activities have an ‘unanticipated discovery plan’ in place. This plan requires the monitoring of all ground disturbing activity by an archeologist if any historic or suspected historic artifacts are discovered while ground disturbing activity is taking place.

Notification to relevant Tribes of construction involving any earthwork must be made from the WSD Tribal liaison to each Tribal leader and historic preservation officer. Plans and Procedures for Unanticipated Discovery of Archaeological Resources must be put in place and potential archaeological monitoring may be required. Tribes and their contacts for the WSD are included in Appendix B-10, Tribal Contact List.







## 4.0 DETAILED ANALYSIS Preferred Alternative

### Setting a Vision

This project’s goal is envisioned as two-fold: (1) a collaborative effort between the staff of the Center for Deaf and Hard of Hearing Youth and the students of the state of Washington, young children, infants, toddlers and pre-kindergarten youth, who are deaf and hard of hearing, to create early learning opportunities for this population; and (2) to create a museum that celebrates the history of the Washington School for the Deaf, going back to the school’s beginning in the year 1886.



The proposed renovation of the Northrop Primary School building will accomplish both of the above goals while contemporaneously transforming the building into a fully accessible, energy saving, healthy indoor air quality facility, with all hazardous materials removed. The renovated building will meet or exceed current State Building codes, Washington State Energy Code and the Federal Americans with Disabilities Act (ADA)

accessibility standards. The new building will be built with a quality standard to last fifty years into the future. The building qualifies for being on the State and National Register of Historic Places. The exterior appearance of the building, a mid-century modern architectural style, needs to be maintained as a condition for being on the State and National Register.

The building is proposed to have controlled access to the early intervention wing so that there is complete security of the children in this wing of the building.

The building will dramatically improve instructional capabilities by providing more functional, flexible, up-to-date, and well-equipped classrooms and learning laboratories necessary to address current instructional methodologies and emerging technologies, meet current and increasing student enrollment, and will provide Clark County and all of Washington State with state of the art early learning programs for deaf and hard of hearing young children.

### **Alternative #3 – What does it Include?**

Alternative #3 is the preferred alternative, which will provide the following:

- Removal of all hazardous materials in the building, including vinyl asbestos tile (VAT), asbestos insulation wrap on the plumbing pipes, lead paint, PCB's in the ballast of light fixtures.
- Upgrading the exterior envelope of the building by providing new exterior windows throughout the building that have dual glazed thermally insulated glass, thermally broken window frames and low 'E' glass.
- Upgrading the exterior wall insulation with new R-21 batt insulation.
- Upgrading the roof insulation to new R-49 batt insulation.
- Seismically strengthening the building's ability to withstand lateral forces such as those generated during an earthquake. This will be accomplished by removing the brick veneer of the structural columns between windows, from the sill of each window to the head of each window, wrapping the underlying concrete column with a sheet of carbon fiber panel, and reinstalling new brick veneer at the between column locations where the masonry had been removed.
- Making all doors, restrooms, ramps, the elevator, entrances and exits to the building fully compliant with the Americans with Disabilities Act (ADA), including exterior pathways to the building.
- New interior finishes throughout the building, including new floor coverings in all rooms (not in the hallway where the existing terrazzo finish floor is in good shape), new ceiling tile, new wall paint, new window blinds.
- A new Washington State Energy Code (WSEC) compliant mechanical system that reduces energy use beyond the WSEC requirements, includes a Dedicated Outside Air System (DOAS) and uses a portion of the existing 300 gallons per minute (GPM) below ground aquifer to cool a new Variable Refrigerant Flow (VRF) mechanical heating and cooling system with open source ground water.

- New electrical lights, power and data outlets to provide energy savings and connectivity to the world wide web and all staff and students at the Washington School for the Deaf.

Alternative #3 is identical in the building improvements to Alternative #2 with the major difference being that Alternative #2 does not use open source ground water as the energy source and sink for heating and cooling the air of the building. Instead, Alternative #2 uses electricity to air cool the Variable Refrigerant Flow system, resulting in greater operating costs each year than the Alternative #3 option.

### Building Configuration

The total square footage for the building is 25,121 square feet. The projected renovation /remodel is envisioned as a three-story structure separated into four distinct functions: (1) an early intervention facility that provides early intervention services for deaf and hard of hearing infants, toddlers and pre-kindergarten children; (2) a flexible use general classrooms wing for WSD students as needs arise with the fluctuation of the student population at the Washington School for the Deaf; (3) Administration and support services offices for the Washington School for the Deaf campus, including offices for Audiology, Occupational Therapy and Physical Therapy, and (4) an historical museum highlighting the more than 130 year history of the Washington School of the Deaf. A Multi-Purpose/Physical Education room, custodial, restrooms and storage space make up the balance of the total area of the building.

#### SPACE PROGRAM - ALTERNATE #2 & 3

Northrop Primary School Building Renovation				
ALTERNATE #2 & ALTERNATE #3				
KEY	SPACE	SF	NO. EA.	TOTAL SF
<b>FRIST FLOOR</b>				
1	Early Intervention Toddler Classroom	538	2	1,076
2	Early Intervention Pre-K Classroom	538	2	1,076
3	Early Intervention Infant Classroom	538	2	1,076
4	Classroom Shared Toilet	130	3	390
5	Foyer / Lobby	831	1	831
6	Administration Offices	1,227	1	1,227
7	Office 106A & 106B	603	1	603
8	Audiology Office	787	1	787
9	Curriculum Lab	621	1	621
10	Occupational Therapist / Physical Therapist Office	608	1	608
11	Restrooms	220	1	220
12	Custodial	63	1	63
13	Mechanical Room	374	1	374
14	Storage	33	1	33
<b>Area Sub-Total</b>				<b>8,985</b>
<b>GROUND FLOOR</b>				
15	Gym / Multi- Purpose Room	2,554	1	2,554
16	Restrooms	231	1	231
17	Storage	138	1	138
18	Storage	167	1	167
<b>Area Sub-Total</b>				<b>3,090</b>
<b>SECOND FLOOR</b>				
19	Museum	2,418	1	2,418
20	General Classrooms	608	8	4,864
21	Restrooms	452	1	452
22	Custodial	134	1	134
23	Storage	134	1	134
<b>Area Sub-Total</b>				<b>8,002</b>
<b>Building Area Sub-Total</b>				<b>20,077</b>
Circulation @ 26%				5,231
<b>Building Total</b>				<b>25,308</b>

## Occupancy

The occupancy for the proposed renovation and remodel of the Northrop Primary School Building is based on the Occupancy Table 1004.5 of the 2018 International Building Code (IBC), Washington State’s Department of Early Learning has regulations on the maximum number of children in early intervention classroom multiplied by the minimum area per child that supersede the 2018 IBC. Washington State law has regulations on maximum number of students in Kindergarten through 12<sup>th</sup> grade classrooms that supersede the 2018 IBC. An occupancy count of the proposed renovated and remodeled building is as follows:

Infant Classrooms:	8 students max. x 2 classrooms:	16 children
Infant Staff:	2 staff per classroom x 2 classrooms:	4 staff
Toddler Classrooms:	14 students max. & 35 sq feet per child x 2 classrooms:	28 children
Toddler Staff:	3 staff per classroom x 2 classrooms:	6 staff
Pre-K Classrooms:	17 students max. & 35 sq feet per child x 2 classrooms:	34 children
Pre-K Staff:	3 staff per classroom x 5 classrooms:	15 staff
General Ed Classrooms:	WA State law restricts to 20 students x 8 classrooms:	160 students
Gen. Education Staff:	2 staff per classroom x 8 classrooms:	16 staff
Curriculum Lab:	621 SF / 50 SF per occupant:	13 occupants
Museum:	2,418 SF / 30 SF per occupant:	<u>81 occupants</u>
Admin. & Spec. Offices:	3,225 SF / 150 SF per occupant:	<u>22 occupants</u>
<b>MAXIMUM TOTAL OCCUPANTS OF BUILDING:</b>		<b>395 OCCUPANTS</b>



## Nature of Space

The renovated Northrop Primary School building will be able to provide early intervention and general education programs to Washington State's deaf and hard of hearing students and community with general classrooms for student instruction, early intervention classrooms, family support offices, audiology, occupational and physical therapy specialists, storage, and support spaces such as restrooms, custodial, and mechanical/electrical/telecom. In addition, a museum will be created that showcases the 136 years of history of the Washington School for the Deaf, since the school's founding in 1886. An existing play yard south and west of the Northrop building will need to be enlarged to provide Washington State's Department of Early Learning's requirement for 60 square feet of outdoor play area per student. From the occupancy totals above, there are a potential (62) early intervention students x 60 SF per child = 3,720 SF of outdoor play yard. This play yard will be developed for daily use adjacent to the Northrop building. The reception/lobby area is imagined as a family support reception, lounge and conference area, where parents of children in the building can talk to staff about their child.

## Space Program

The Space Program for the building was developed and refined by working with Shauna Bilyeu, Superintendent of the Center for Deaf and Hard of Hearing Youth (CDHY) and the Washington School of the Deaf (WSD), Dane Bevan, Director of Maintenance and Construction at WSD, and Glen Gipe, Project Manager with Washington State's Department of Enterprise Services (DES), and project manager for WSD. MSGS Architects balanced the input from the above team with regulations from Washington State's statutes, and the requirements of the International Building Code. As mentioned above, this process used regulations from Washington State's Department of Early Learning to determine the size of early intervention rooms, maximum occupancy limits, square footages, and occupancy loads based on the 2018 IBC Building Code.

## Existing Building Analysis

The following were considered in the recommendations made in this PreDesign Report:

- Discussion with the State of Washington Department of Archaeology & Historic Preservation's (DAHP) Michael Houser, State Architectural Historian with DAHP. The Northrop Primary Building has been placed on Washington State Register of Historic Places by the Washington State Advisory Council on Historic Preservation. The building has been nominated for placement on the National Register of Historic Places and that action is pending.
- A building on the State Register of Historic Places is required to preserve original architecturally significant features and materials. For the Northrop Primary School building, the exterior appearance of the building, the mill finish aluminum window frames and clear glass windows, the standard red brick veneer cladding, all must be retained. On the interior of the building, the original hallway and bathroom terrazzo floors, the ceramic wall tile in the hallways must also be retained.
- A hazardous material survey conducted by PBS Engineering and Environmental has revealed that there is vinyl asbestos floor tile, asbestos pipe insulation, PCB in the light fixture ballasts and other hazardous materials that must be abated when the building is renovated / remodeled. See Appendix

\_\_\_\_\_.

- A survey of the existing mechanical systems in the building was made by BCE Engineers. While the existing systems are well maintained, most of the mechanical systems are 70 years old and past their useful life. The existing mechanical system does not meet the requirements of the 2018 Washington State Energy Code (WSEC), using much more energy to heat the building than the WSEC allows. There is no central air conditioning in the building. Each classroom has a package window air conditioner, very energy inefficient and difficult to control. See photo below and the mechanical narrative in Appendix \_\_\_\_\_.



Package air conditioners retrofitted into the existing windows

- A survey of the existing electrical systems, service and lighting was made by BCE Engineers. Also examined was the data and information systems in the building. While the existing systems are well maintained, most of the electrical systems are 70 years old and past their useful life. The existing lighting does not meet the requirements of the 2018 Washington State Energy Code (WSEC), using much more energy to light the building than the WSEC allows. See the electrical narrative in Appendix \_\_\_\_\_.
- Accessibility of the building on the interior and exterior of the building was made by MSGS Architects. Many of the interior doors, all of the classroom restrooms and most of the general restrooms do not meet the accessibility requirement of the Americans with Disabilities Act (ADA). See discussion above under 'Alternative # 3 – What does it include?'

## Geotechnical Assessment

As this building is already built, and no additions to the building's footprint are proposed, no geotechnical investigation was made for this report.

## Transportation Assessment

As this building already exists on the Washington School for the Deaf campus, and as the population being served by this building already exists, no transportation assessment is recommended at this time.

## Stormwater Assessment

As this building is already exists on the Washington School for the Deaf campus, and as no additions are being proposed to the building, there is no change in the impervious area of the building and no stormwater assessment is recommended at this time.

## Frontage Improvements

As this building is already exists on the Washington School for the Deaf campus, and is not close to any City of Vancouver streets or sidewalks, frontage improvement will be required for this project. The parking lot south of the building will receive a new seal coat and fresh paint for the parking stall stripes. See photo below.

## Water Service and Fire Sprinklers

A full new water service and fire sprinkler system must be installed in the building to meet current building codes. This would include a wet system for full coverage within the building and a dry system to serve and cover the attic area. The existing hose cabinets, presently non-functional, would be removed.

## Parking

No new parking will be required for this project as the size and use of the building remains the same. The existing parking lot will receive a new seal coat over the asphaltic concrete and new paint for the parking stall stripes.

## Play Yard / Landscape

Washington State Department of Early Learning requires 60 SF of outdoor play area per child in any pre-K or early intervention program. From above, there are up to (62) students x 60 SF / child = 3,720 SF of outdoor play yard required. Directly south and west of the Northrop Building is an existing play yard that is approximately 3,400 SF in size: See photo below:



This existing play yard will need a 300 SF expansion for the anticipated new programs in Northrop.

Careful selection of a variety of materials within designated play areas, such as colorful safety surfacing; different gradients of sand, gravel, rocks, and steppingstones; and plants with different textures and fragrances stimulate the senses and support learning activities for both students and children. Play equipment, spaces, components, and materials that encourage all types of play (i.e. imaginative, collaborative, fine and gross motor, etc.) meet the various developmental stages of children. Thoughtful design that considers input from the experts (teachers, students, and children), will maximize opportunities not only for children to practice physical skills like balance and movement, but will also enable students to encourage curiosity and exploration, provide quiet spaces to calm, and to teach pro-social skills like cooperation, communication & conflict resolution.

The benches and tables selected give students and staff opportunities to passively observe and assess or to actively engage children in individual, small or large groups. Storage of play materials can also be integrated as an interactive part of responsibilities and the play experience.

Recommended plantings will be similar to those prominent on campus, linking and unifying this site with the larger campus.

## **Master Plan Compliance**

The Washington School for the Deaf is in the process of developing a Master Plan for their campus. The Northrop Primary School Building, through the Memorandum of Understanding (MOU) with DES and DAHP, is an integral part of the developing Master Plan, and has been since its construction more than 70 years ago.

## **Archeological and Cultural Resources**

Cultural Resources Review (Native American Tribal Review). Before the start of any construction that involves any excavation into the native material surrounding the Northrop building, a tribal review of the proposed excavation for the building must be requested from the tribes listed in [Appendix B-10, Archaeological & Cultural Resources](#). Inadvertent Discovery of cultural artifacts must be addressed and plan and procedures in place to direct potential contractors on the project.

## **Site Plan Approval and Building Permit by the Jurisdiction Having Authority (AHJ)**

The Jurisdiction Having Authority (AHJ) for the Preferred Site is the City of Vancouver. Any proposed renovation / remodel of the building will require a building permit issued by the City of Vancouver.

## **High Performance Public Buildings / Sustainability**

In accordance with Chapter 39.35D RCW, all state-funded buildings 5,000 square feet or more must be designed, constructed and certified to the LEED™ Silver standard at a minimum. An initial pass at the LEED™ Scoresheet for the Northrop Building has been developed to identify potential points.

## **Americans with Disabilities Act**

The renovated Northrop building, site access to the building, and public transportation serving the building will be fully compliant with all requirements of the Americans with Disabilities Act (ADA). Entrances into the building, hallways within the building, and all accommodations, restroom, doors, ramps, fixtures will be fully compliant. While the ADA law establishes minimum standards for accessibility, this project will strive for Universal Design Principles, design that accommodates a wide range of



individual preferences and abilities (i.e. left- or right-handed, vision-impaired, hearing-impaired, etc.) and provides choice in methods of use. Simple and intuitive use, easy to understand regardless of the user's experience, knowledge, language skills or current concentration level. Design that eliminates unnecessary complexity.

## **Infrastructure, Technology, and Security**

Washington School for the Deaf has an Information Technology Master Plan, and the facility will be equipped according to that plan.

This building will require controlled access to the areas containing teaching laboratories for children. The play yard will be required to have fencing. Exterior doors will have controlled access.

## **Project management and delivery method alternatives**

The conventional design-bid-build project delivery method is recommended to meet this project's priorities. Understanding the number of projects being requested in the upcoming biennia, construction is not slated to begin until the 2023-2025 biennium.

There are typically three type of project delivery methods:

- The most common project delivery method is design-bid-build. It allows stakeholders to have more input during the planning, design, and construction phases and typically results in a lower cost at bid, though is dependent on market conditions.
- The design-build method may be the most schedule efficient approach, saving design and construction time. It minimizes risk for the owner with a single point of contact for the designer and contractor. When the contracting market is busy, costs of design-bid-build delivery method can be as high as design-build or GC/CM as there are fewer interested general contractors and fewer available sub-contractors.
- A general contractor/construction manager (GC/CM) method is a collaborative management and construction process between the owner, architect, and contractor. It engages with a qualifications-based selection of the contractor earlier than the design-bid-build delivery method and may allow for earlier construction. There is opportunity to identify and control risks and costs early. The architect has a direct agreement with the owner separate from that of the general contractor.

Washington School for the Deaf is in the predominantly urban City of Vancouver. For a renovation / remodel project of this size and dollar value, the greater Clark County area has a history of receiving excellent value in using the Design-Bid-Build delivery method. The proximity of Portland Oregon to the project increases the likelihood of high value to the school when local contractors successfully are selected through the Design-Bid-Build delivery method.

## **Management within Agency**

Project delivery will be managed by the Washington State Department of Enterprise Services (DES) through a professional services agreement with the architect for basic and additional services and a project management agreement with the Center for Deaf and Hard of Hearing Youth (CDHY). Once final acceptance of the construction contract is executed, the CDHY will be ultimately responsible for maintenance and upkeep of the building and grounds. Basic services may extend beyond the final acceptance for post-construction LEED services and one-year warranty enforcement.

## Schedule

Expanding on the schedules in Section 3.0 comparing the alternatives, the preferred alternate schedule considers critical processes and highlights additional milestones to reach full operation of the Northrop Building as an integral part of the CDHY / WSD campus and student life delivered by exceptional staff and quality facilities. The Estimated Project Schedule is included at the end of this Section.

## Value Engineering and Constructability Review

A value engineering analysis and constructability review has been incorporated into the project schedule as the project surpasses the \$10 million threshold as defined in RCW 28B.10.016. Value engineering occurs in late Schematic Design phase or early Design Development phase reviewed by a third-party team. The design team will participate in the presentation of the findings and recommendations, then will present the recommendations accepted and/or rejected to the College. With consensus, the design team will move forward on further design refinement.

The constructability review will be implemented during the latter part of Contract Documents phase and conducted by a third-party team to review details that affect the project delivery and project cost implications.

## Potential Delay Factors

Projects always have potential delays that arise, some anticipated, some unanticipated. An anticipated project delay is the project not being funded for construction in the 2023-2025 state biennium budget cycle, which would delay construction at least two years to the following biennium budget, starting July 1, 2025.

## Estimated Project Schedule

### PREFERRED ALTERNATIVE #3

Budget Approval	April 2023
Architect Selection	April 2023
Design	April 2023 - January 2024
Value Engineering	August, 2023
Constructability Review	November 2023
Permitting	September 2023 - January 2024
Bidding	February - March 2024
Contract Awarding	March – April 2024
Construction	April-2024 - April 2025
Commissioning/Closeout	May 2025
Occupancy	June 2025







# Center for Deaf and Hard of Hearing Youth Northrop Primary School Building Renovation

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## PREDESIGN REPORT

### 5.0 PROJECT BUDGET ANALYSIS (preferred alternative)

A detailed cost estimate was developed in order to complete the C-100 Form for the Northrop Primary School Renovation project. Some assumptions were made about the design and are described below. The cost estimate is based on Alternative #3, described above in Sections 3 and 4.

#### Major Assumptions

The estimate was performed on the existing three story, 25,121 gross-square-foot facility on the campus of the Washington School for the Deaf. The proposed preliminary renovations of the building can be found in [Appendix A, Building Plans](#).

#### Leading Environmental & Energy Design – LEED™ -Silver Certified

A 'LEED™ - Silver Certified' facility has been estimated in the overall project cost. The minimum low impact / sustainable performance requirement for the use of State of Washington publicly funded projects is a 'LEED™ – Silver-Certified' facility. The certification levels are established by the US Green Building Council (USGBC). The certification levels – Certified, Silver-Certified, Gold-Certified and Platinum-Certified, establish higher and higher levels of energy efficient design, lower and lower impact on the surrounding environment and the ability for the building to generate its own energy needed for the building to operate.

#### Clean Building Act – Substitute Senate Bill 5722

The Washington State Legislature passed Substitute Senate Bill 5722, also known as the 'Clean Building Act' on March 8, 2022. This legislation requires performance standards for existing buildings, including commercial, educational and institutional types. Buildings larger than 20,000 SF and smaller than 50,000 SF are categorized as 'Tier 2 covered buildings.' The Northrop Primary School Building, at 25,121 gross square feet, qualifies as a 'Tier 2' building. By December 1, 2023, any public funds spent on Tier 2 buildings must provide energy management planning, operations and maintenance, using benchmarking and energy use analysis. Reporting of the above is a requirement of Tier 2 building owners. The state of Washington has established an incentive payment program for Tier 2 building owners to help meet the standards the legislation requires.

While the exact energy thresholds for the Clean Building Act have yet to be established, it appears that the Clean Building Act references Washington State Clean Building Performance Standard (ASHRAE 100-2018) which calls for school buildings in Climate Zone 4C to achieve an Energy Use Intensity (EUI) of 49 KBTU/SF. The proposed Variable Refrigerant Flow (VRF) mechanical system has the potential of achieving an EUI of 23.7 KBTU/SF, well below the standard called for. The proposed mechanical system will be controlled by Direct Digital Control (DDC) software that can monitor and report on all energy use by the building, meeting the standard set forth by the Clean Building Act Legislation. Compliance with the 2021 Washington State Energy Code (WSEC) that will go into effect on July 1, 2023, will meet the standard required by the Clean Building Act.

## Project Budget

**C-100 Cost Summary.** The C-100 cost estimate uses September 2022 construction costs, escalated by 2022 cost of living increases to an estimated start of construction in July 2023. Those cost totals are displayed in the table below.

This Predesign report is requesting Capital Project Funds for construction of this project in the 2023-2025 State Biennium budget cycle. The assumed escalation of 10.7% is correct for a start of construction date of July 1, 2023. For the full C-100 form, see the Appendix C.

SUMMARY TABLE FROM THE C-100 FORM – BASE MONTH SEPTEMBER 2022 ([Appendix B-8](#))

Category	Cost
Consultant Services	\$1,912,371
Construction Contracts (MACC)	\$7,880,783
Construction Contingency	\$788,078
WA State Sales Tax	\$736,853
FF&E, Art Work, Proj. Mgmt	\$356,307
TOTAL (Rounded to \$1,000)	\$11,674,000
TOTAL Escalated (Rounded)	\$12,886,000



**CONSTRUCTION COST SUMMARY – MID POINT OF CONSTRUCTION – JANUARY 2025**

			Sub-Total
<b>SITWORK</b>			
G10	Site Preparation	none	
G20	Site Improvements	\$54,631	
G30	Site Mechanical Utilities	none	
G40	Site Electrical Utilities	none	
G60	Other Site Construction	none	
<b>SUBTOTAL</b>		\$54,631	
Escalation Factor		1.0874	\$59,406
<b>FACILITY CONSTRUCTION</b>			
A10	Foundations	\$14,097	
A20	Basement Construction	none	
B10	Superstructure	\$127,233	
B20	Exterior Closure	\$551,572	
B30	Roofing	\$6,219	
C10	Interior Construction	\$636,678	
C20	Stairs	None	
C30	Interior Finishes	\$701,238	
D10	Conveying	none	
D20	Plumbing Systems	\$349,250	
D30	HVAC Systems	\$1,891,773	
D40	Fire Protection Systems	\$436,563	
D50	Electrical Systems	\$1,304,514	
F10	Special Construction	None	
F20	Selective Demolition	\$415,601	
General Conditions (9%)		\$593,115	
Bonds & Insurance (3.5%)		\$251,415	
Contractor's Fee (6%)		446,082	
Estimating Contingency (0%)		none	
<b>SUBTOTAL</b>		\$7,880,073	
Escalation Factor		1.1137	\$8,775,392
<b>MAXIMUM ALLOWABLE CONSTRUCTION COST (MACC): ESCALATED \$'s</b>			\$8,775,392
Const Contingency (10%: Change Orders 5% & Mgmt Reserve 5%)		\$788,078	\$877,683
<b>SALES TAX (8.5%)</b>			\$820,511
<b>CONSTRUCTION CONTRACTS TOTAL – MID POINT OF CONST. DOLLARS</b>			<b>\$10,473,586</b>

## CONSTRUCTION COST ESCALATION AND MARKET CONDITIONS

The project cost escalation has been increased within the C-100 tool spread sheet to account for an inflationary period of construction costs. The C-100 shows an escalation factor from today to the midpoint of construction of 11.37 percent. This is higher than recent historical escalation and more accurately reflects current construction cost escalation.

Additionally, market conditions have the potential for a larger impact on construction costs than escalation. Contractors and subcontractors have a significant backlog. In many cases they do not have the resources to bid new work, which reduces competition. They are selective about the projects they pursue in terms of location, client, liability, and production opportunities. They are conservative in estimating and unlikely to take significant risks. The location of this project in the City of Vancouver in the middle of Clark County, may mitigate some of the escalation of construction projects due to the large pool of contractors in the greater Vancouver / Portland Oregon area.

One mechanism to mitigate this uncertainty in the market is to carry a higher construction contingency. The C-100 tool allows the construction contingency to be ten percent for renovation of existing construction. This amount of construction contingency is appropriate for this project.

Comparisons of costs of construction of similar facilities throughout Washington State shows that the cost per square foot for the Northrop Primary School project is in the middle range of construction costs per square foot for similar facilities. Mostly, this is due to the high quality of construction of the existing building.

Achieving a LEED™ Silver v4 Certification will result in at least a 3% higher cost than an equivalent LEED™ Certified building. The 2021 edition of the Washington State Energy Code (WSEC) will take effect on July 1, 2023, before this project is in plan review. Therefore the higher standards of the 2021 WSEC will require a very high level of energy efficiency in the mechanical system. A LEED™ Silver v4 Certification building must achieve a level of efficiency above this, resulting in higher initial costs. Other costs for a LEED™ Silver v4 Certification building:

1. Indoor Air Quality Assessment: Air testing is usually more expensive than a flush-out but can result in an additional point.
2. Thermal Comfort: Providing occupants with desk fans for individual control.
3. Renewable Energy: Most projects achieving Silver or higher under the newer LEED versions are able to leverage some sort of PVs (either on-site or via the campus), which have costs for acquisitions and installation.

### Proposed Funding

The majority of funds requested for the renovation of the Northrop Primary School building will be provided by the State of Washington's General Fund. State funding, if approved, will provide 100% of the project's cost.

The Center for Deaf and Hard of Hearing Youth hopes that this project can receive funding in the 2023-2025 State Biennium Budget cycle. There is adequate time between July 1, 2023 and June 30, 2025, to design, permit and renovate the building, allowing construction to be complete before the end of the biennium on June 30, 2025. Current inflationary pressures in our country in all commodities, and especially in the building



trades, makes starting construction as soon as possible translate into more value for public funds spent. The cost of construction on a square foot basis is going up each month. Building this project in the 2023/2025 biennium will cost less than any future biennium cycle.

### **Furniture, Fixtures and Equipment**

Fixed equipment and specialties as well as Furnishings and Casework are included in the Unifomat II Level 2 cost estimate total of \$197,279 in the C-100 spreadsheet under E10 – Equipment and E20 – Furnishing. This money is earmarked for fixed or permanently mounted equipment, white boards, built in counters, and window coverings. Other specialized equipment will be transferred from the current facilities or supplied by the school.





Center for Deaf and Hard of Hearing Youth  
Northrop Primary School Building Renovation  
PREDESIGN REPORT

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## APPENDIX A ROOM DATA SHEETS

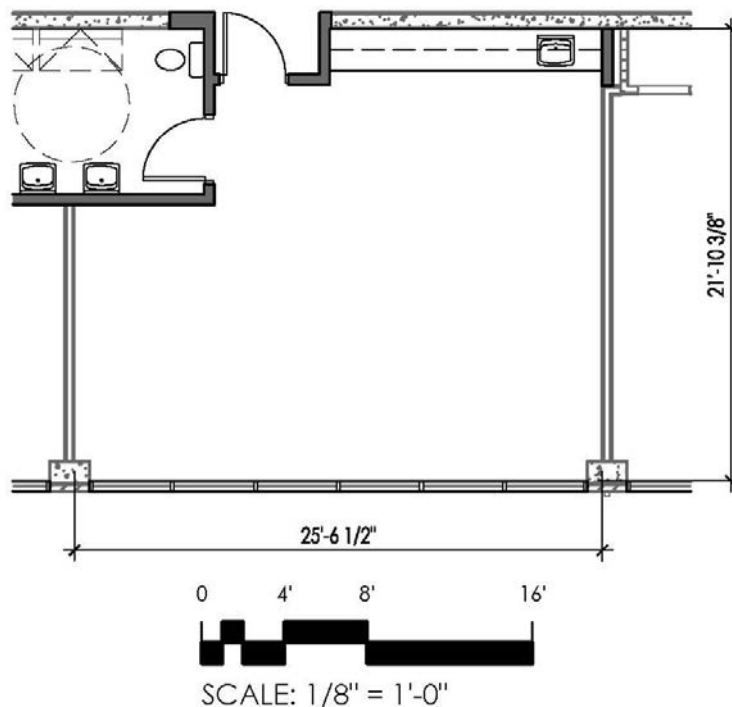
- 1 Early Intervention Classroom
- 2 Specialist Laboratory
- 3 Administration
- 4 Early Intervention Restroom
- 5 Early Intervention Restroom
- 6 Foyer / Lobby
- 7 Custodial
- 8 General Education Classroom
- 9 Museum
- 10 Storage
- 11 Public Restrooms
- 12 Mechanical/Electrical

# DETAILED SPACE REQUIREMENTS

1

CATEGORY: EARLY INTERVENTION  
SPACE NAME: INFANT, TODDLER & PRE-K CLASSROOM  
SQUARE FOOTAGE: 603  
QUANTITY: 6  
OCCUPANTS BY CODE: 14 (INFANT & TODDLER)  
20 (PRE-K)

## 1 EARLY INTERVENTION CLASSROOM



### FIXED FURNISHINGS & ACCESSORIES

- |                               |                         |
|-------------------------------|-------------------------|
| 1. Storage Cabinet w/ Cubbies | 4. Pen/Tack Boards      |
| 2. Open Shelving/Books        | 5. Window Coverings     |
| 3. Counter/sink               | 6. A/V Equipment Mounts |

### FURNISHINGS & EQUIPMENT

- |                        |                     |                      |
|------------------------|---------------------|----------------------|
| 1. Overhead Projector  | 5. Classroom Table  | 9. Office Desk/Chair |
| 2. Speaker (Ceiling)   | 6. Classroom Chairs | 10. Computer Station |
| 3. A/V Screen          | 7. Rolling Cabinet  | 11. Printer          |
| 4. Projector (Ceiling) | 8. Work Table       |                      |

# DETAILED SPACE REQUIREMENTS

1

SPACE NAME: EARLY INTERVENTION CLASSROOM  
 SQUARE FOOTAGE: 603

## Building Code Information

Net Area: <500 NSF  
 Occupant Load Factor: 35 (DAYCARE)  
 # Occupants by Code: 14 EA ROOM  
 Occupant Group: E – OCCUPANCY

Function Infant, Toddler, Pre-K Classroom

Adjacencies Other Classrooms

## Technical Requirements and Finishes

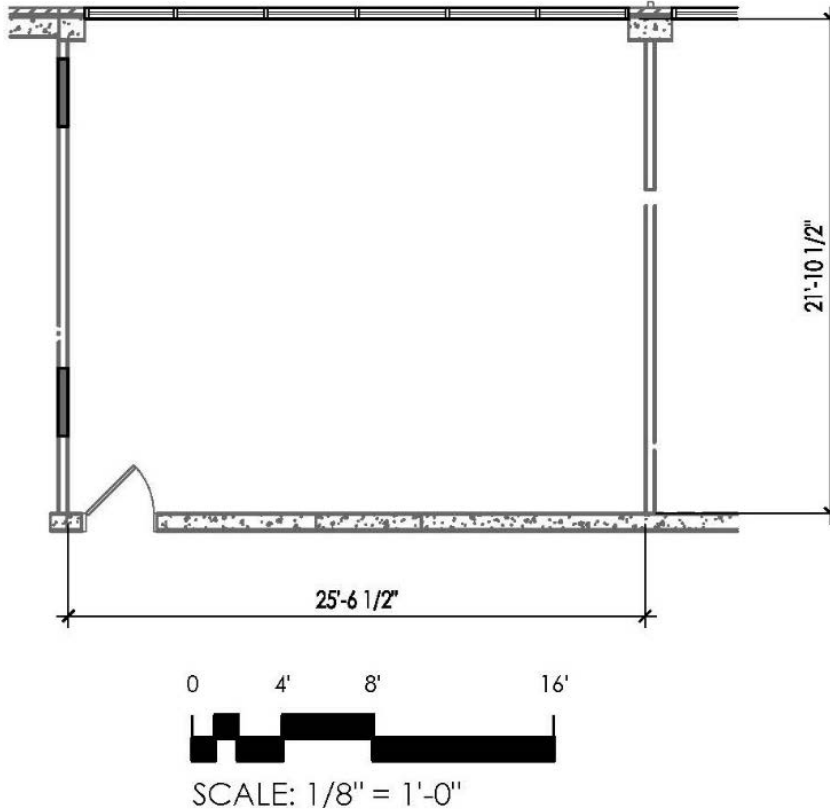
<b>Power:</b>		<b>Floor:</b>	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>  X  </u>		Sheet Vinyl/Linoleum <u>  X  </u>	
208V, 30A, 1 Phase _____		Epoxy _____	
208V, 30A, 3 Phase _____		Carpet <u>  X  </u>	
408V, 100A, 3 Phase _____		Sealed Concrete _____	
		Walk Off Mat _____	
<b>Communication:</b>		<b>Partitions:</b>	
Phone <u>  X  </u>		GWB, Epoxy Paint _____	
Data <u>  X  </u>		GWB, Paint <u>  X  </u>	
PA/Speaker System <u>  X  </u>		Other _____	
“Smart” Podium _____			
<b>Lighting:</b>		<b>Base:</b>	
Task Lighting _____		4” Rubber <u>  X  </u>	
Light Level _____		Integrated w/Floor _____	
100 fc @ bench/desk <u>  X  </u>		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		<b>Ceiling:</b>	
Special Lighting _____		Open _____	
Darkening _____		Acoustical Clg. Tile <u>  X  </u>	
Zoned Desk _____		GWB, Paint _____	
Other _____		Height Required <u>  9’  </u>	
<b>HVAC:</b> <u>  X  </u>		<b>Doors:</b>	
		3’x7’ <u>  X  </u>	
<b>Plumbing:</b>		3’-6”x7’ _____	
Sink _____		Vision Panel <u>  X  </u>	
Floor Drain _____			
Floor Sink _____		<b>Storage:</b>	
Potable Hot Water _____		Standard Filing Cab. <u>  X  </u>	
Potable Cold Water _____		Rotating Filing Cab. _____	
		Display Cases _____	
<b>Natural Daylight:</b>		Storage Cab. (Furn.) _____	
Electric Blinds <u>  TBD  </u>		Casework (Built-in) <u>  X  </u>	
Roller Blinds <u>  X  </u>		Other _____	

# DETAILED SPACE REQUIREMENTS

2

CATEGORY: EDUCATION SPECIALISTS  
SPACE NAME: SPECIALIST LABORATORY  
SQUARE FOOTAGE: 600  
QUANTITY: 3  
OCCUPANTS BY CODE: 12

## 2 SPECIALIST LABORATORY



### FIXED FURNISHINGS

- |                                  |                                      |   |
|----------------------------------|--------------------------------------|---|
| 1. Storage Cabinet w/<br>Cubbies | 4. Paper Towel<br>Dispenser          | 8. Changing Table<br>(unless in shared<br>toilet rooms) |
| 2. Open Shelving/Book            | 5. Pen/Tack Board                    |   |
| 3. Sink                          | 6. Window Coverings                  |   |
|                                  | 7. A/B Equipment<br>Mounts (ceiling) |   |

### FURNISHINGS & EQUIPMENT

- |                            |                      |
|----------------------------|----------------------|
| 1. Overhead Projector      | 6. Rolling Cabinet   |
| 2. Speaker (ceiling)       | 7. Work Table        |
| 3. A/V Screen              | 8. Office Desk/Chair |
| 4. Projector (ceiling)     | 9. Computer Station  |
| 5. Classroom Tables/Chairs | 10. Printer          |

# DETAILED SPACE REQUIREMENTS

2

SPACE NAME: SPECIALIST LABORATORY  
SQUARE FOOTAGE: 600

## Building Code Information

Net Area: >500 NSF  
Occupant Load Factor: 35 (Daycare)  
# Occupants by Code: 12  
Occupant Group: E – OCCUPANCY

Function: CLASSROOM

Adjacencies: Shared Restrooms, Teacher/Staff Open Office, Small Playground, Kitchen

## Technical Requirements and Finishes

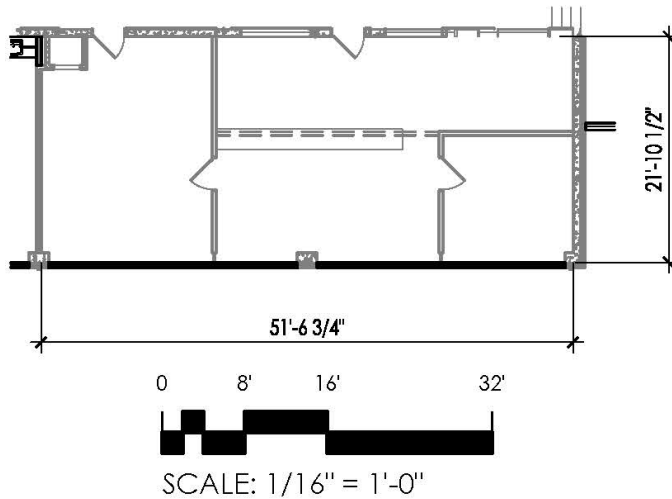
Power:		Floor:	
Perimeter Floor Outlets	_____	VCT	_____
110V, 20A, 1 Phase	<u>X</u>	Sheet Vinyl/Linoleum	<u>X</u>
208V, 30A, 1 Phase	_____	Epoxy	_____
208V, 30A, 3 Phase	_____	Carpet tile	_____
408V, 100A, 3 Phase	_____	Sealed Concrete	_____
		Other	_____
Communication:		Partitions:	
Phone	<u>X</u>	GWB, Epoxy Paint	_____
Data	<u>X</u>	GWB, Paint	<u>X</u>
PA/Speaker System	<u>X</u>	Other	_____
“Smart” Podium	_____		
Lighting:		Base:	
Task Lighting	_____	4” Rubber	<u>X</u>
Light Level	_____	Integrated w/Floor	_____
100 fc @ bench/desk	<u>X</u>	Other	_____
75 fc @ bench/desk	_____		
Safe Light	_____	Ceiling:	
Special Lighting	_____	Open	_____
Darkening	<u>X</u>	Acoustical Clg. Tile	<u>X</u>
Zoned Desk	_____	GWB, Paint	_____
Other	_____	Height Required	<u>9'</u>
HVAC:	<u>X</u>	Doors:	
		3’x7’	<u>X</u>
Plumbing:		3’-6”x7’	_____
Sink	<u>X</u>	Vision Panel	<u>X</u>
Floor Drain	_____		
Floor Sink	_____	Storage:	
Potable Hot Water	<u>X</u>	Standard Filing Cab.	_____
Potable Cold Water	<u>X</u>	Rotating Filing Cab.	_____
		Display Cases	_____
Natural Daylight:		Storage Cab. (Furn.)	<u>X</u>
Electric Blinds	<u>TBD</u>	Casework (Built-in)	<u>X</u>
Roller Shades/Blinds	<u>X</u>	Other	_____

## DETAILED SPACE REQUIREMENTS

3

CATEGORY: OFFICE  
SPACE NAME: ADMINISTRATION (OPEN)  
SQUARE FOOTAGE: 1227  
QUANTITY: 1  
OCCUPANTS BY CODE: 8

### 3 ADMINISTRATION



#### FIXED FURNISHINGS & ACCESSORIES

1. Work Counter
2. Window Coverings as needed

#### FURNISHINGS & EQUIPMENT

1. Workstations
2. Office Chairs
3. Lateral File Cabinet
4. Computer
5. Printer
6. Copy Machine



# DETAILED SPACE REQUIREMENTS

3

SPACE NAME: ADMINISTRATION  
 SQUARE FOOTAGE: 1227

## Building Code Information

Net Area: <400 NSF  
 Occupant Load Factor: 50  
 # Occupants by Code: 8  
 Occupant Group: E – OCCUPANCY

Function: TEACHER/STAFF WORK SPACE

Adjacencies: Conference Room, Early Intervention Classrooms, Family Support

## Technical Requirements and Finishes

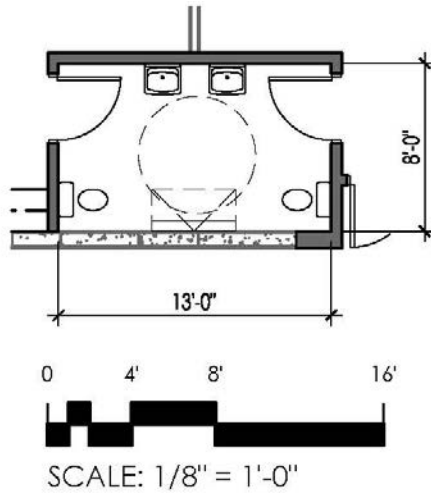
<b>Power:</b>		<b>Floor:</b>	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>X</u>		Sheet Vinyl, Linoleum _____	
208V, 30A, 1 Phase _____		Epoxy _____	
208V, 30A, 3 Phase _____		Carpet Tile <u>X</u>	
408V, 100A, 3 Phase _____		Sealed Concrete _____	
		Other _____	
<b>Communication:</b>		<b>Partitions:</b>	
Phone <u>X</u>		GWB, Epoxy Paint _____	
Data <u>X</u>		GWB, Paint <u>X</u>	
PA/Speaker System <u>X</u>		Other _____	
“Smart” Podium _____			
<b>Lighting:</b>		<b>Base:</b>	
Task Lighting _____		4” Rubber <u>X</u>	
Light Level _____		Integrated w/Floor _____	
100 fc @ bench/desk <u>X</u>		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		<b>Ceiling:</b>	
Special Lighting _____		Open _____	
Darkening _____		Acoustical Clg. Tile <u>X</u>	
Zoned Desk _____		GWB, Paint _____	
Other _____		Height Required <u>9'</u>	
<b>HVAC:</b> <u>X</u>		<b>Doors:</b>	
		3’x7’ <u>X</u>	
<b>Plumbing:</b>		3’-6”x7’ _____	
Sink _____		Vision Panel <u>X</u>	
Floor Drain _____			
Floor Sink _____		<b>Storage:</b>	
Potable Hot Water _____		Standard Filing Cab. _____	
Potable Cold Water _____		Rotating Filing Cab. _____	
		Display Cases _____	
<b>Natural Daylight:</b>		Storage Cab. (Furn.) <u>X</u>	
Electric Blinds <u>TBD</u>		Casework (Built-in) <u>X</u>	
Roller Blinds <u>X</u>		Other _____	

## DETAILED SPACE REQUIREMENTS

4-5

CATEGORY:	EARLY INTERVENTION
SPACE NAME:	CLASSROOM RESTROOM (SHARED – 2 TOILETS)
SQUARE FOOTAGE:	130
QUANTITY:	2
OCCUPANTS BY CODE:	NA

### 4-5 EARLY INTERVENTION RESTROOM



#### FIXED FURNISHINGS & ACCESSORIES

- |                          |                       |
|--------------------------|-----------------------|
| 1. Diaper Changing Table | 3. Sink               |
| 2. Toilet                | 4. Toilet Accessories |

#### FURNISHINGS & EQUIPMENT

1. NA

# DETAILED SPACE REQUIREMENTS

4-5

SPACE NAME: CLASSROOM RESTROOM  
 SQUARE FOOTAGE: 130

## Building Code Information

Net Area: NA  
 Occupant Load Factor: NA  
 # Occupants by Code: 2  
 Occupant Group: B – OCCUPANCY

Function TOILETING

Adjacencies Classroom

## Technical Requirements and Finishes

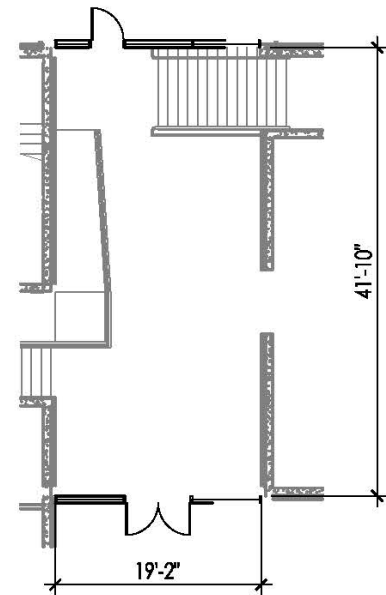
Power:		Floor:	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>GFI</u>		Sheet Vinyl/Linoleum <u>X</u>	
208V, 30A, 1 Phase _____		Epoxy _____	
208V, 30A, 3 Phase _____		Carpet Tile _____	
408V, 100A, 3 Phase _____		Sealed Concrete _____	
		Other _____	
Communication:		Partitions:	
Phone _____		GWB, Epoxy Paint _____	
Data _____		GWB, Paint <u>X</u>	
PA/Speaker System _____		Other _____	
“Smart” Podium _____			
Lighting:		Base:	
General Lighting <u>X</u>		4” Rubber <u>X</u>	
Light Level _____		Integrated w/Floor <u>X</u>	
100 fc @ bench/desk _____		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		Ceiling:	
Special Lighting _____		Open _____	
Darkening _____		Acoustical Clg. Tile <u>X</u>	
Zoned Desk _____		GWB, Paint _____	
Other _____		Height Required <u>9'</u>	
HVAC: <u>EXHAUST</u>		Doors:	
		3’x7’ <u>X / dutch</u>	
		3’-6”x7’ _____	
Plumbing:		Vision Panel _____	
Sink <u>X</u>			
Floor Drain <u>per code</u>		Storage:	
Floor Sink _____		Standard Filing Cab. _____	
Potable Hot Water <u>X</u>		Rotating Filing Cab. _____	
Potable Cold Water <u>X</u>		Display Cases _____	
Natural Daylight:		Storage Cab. (Furn.) <u>X</u>	
Electric Blinds _____		Casework (Built-in) <u>X</u>	
Roller Blinds _____		Other _____	

## DETAILED SPACE REQUIREMENTS

6

CATEGORY:	FOM
SPACE NAME:	HVAC CONTROL
SQUARE FOOTAGE:	240
QUANTITY:	1
OCCUPANTS BY CODE:	1

### 6 FOYER / LOBBY



SCALE: 1/16" = 1'-0"

#### FIXED FURNISHINGS

1. Window Covering as needed

#### FURNISHINGS & EQUIPMENT

1. Guest Chairs
2. Couch
3. HVAC control equipment

# DETAILED SPACE REQUIREMENTS

6

SPACE NAME: FOYER, LOBBY  
 SQUARE FOOTAGE: 831

## Building Code Information

Net Area: 831 NSF  
 Occupant Load Factor: NA  
 # Occupants by Code: 0  
 Occupant Group: B - OCCUPANCY

Function: Welcome Center / Reception / Security

Adjacencies: Building Hallways

## Technical Requirements and Finishes

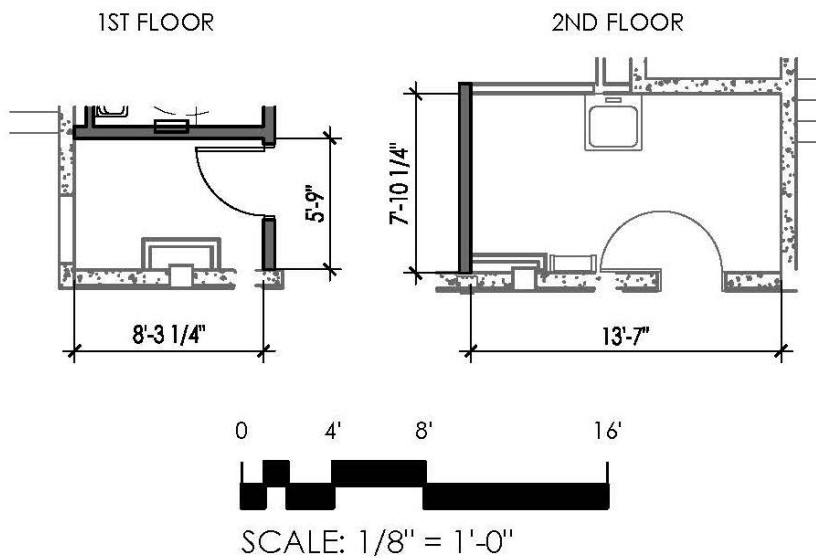
<b>Power:</b>		<b>Floor:</b>	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>  X  </u>		Sheet Vinyl or Linoleum _____	
208V, 30A, 1 Phase _____		Epoxy _____	
208V, 30A, 3 Phase _____		Carpet _____	
408V, 100A, 3 Phase _____		Sealed Concrete _____	
		Other <u>  Terrazzo (x)  </u>	
<b>Communication:</b>		<b>Partitions:</b>	
Phone <u>  X  </u>		GWB, Epoxy Paint _____	
Data <u>  X  </u>		GWB, Paint <u>  X  </u>	
PA/Speaker System _____		Other _____	
"Smart" Podium _____			
<b>Lighting:</b>		<b>Base:</b>	
Task Lighting _____		4" Rubber <u>  X  </u>	
Light Level _____		Integrated w/Floor _____	
100 fc @ bench/desk <u>  X  </u>		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		<b>Ceiling:</b>	
Special Lighting _____		Open _____	
Darkening _____		Acoustical Clg. Tile <u>  X  </u>	
Zoned Desk _____		GWB, Paint _____	
Other _____		Height Required <u>  9'  </u>	
<b>HVAC:</b> <u>  X  </u>		<b>Doors:</b>	
		3'x7' <u>  X  </u>	
<b>Plumbing:</b>		3'-6"x7' _____	
Sink _____		Vision Panel <u>  X  </u>	
Floor Drain _____			
Floor Sink _____		<b>Storage:</b>	
Potable Hot Water _____		Standard Filing Cab. _____	
Potable Cold Water _____		Rotating Filing Cab. _____	
		Display Cases _____	
<b>Natural Daylight:</b>		Storage Cab. (Furn.) _____	
Electric Blinds _____		Casework (Built-in) _____	
Roller Shades/Blinds <u>  X  </u>		Other _____	

# DETAILED SPACE REQUIREMENTS

7

CATEGORY: GENERAL  
SPACE NAME: CUSTODIAL  
SQUARE FOOTAGE: 197  
QUANTITY: 1  
OCCUPANTS BY CODE: 1

## 7 CUSTODIAL



### FIXED FURNISHINGS

1. Storage cabinet /shelves
2. Mop Sink
3. Mop hooks

### FURNISHINGS & EQUIPMENT

1. Mop Bucket
2. Mobile Cart
3. Coat Hooks

# DETAILED SPACE REQUIREMENTS

7

SPACE NAME: CUSTODIAL  
 SQUARE FOOTAGE: 197

## Building Code Information

Net Area: 197 NSF  
 Occupant Load Factor: 100  
 # Occupants by Code: 1  
 Occupant Group: B – OCCUPANCY

Function Custodial

Adjacencies Hallway

## Technical Requirements and Finishes

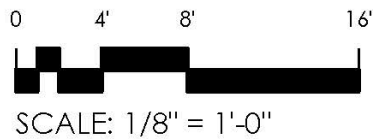
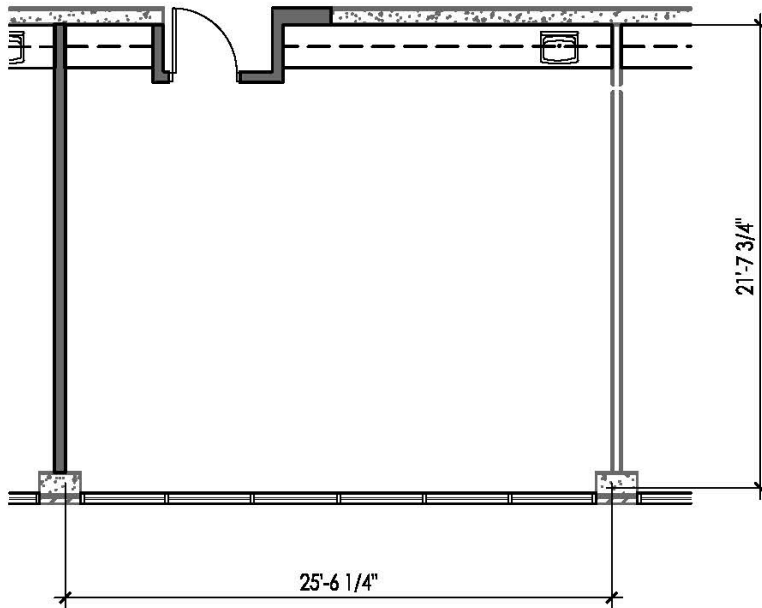
<b>Power:</b>		<b>Floor:</b>	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>X</u>		Sheet Vinyl, Linoleum _____	
208V, 30A, 1 Phase _____		Epoxy _____	
208V, 30A, 3 Phase _____		Carpet Tile _____	
408V, 100A, 3 Phase _____		Sealed Concrete <u>x</u>	
		Other _____	
<b>Communication:</b>		<b>Partitions:</b>	
Phone _____		GWB, Epoxy Paint _____	
Data _____		GWB, Paint <u>X</u>	
PA/Speaker System _____		Other _____	
“Smart” Podium _____			
<b>Lighting:</b>		<b>Base:</b>	
Task Lighting _____		4” Rubber <u>X</u>	
Light Level _____		Integrated w/Floor _____	
100 fc @ bench/desk <u>X</u>		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		<b>Ceiling:</b>	
Special Lighting _____		Open _____	
Darkening _____		Acoustical Clg. Tile _____	
Zoned Desk _____		GWB, Paint <u>x</u>	
Other _____		Height Required <u>9'</u>	
<b>HVAC:</b>	<u>X</u>	<b>Doors:</b>	
		3’x7’ <u>X</u>	
<b>Plumbing:</b>		3’-6”x7’ _____	
Sink _____		Vision Panel <u>X</u>	
Floor Drain <u>x</u>			
Floor Sink <u>x</u>		<b>Storage:</b>	
Potable Hot Water <u>x</u>		Standard Filing Cab. _____	
Potable Cold Water <u>x</u>		Rotating Filing Cab. _____	
		Display Cases _____	
<b>Natural Daylight:</b>		Storage Cab. (Furn.) _____	
Electric Blinds _____		Casework (Built-in) _____	
Roller Shades _____		Other _____	

# DETAILED SPACE REQUIREMENTS

8

CATEGORY: GENERAL EDUCATION  
SPACE NAME: GENERAL CLASSROOM  
SQUARE FOOTAGE: 608  
QUANTITY: 8  
OCCUPANTS BY CODE: 30

## 8 GENERAL CLASSROOM



### FIXED FURNISHINGS

- |                             |                     |
|-----------------------------|---------------------|
| 1. Storage Cabinet          | 5. Pen/Tack Boards  |
| 2. Open Shelving/Book       | 6. Window Coverings |
| 3. Sink                     | 7. A/B Equip Mounts |
| 4. Paper Towel<br>Dispenser | 8.                  |

### FURNISHINGS & EQUIPMENT

- |                        |                            |                     |
|------------------------|----------------------------|---------------------|
| 1. Overhead Projector  | 5. Classroom Tables/Chairs | 9. Computer Station |
| 2. Speaker (ceiling)   | 6. Rolling Cabinet         | 10. Printer         |
| 3. A/V Screen          | 7. Work Table              |                     |
| 4. Projector (ceiling) | 8. Office Desk/Chair       |                     |



# DETAILED SPACE REQUIREMENTS

SPACE NAME: GENERAL CLASSROOM  
 SQUARE FOOTAGE: 608

## Building Code Information

Net Area: 608 NSF  
 Occupant Load Factor: 20  
 # Occupants by Code: 30  
 Occupant Group: E – OCCUPANCY

Function CLASSROOM

Adjacencies Hallway

## Technical Requirements and Finishes

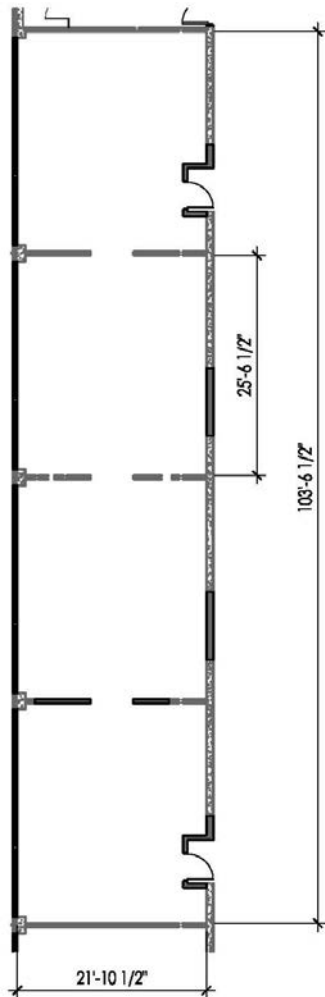
<p><b>Power:</b></p> <p>Perimeter Floor Outlets _____</p> <p>110V, 20A, 1 Phase <u>  X  </u></p> <p>208V, 30A, 1 Phase _____</p> <p>208V, 30A, 3 Phase _____</p> <p>408V, 100A, 3 Phase _____</p> <p><b>Communication:</b></p> <p>Phone _____</p> <p>Data _____</p> <p>PA/Speaker System _____</p> <p>“Smart” Podium _____</p> <p><b>Lighting:</b></p> <p>Task Lighting _____</p> <p>Light Level _____</p> <p>100 fc @ bench/desk <u>  X  </u></p> <p>75 fc @ bench/desk _____</p> <p>Safe Light _____</p> <p>Special Lighting _____</p> <p>Darkening _____</p> <p>Zoned Desk _____</p> <p>Other _____</p> <p><b>HVAC:</b> <u>  X  </u></p> <p><b>Plumbing:</b></p> <p>Sink <u>  X  </u></p> <p>Floor Drain _____</p> <p>Floor Sink _____</p> <p>Potable Hot Water <u>  X  </u></p> <p>Potable Cold Water <u>  X  </u></p> <p><b>Natural Daylight:</b></p> <p>Electric Blinds _____</p> <p>Roller Shades _____</p>	<p><b>Floor:</b></p> <p>VCT _____</p> <p>Sheet Vinyl/Linoleum _____</p> <p>Epoxy _____</p> <p>Carpet <u>  X  </u></p> <p>Sealed Concrete _____</p> <p>Ceramic Tile _____</p> <p><b>Partitions:</b></p> <p>GWB, Epoxy Paint _____</p> <p>GWB, Paint <u>  X  </u></p> <p>Other _____</p> <p><b>Base:</b></p> <p>4” Rubber _____</p> <p>Integrated w/Floor _____</p> <p>Other: Ceramic Tile <u>  X  </u></p> <p><b>Ceiling:</b></p> <p>Open _____</p> <p>Acoustical Clg. Tile <u>  X  </u></p> <p>GWB, Paint <u>  X  </u></p> <p>Height Required <u>  9’  </u></p> <p><b>Doors:</b></p> <p>3’x7’ <u>  X  </u></p> <p>3’-6”x7’ _____</p> <p>Vision Panel _____</p> <p><b>Storage:</b></p> <p>Standard Filing Cab. _____</p> <p>Rotating Filing Cab. _____</p> <p>Display Cases _____</p> <p>Storage Cab. (Furn.) <u>  X  </u></p> <p>Casework (Built-in) _____</p> <p>Other _____</p>
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# DETAILED SPACE REQUIREMENTS

9

CATEGORY: GENERAL  
SPACE NAME: MUSEUM  
SQUARE FOOTAGE: 2418  
QUANTITY: 1  
OCCUPANTS BY CODE: 81

## 9 MUSEUM



SCALE: 1/16" = 1'-0"

### FIXED FURNISHINGS

1. Storage Shelving
- 2.

### FURNISHINGS & EQUIPMENT

1. NA

# DETAILED SPACE REQUIREMENTS

SPACE NAME: MUSEUM  
 SQUARE FOOTAGE: 2,418

## Building Code Information

Net Area: 2,418 NSF  
 Occupant Load Factor: 30  
 # Occupants by Code: 81  
 Occupant Group: A – OCCUPANCY

Function: EXHIBIT

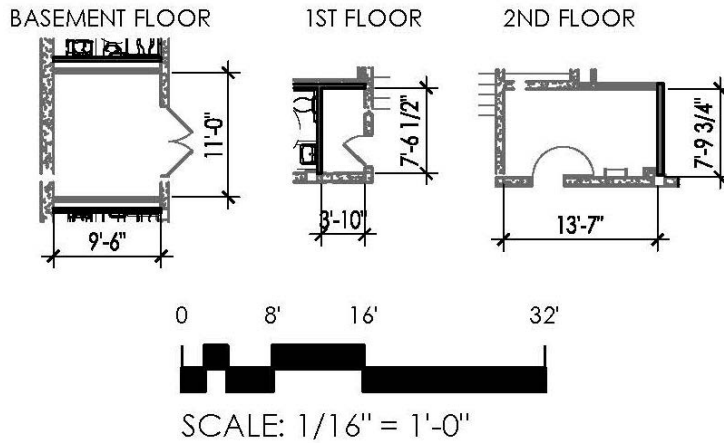
Adjacencies: Hallway

## Technical Requirements and Finishes

<b>Power:</b>		<b>Floor:</b>	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>  X  </u>		Sheet Vinyl/Linoleum <u>  X  </u>	
208V, 30A, 1 Phase _____		Epoxy _____	
208V, 30A, 3 Phase _____		Carpet _____	
408V, 100A, 3 Phase _____		Sealed Concrete _____	
		Other _____	
<b>Communication:</b>		<b>Partitions:</b>	
Phone <u>  x  </u>		GWB, Epoxy Paint _____	
Data <u>  x  </u>		GWB, Paint <u>  X  </u>	
PA/Speaker System _____		Other _____	
“Smart” Podium _____			
<b>Lighting:</b>		<b>Base:</b>	
Task Lighting _____		4” Rubber <u>  X  </u>	
Light Level _____		Integrated w/Floor _____	
100 fc @ bench/desk <u>  X  </u>		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		<b>Ceiling:</b>	
Special Lighting _____		Open _____	
Darkening _____		Acoustical Clg. Tile <u>  X  </u>	
Zoned Desk _____		GWB, Paint _____	
Other _____		Height Required <u>  9’  </u>	
<b>HVAC:</b>	<u>  X  </u>	<b>Doors:</b>	
		3’x7’ <u>  X  </u>	
<b>Plumbing:</b>		3’-6”x7’ _____	
Sink _____		Vision Panel _____	
Floor Drain _____			
Floor Sink _____		<b>Storage:</b>	
Potable Hot Water _____		Standard Filing Cab. _____	
Potable Cold Water _____		Rotating Filing Cab. _____	
		Display Cases _____	
<b>Natural Daylight:</b>		Storage Cab. (Furn.) <u>  X  </u>	
Electric Blinds _____		Casework (Built-in) _____	
Roller Shades <u>  x  </u>		Other _____	

# DETAILED SPACE REQUIREMENTS

CATEGORY:	GENERAL
SPACE NAME:	STORAGE
SQUARE FOOTAGE:	285
QUANTITY:	1
OCCUPANTS BY CODE:	1



## FIXED FURNISHINGS & EQUIPMENT

1. Storage shelves

# DETAILED SPACE REQUIREMENTS

10

SPACE NAME: STORAGE  
 SQUARE FOOTAGE: 285

## Building Code Information

Net Area: 285 NSF  
 Occupant Load Factor: 300  
 # Occupants by Code: 1  
 Occupant Group: B – OCCUPANCY

Function Storage

Adjacencies Hallway

## Technical Requirements and Finishes

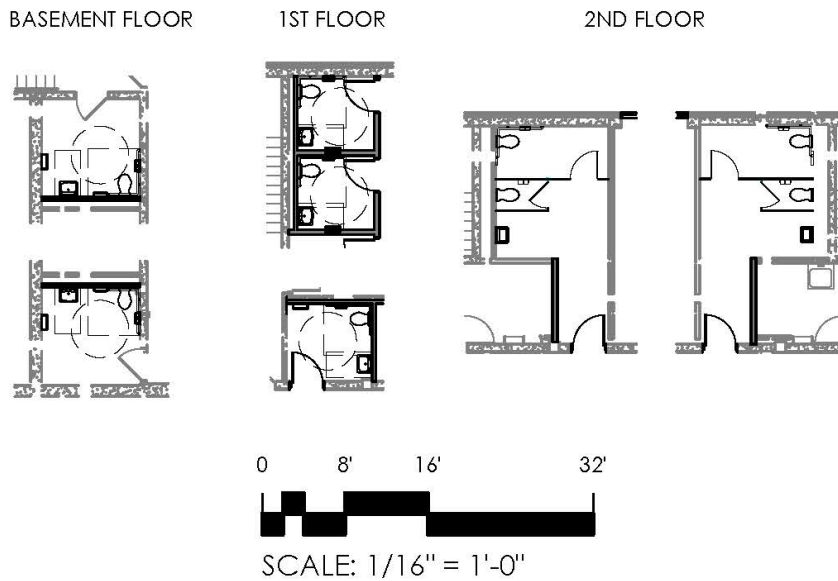
Power:		Floor:	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>X</u>		Sheet Vinyl, Linoleum _____	
208V, 30A, 1 Phase <u>verify</u>		Epoxy _____	
208V, 30A, 3 Phase <u>verify</u>		Carpet Tile _____	
408V, 100A, 3 Phase <u>verify</u>		Sealed Concrete <u>X</u>	
		Other _____	
Communication:		Partitions:	
Phone _____		GWB, Epoxy Paint _____	
Data _____		GWB, Paint <u>X</u>	
PA/Speaker System _____		Other: Plywood <u>Equip Bds</u>	
“Smart” Podium _____			
Lighting:		Base:	
Task Lighting _____		4” Rubber <u>X</u>	
Light Level _____		Integrated w/Floor _____	
100 fc @ bench/desk _____		Other _____	
75 fc @ bench/desk <u>x</u>			
Safe Light _____		Ceiling:	
Special Lighting _____		Open <u>X</u>	
Darkening _____		Acoustical Clg. Tile _____	
Zoned Desk _____		GWB, Paint <u>X</u>	
Other _____		Height Required <u>9’ min</u>	
HVAC: <u>X</u>		Doors:	
		3’x7’ <u>X</u>	
Plumbing:		3’-6”x7’ _____	
Sink _____		Vision Panel _____	
Floor Drain _____			
Floor Sink _____		Storage:	
Potable Hot Water _____		Standard Filing Cab. _____	
Potable Cold Water _____		Rotating Filing Cab. _____	
Natural Daylight:		Display Cases _____	
Electric Blinds _____		Storage Cab. (Furn.) <u>x</u>	
Roller Shades _____		Casework (Built-in) _____	
		Other _____	

# DETAILED SPACE REQUIREMENTS

11

CATEGORY: GENERAL / PUBLIC RESTROOMS  
SPACE NAME: PUBLIC RESTROOMS  
SQUARE FOOTAGE: 813  
QUANTITY: 1  
OCCUPANTS BY CODE: NA

## 11 PUBLIC RESTROOMS



### FIXED FURNISHINGS & EQUIPMENT

1. Toilet Partitions / doors
2. Toilet Accessories
3. Waste Receptacles
4. Lavatories
5. Flush Valves/Toilets
6. Electric Hand Dryers

# DETAILED SPACE REQUIREMENTS

11

SPACE NAME: PUBLIC RESTROOMS  
 SQUARE FOOTAGE: 813

## Building Code Information

Net Area: 813 NSF  
 Occupant Load Factor: NA  
 # Occupants by Code: NA  
 Occupant Group: E – OCCUPANCY

Function Restrooms

Adjacencies Hallways / Classrooms

## Technical Requirements and Finishes

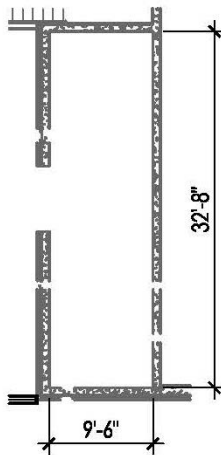
Power:		Floor:	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>X</u>		Sheet Vinyl, Linoleum _____	
208V, 30A, 1 Phase <u>verify</u>		Epoxy _____	
208V, 30A, 3 Phase <u>verify</u>		Carpet Tile _____	
408V, 100A, 3 Phase <u>verify</u>		Sealed Concrete _____	
		Other <u>Terrazzo(x)</u>	
Communication:		Partitions:	
Phone _____		GWB, Epoxy Paint _____	
Data _____		GWB, Paint <u>X</u>	
PA/Speaker System _____		Other: Wall Tile <u>x</u>	
“Smart” Podium _____			
Lighting:		Base:	
Task Lighting _____		4” Rubber _____	
Light Level _____		Integrated w/Floor <u>x</u>	
100 fc @ bench/desk <u>X</u>		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		Ceiling:	
Special Lighting _____		Open <u>X</u>	
Darkening _____		Acoustical Clg. Tile _____	
Zoned Desk _____		GWB, Paint <u>X</u>	
Other _____		Height Required <u>9’ min</u>	
HVAC: <u>X</u>		Doors:	
		3’x7’ <u>X (exterior)</u>	
Plumbing:		3’-6”x7’ _____	
Sink <u>x</u>		Vision Panel _____	
Floor Drain _____			
Toilets <u>x</u>		Storage:	
Potable Hot Water <u>X</u>		Standard Filing Cab. _____	
Potable Cold Water <u>X</u>		Rotating Filing Cab. _____	
		Display Cases _____	
Natural Daylight:		Storage Cab. (Furn.) _____	
Electric Blinds _____		Casework (Built-in) _____	
Roller Shades _____		Other _____	

## DETAILED SPACE REQUIREMENTS

12

CATEGORY:	GENERAL
SPACE NAME:	MECH/ELECT ROOM
SQUARE FOOTAGE:	374
QUANTITY:	1
OCCUPANTS BY CODE:	1

## 12 MECHANICAL/ELECTRICAL



SCALE: 1/16" = 1'-0"

### FIXED FURNISHINGS & EQUIPMENT

1. Mechanical equipment
2. Fire Riser
3. Electrical Panels
4. Telecom Equipment



# DETAILED SPACE REQUIREMENTS

12

SPACE NAME: MECH/ELECT ROOM  
 SQUARE FOOTAGE: 374

## Building Code Information

Net Area: 374 NSF  
 Occupant Load Factor: 300  
 # Occupants by Code: 1  
 Occupant Group: E – OCCUPANCY

Function: Mechanical, electrical equipment, fire riser, telecom equipment

Adjacencies: Exterior Service Access, Lobby Room

## Technical Requirements and Finishes

<b>Power:</b>		<b>Floor:</b>	
Perimeter Floor Outlets _____		VCT _____	
110V, 20A, 1 Phase <u>X</u>		Sheet Vinyl, Linoleum _____	
208V, 30A, 1 Phase <u>verify</u>		Epoxy _____	
208V, 30A, 3 Phase <u>verify</u>		Carpet Tile _____	
408V, 100A, 3 Phase <u>verify</u>		Sealed Concrete <u>X</u>	
		Other _____	
<b>Communication:</b>		<b>Partitions:</b>	
Phone <u>X</u>		GWB, Epoxy Paint _____	
Data <u>X</u>		GWB, Paint <u>X</u>	
PA/Speaker System _____		Other: Plywood <u>Equip Bds</u>	
“Smart” Podium _____			
<b>Lighting:</b>		<b>Base:</b>	
Task Lighting _____		4” Rubber <u>X</u>	
Light Level _____		Integrated w/Floor _____	
100 fc @ bench/desk <u>X</u>		Other _____	
75 fc @ bench/desk _____			
Safe Light _____		<b>Ceiling:</b>	
Special Lighting _____		Open <u>X</u>	
Darkening _____		Acoustical Clg. Tile _____	
Zoned Desk _____		GWB, Paint <u>X</u>	
Other _____		Height Required <u>9’ min</u>	
<b>HVAC:</b> <u>X</u>		<b>Doors:</b>	
		3’x7’ <u>X (exterior)</u>	
<b>Plumbing:</b>		3’-6”x7’ _____	
Sink _____		Vision Panel _____	
Floor Drain <u>?</u>			
Floor Sink _____		<b>Storage:</b>	
Potable Hot Water <u>X</u>		Standard Filing Cab. _____	
Potable Cold Water <u>X</u>		Rotating Filing Cab. _____	
		Display Cases _____	
<b>Natural Daylight:</b>		Storage Cab. (Furn.) _____	
Electric Blinds _____		Casework (Built-in) _____	
Roller Shades _____		Other _____	





# Center for Deaf and Hard of Hearing Youth Northrop Primary School Building Renovation PREDESIGN REPORT

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## APPENDIX B

- 1 CDHY 10-Year Capital Plan, 2013-2023
- 2 Demolition and Proposed Floor Plans & Elevations
- 3 DAHP Letter of Qualification to Register of Historic Places
- 4 DAHP Email on Allowable Upgrades - Michael Houser, 9-14-2022
- 5 Memorandum of Understanding between DES, DAHP, and WSDeaf
- 6 Hazardous Materials Report/Abatement Costs, PBS Environmental Consulting
- 7 Detailed Project Cost Estimate
- 8 C-100 Project Cost Summary
- 9 NPS Life Cycle Cost Model
- 10 Archaeological & Cultural Resources - Tribal Contact List
- 11 Basis of Design Predesign Narratives
  - Structural Engineer – PCS Structural Solutions
  - Mechanical Engineer – BCE Engineers
  - Electrical Engineer – BCE Engineers
- 12 Detailed Project Schedule
- 13 LEED Checklist
- 14 Energy Modeling Analysis



## Ten-Year Capital Plan

2013 – 2023

The Ten Year Capital plan referred to throughout this document is for The Washington Center for Deaf and Hard of Hearing Youth (CDHY) campus school, Washington School for the Deaf (WSD), located in Vancouver, WA. The Ten Year Capital Plan is based upon data gathered from a variety of stakeholders in conjunction with the development of CDHY Strategic Plan, along with data gathered from facility yearly inspections and in consultation with the Department of Enterprise Services — Construction and Energy Division. Additional input has been gathered from contracted consultants for the review of preservation work to assist in scheduling projects that need to be completed to preserve the state's investments in quality facilities. The campus Ten Year Plan is consistent with CDHY/WSD's mission, purpose, beliefs and strategic plan.

As requests for CDHY services continue to grow, it is important that the campus infrastructure remain in good condition in order to carry out the agency's mission. Most of the attached ten-year plan addresses basic needs in the area of safety, preservation and development of facilities and infrastructure needed to be able to expand services without increasing the total number of children on campus. The school continues to enroll approximately 120-130 students. The general trend is stable, however the needs of the student body have changed in the last few years. More students are arriving with multiple needs and at a younger age.

As of 2020, the school is undergoing a major campus multi-phase renovation (See Future Projects). Four buildings were razed in 2021 with the goal of making space for a new K-12 Academic building and gymnasium on the north end of the 17-acre campus. All four buildings were derelict storage areas that were cold-closures due to unsafe conditions. Elementary and Secondary students currently attend school in two different buildings on the perimeter of the campus.

In addition to direct-serve student impacts on campus, CDHY is expanding services throughout the Pacific Northwest region with a national partnership that will make use of the school campus. CDHY will begin a summer program in partnership with National Technology Institute for the Deaf in summer of 2023 that will focus on science, technology, engineering and math skills for students in Alaska, Idaho, Oregon and Washington. As these services continue to grow, CDHY continues to explore expansion of partnerships that will increase the efficient use of campus space with a primary partnership focus being increased literacy and independence for people who are deaf or hard of hearing. Along with increased partnerships, shared resources may also occur, which can be both physical plant and personnel.

Capital Project's History: Up until 2009, little work had been done on the WSD campus. The campus had been neglected and required a plan to bring buildings and services up to a standard that would be acceptable by the general public. Up until this time the last new construction occurred in 1999 and



previous to this in 1975. Numerous buildings had been empty for 10—20 years and should have been razed, and the infrastructure needed upgrading. As part of WSD’s accreditation and future planning, a process began of eliminating unsafe and unused areas, upgrading current facilities, and replacing a few buildings. From 2009 through 2019, the school has accomplished most preservation projects outlined in past Capital Project plans. This has allowed the school to make major changes in energy savings, re-roof most buildings, remodel for seismic safety both the auditorium and the Hunter gym, , and most important meet the growing need for services.

Future Projects — The final major capital project in the current Ten Year Plan for CDHY is the Academic & Physical Education project. The Academic & Physical Education project currently funded for Biennium 21-23 has three phases, Phase I site preparation demolishing 4 empty buildings, Phase II Design Build of the Academic & Physical Education buildings and Phase III final demolition of Divine Hall & Hunter Gym and final site improvements. Project Phasing has allowed students & staff to continue to operate through all Phases of the project. Completing Phase III of the Academic & Physical Education project however requires additional funding in the 23-25 biennium.

In continued efforts to meet existing and future program growth needs, specifically the growth in the Pre-K program, and meeting Clean Building and energy standards, CDHY is currently working on improvement projects to be included in the upcoming 23-25 biennium budget. These projects are focused on campus infrastructure and building improvements including the mechanical, electrical and plumbing systems. The campus buildings needing the most attention, were built in the 1950’s & 1960’s and are now over 60 years old. Over the years these systems have been repaired or modified to extend their use. However, current and future state energy standards are beyond the system’s abilities and therefore these systems need upgraded and or replaced.

Upon completion of the Academic & Physical Education project, the Northrop K-6 students will transition from the Northrop, Divine and Hunter buildings and into the new facility. Remaining Northrop Pre K program will also at that time temporarily relocate to temporary classrooms created on campus. The intent is to renovate the Northrop Building upon completion of the Academic & Physical Education project. During the permitting approval process for the Academic & Physical Education project, the Washington State Department of Archaeology & Historical Preservation (DAHP), designated the Northrop building as an Historical building. To preserve the building in a standard befitting of a historical landmark and extend the service life of the building for current energy standards and future use, CDHY in partnership with DES hired Architect consultants from MSGS Architects to assess and develop a Northrop building improvement project. The Northrop Improvement project is to also be included in the Biennium 23-25 request along with the campus systems improvement projects. The Northrop building’s current and projected demands are classroom & staff support of the Pre-K program, administrative staff offices, an active museum representing over 100 year history of the deaf program within the State of Washington and an Audiology program.



Each preservation project that CDHY brings forward must have an element of preserving WSD facilities and the state's investment, while providing quality facilities to enhance independence for deaf children, provide energy savings, reduction in maintenance and operating costs, improve child and employee safety, and enhance the opportunities for collaboration with other agencies and or organizations.

### **Sustaining Building Projects**

#### **2013-2015 Biennium**

Facility Preservation Projects & General Campus Preservation \$450,000

1. (\$ 175,000) Northrop Reroof
2. (\$ 275,000) Clark Hall Reroof

#### **2015-2017 Biennium**

Facility Preservation Projects & General Campus Preservation \$300,000

1. (\$ 175,000) Divine Hall Reroof
2. (\$ 125,000) Hunter Gym Reroof

#### **2017-2019 Biennium**

Facility Preservation Projects & General Campus Preservation \$1,000,000

1. (\$ 293,000) Minor campus building remodeling projects
2. (\$707,000) Building Security infrastructure updates (Cameras, Card Access)

#### **2019-2021 Biennium**

Facility Preservation Projects & General Campus Preservation \$ 750,000

1. (\$275,000) Site Security Upgrade
2. (\$275,000) Cottage's end of life cycle up Replaced of HVAC Furnaces, AC Units
3. (\$300,000) Roofing Replacement Cottages

#### **2021-2023 Biennium**

Facility Preservation Projects & General Campus Preservation \$ 245,000

1. (\$170,000) Mechanical system improvement & Retro Commissioning Kastel
2. (\$ 45,000) Fiber upgrade
3. (\$ 25,000) Pump House Improvement



Ten-year Plan

Project No.	Description	Cost
2013 - 2015	Preservation projects Roofing projects to Northrop Building and Clark Hall	\$450,000
2015-2017	Preservation projects Roofing projects Divine Hall & Hunter Gym	\$ 300,000
2017-2019	Preservation projects Northrop ceiling work & IT projects Campus security upgrades including cameras and card access readers	\$1,000,000
2019-2021	Preservation projects Site security Cottage's reroofing, HVAC system upgrades	\$ 750,000
2021-2023	Preservation projects Retro commissioning and Kastel mechanical systems improvements	\$ 245,000

1 Phase I Academic & Physical Education Project. Highlighted buildings were demolished.



2

3 Post Phase I Demolition



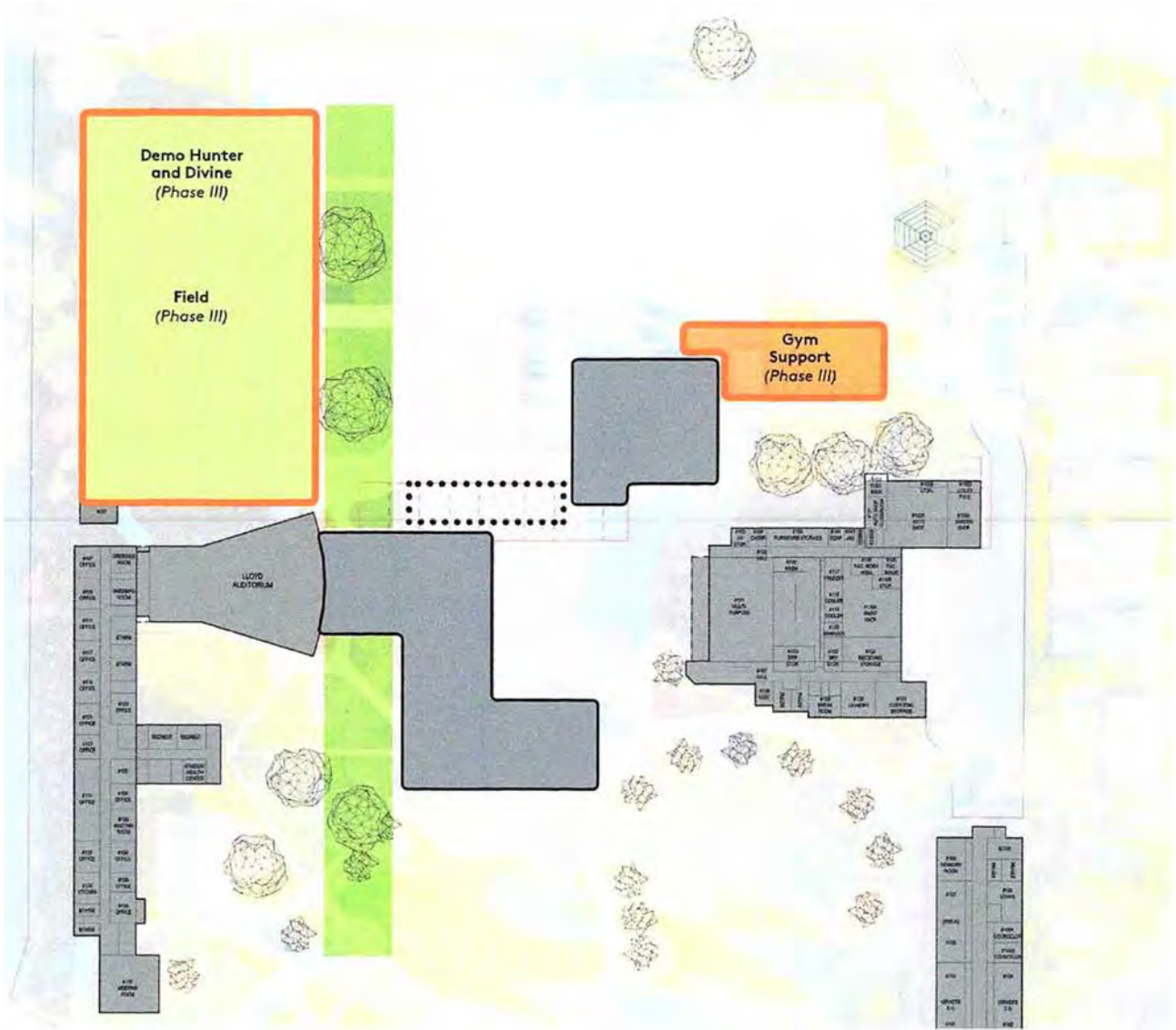
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5



6

7 Phase II Schematic Design with Phase III

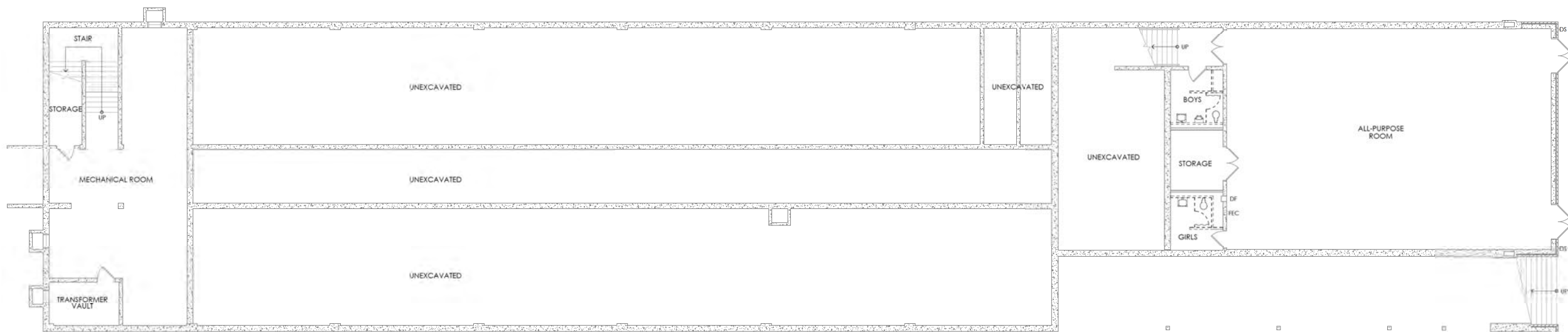


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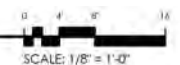
9 Campus Buildings



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**DEMOLITION FLOOR PLAN - BASEMENT LEVEL**



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 Revisions Closing Date

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Sheet Title  
**DEMOLITION FLOOR PLAN - BASEMENT LEVEL**

Sheet No.  
**AD2.10**  
 MSGS Project No.  
 22-129

**NORTHROP PRIMARY SCHOOL**  
 PREDESIGN  
 611 GRAND BOULEVARD,  
 VANCOUVER, WASHINGTON

**msg** architects  
 p. 360.943.6774 | 360.332.7005  
 www.msgarch.com  
 510 capital way south  
 olympia, washington 98501

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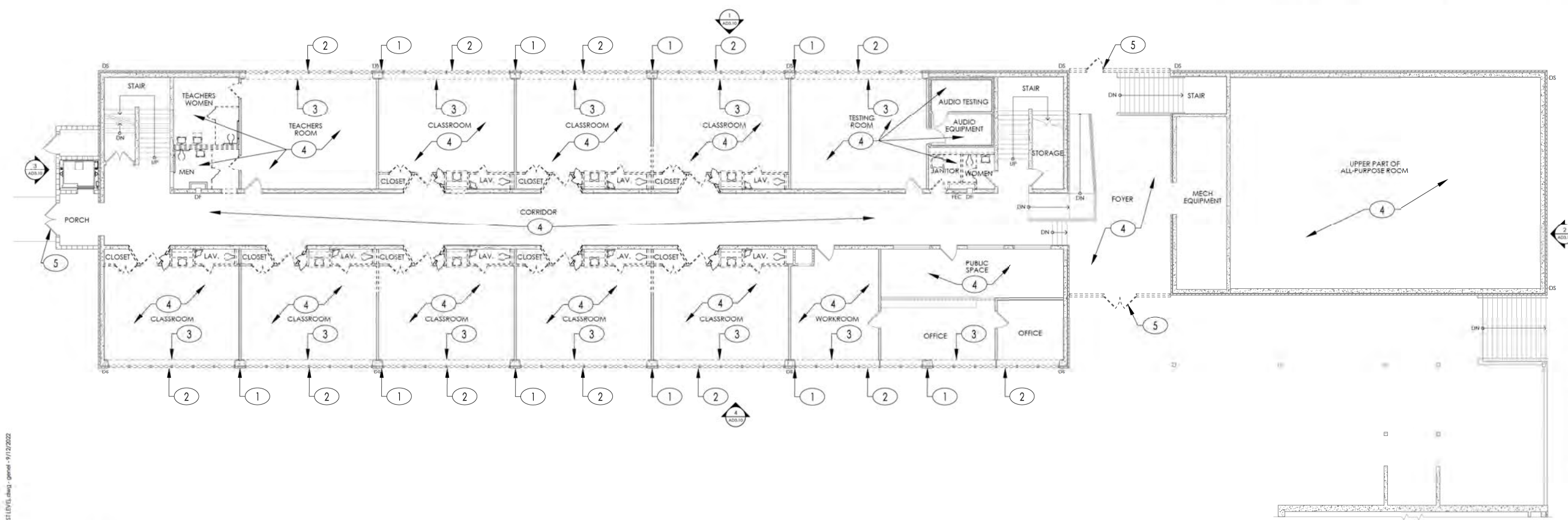
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**DEMOLITION FLOOR PLAN - FIRST LEVEL**

**AD2.11**

22-129

- KEYNOTES:
1. REMOVE EXISTING BRICK VENEER FROM SILL OF WINDOW TO HEAD OF WINDOW AT EVERY COLUMN BETWEEN WINDOWS, SEE DEMOLITION ELEVATIONS AD3.10.
  2. REMOVE EXISTING WINDOW FRAMES AND WINDOWS IN THEIR ENTIRETY ALL BAYS.
  3. REMOVE EXISTING METAL RADIATORS IN THEIR ENTIRETY ALL BAYS. REMOVE GYPSUM WALL BOARD FROM FLOOR TO UNDERSIDE OF WINDOW SILLS ALL BAYS.
  4. REMOVE EXISTING ACOUSTIC CEILING TILE AND CEILING STRUCTURE.
  5. REMOVE EXISTING ALUMINUM FRAMES GLASS ENTRY DOORS AND ASSOCIATED WINDOWS.
  6. EXISTING ROOFING TO REMAIN, TYPICAL FOR ENTIRE ROOF (UPPER ROOF NOT SHOWN).



**DEMOLITION FLOOR PLAN - FIRST LEVEL**



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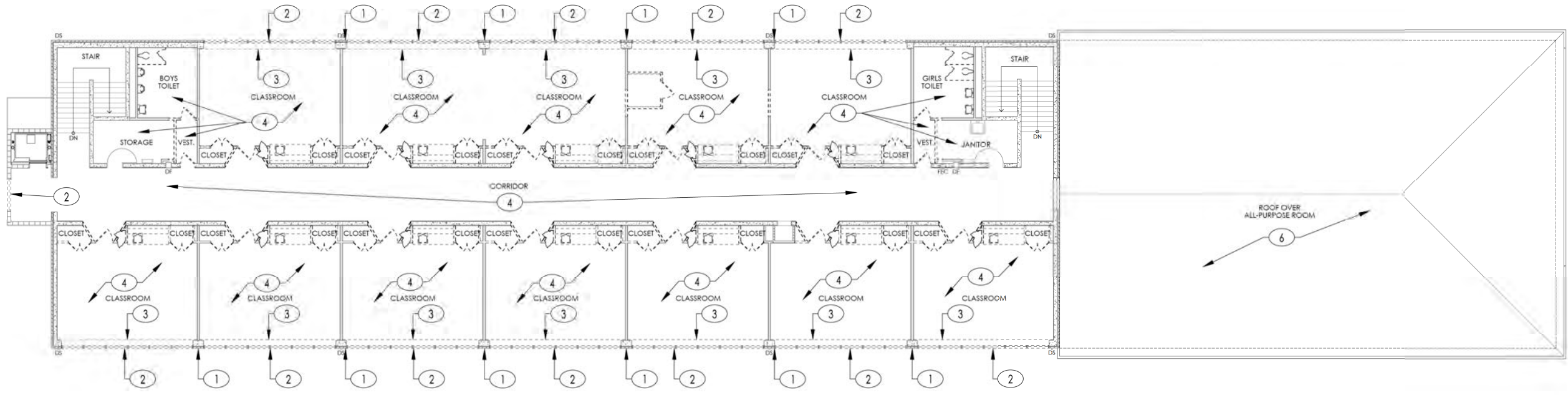
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 Sheet Title

**DEMOLITION FLOOR PLAN - SECOND LEVEL**

Sheet No.
   
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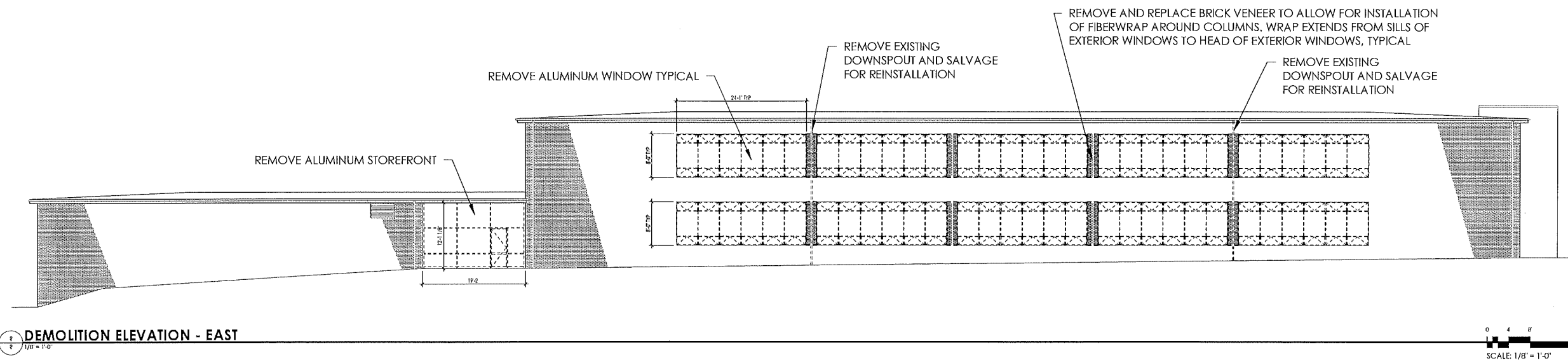
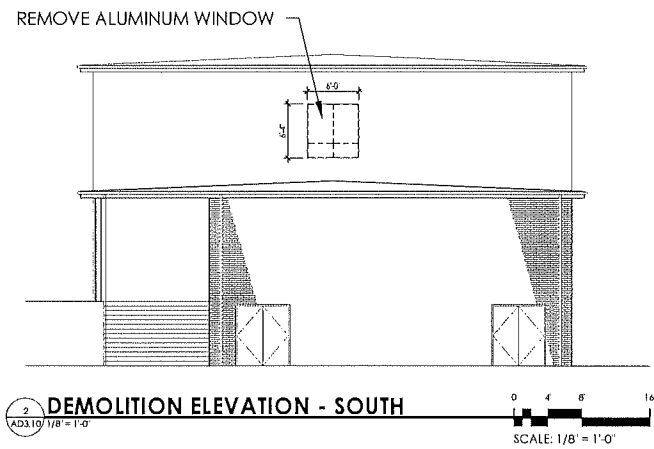
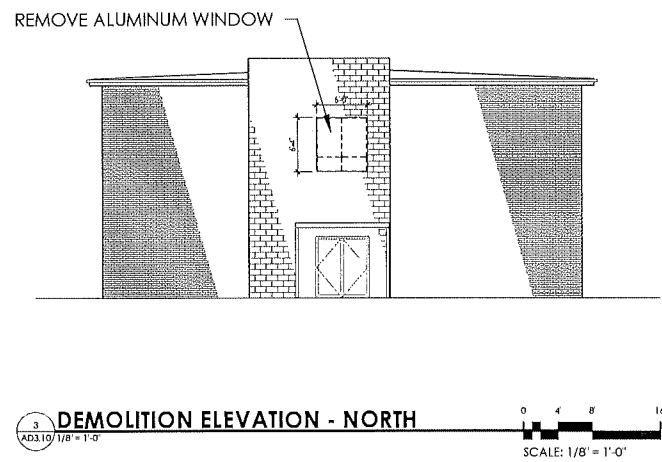
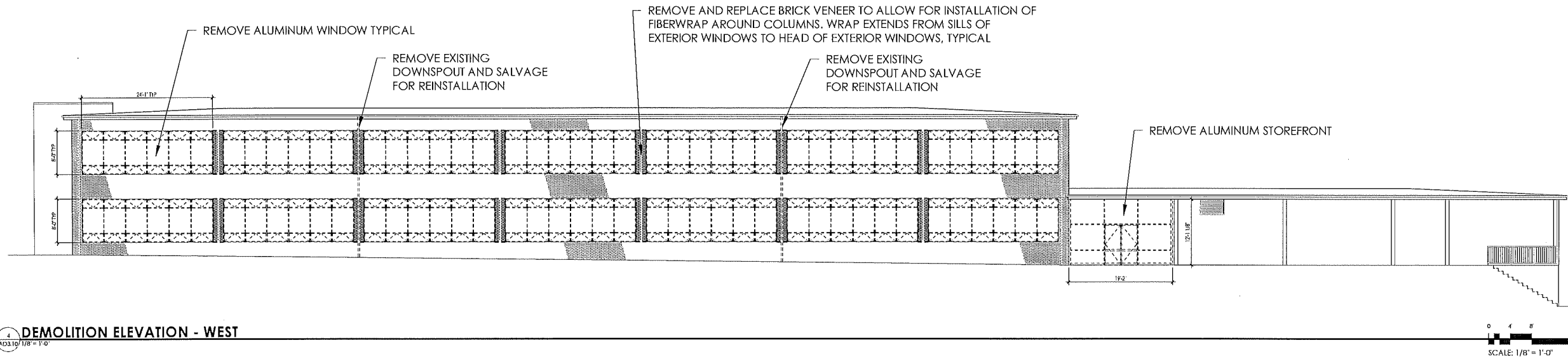
MSG PROJECT NO. 22-129

- KEYNOTES:
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  2. REMOVE EXISTING WINDOW FRAMES AND WINDOWS IN THEIR ENTIRETY ALL BAYS.
  3. REMOVE EXISTING METAL RADIATORS IN THEIR ENTIRETY ALL BAYS. REMOVE GYPSUM WALL BOARD FROM FLOOR TO UNDERSIDE OF WINDOW SILLS ALL BAYS.
  4. REMOVE EXISTING ACOUSTIC CEILING TILE AND CEILING STRUCTURE.
  5. REMOVE EXISTING ALUMINUM FRAMES GLASS ENTRY DOORS AND ASSOCIATED WINDOWS.
  6. EXISTING ROOFING TO REMAIN, TYPICAL FOR ENTIRE ROOF (UPPER ROOF NOT SHOWN).



**DEMOLITION FLOOR PLAN - SECOND LEVEL**
  
AD2.12 (REV. 11/21)

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Revisions Closing Date

Revisions	Closing Date

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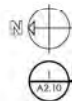
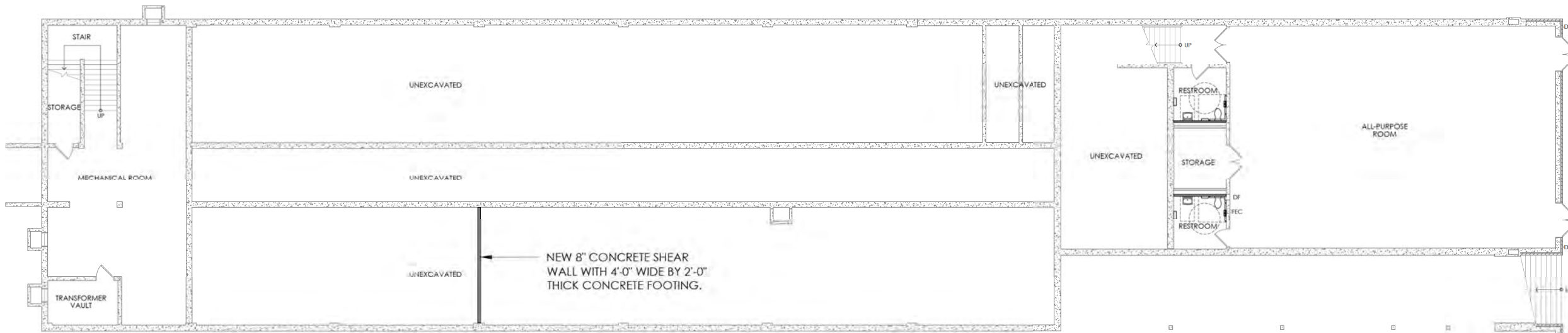
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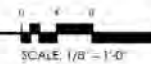
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1/8" = 1'-0"



SCALE: 1/8" = 1'-0"

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Sheet Title

**NEW FLOOR PLAN - BASEMENT LEVEL**

Sheet No.  
**A2.10**

MSGS Project No.  
22-A-29

**NORTHROP PRIMARY SCHOOL**

PREDESIGN  
611 GRAND BOULEVARD, VANCOUVER, WASHINGTON  
STATE PROJECT NO. 00600

p. 360.943.6774 | 360.332.7005

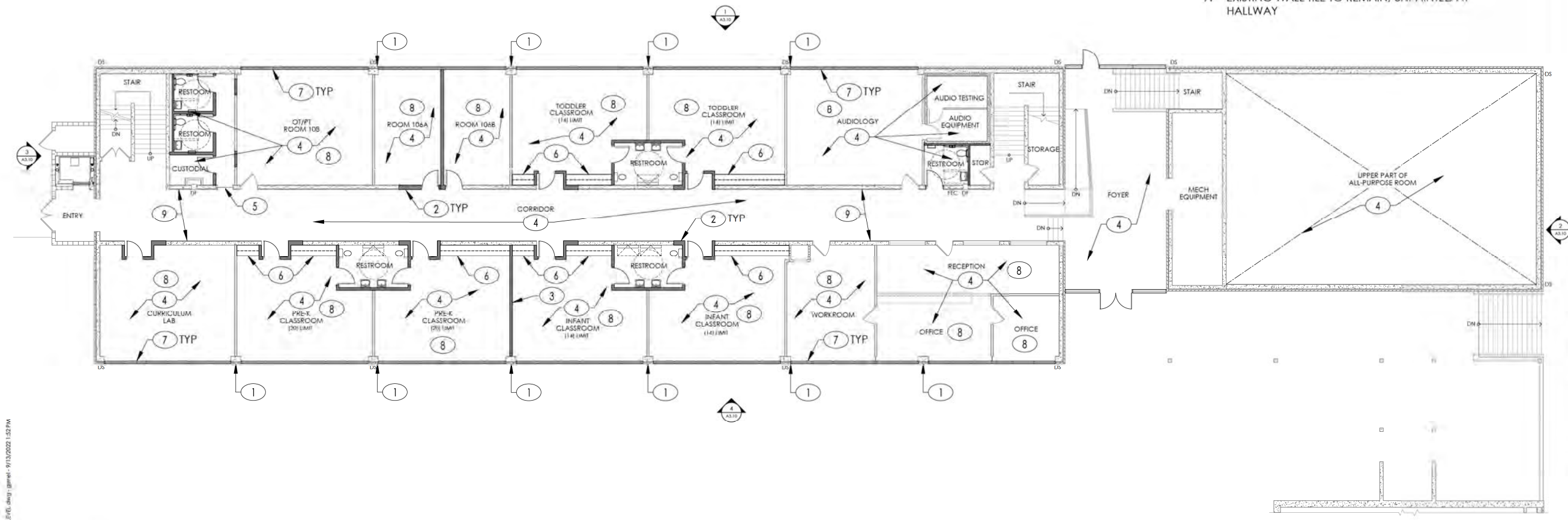
www.msgsarch.com



**msg architects**

510 capital way south  
olympia, washington 98501

- KEYNOTES:
1. REMOVE AND REPLACE BRICK VENEER TO ALLOW FOR INSTALLATION OF FIBERWRAP AROUND COLUMNS. WRAP EXTENDS FROM SILL OF EXTERIOR WINDOWS TO HEAD OF EXISTING WINDOWS.
  2. INFILL EXISTING OPENING WITH CONCRETE OR COLD FORMED METAL FRAMING.
  3. NEW 8" CONCRETE SHEAR WALL.
  4. INSTALL NEW SUSPENDED GYPSUM BOARD CEILING SYSTEM WITH 5/8" GWB AND 12"x12" ACOUSTIC TILES GLUED ON OVER. PROVIDE (34) 24"x24" PRE-FINISHED METAL ACCESS PANELS THIS FLOOR.
  5. NEW CHANNEL HEADER OVER NEW OPENING.
  6. NEW COUNTER W/ LOWER CABINETS AND WALL HUNG UPPER CABINETS.
  7. INSTALL NEW R-21 BATT INSULATION IN STUD BAY CAVITY BELOW WINDOW SILLS AND 5/8" GWB OVER.
  8. PAINT ALL WALLS.
  9. EXISTING WALL TILE TO REMAIN, UNPAINTED AT HALLWAY



PRELIMINARY  
NOT FOR CONSTRUCTION

PRELIMINARY 06/2022

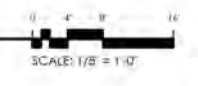
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Sheet Title  
**NEW FLOOR PLAN - FIRST LEVEL**

Sheet No.  
**A2.11**  
MSG Project No.  
22-129

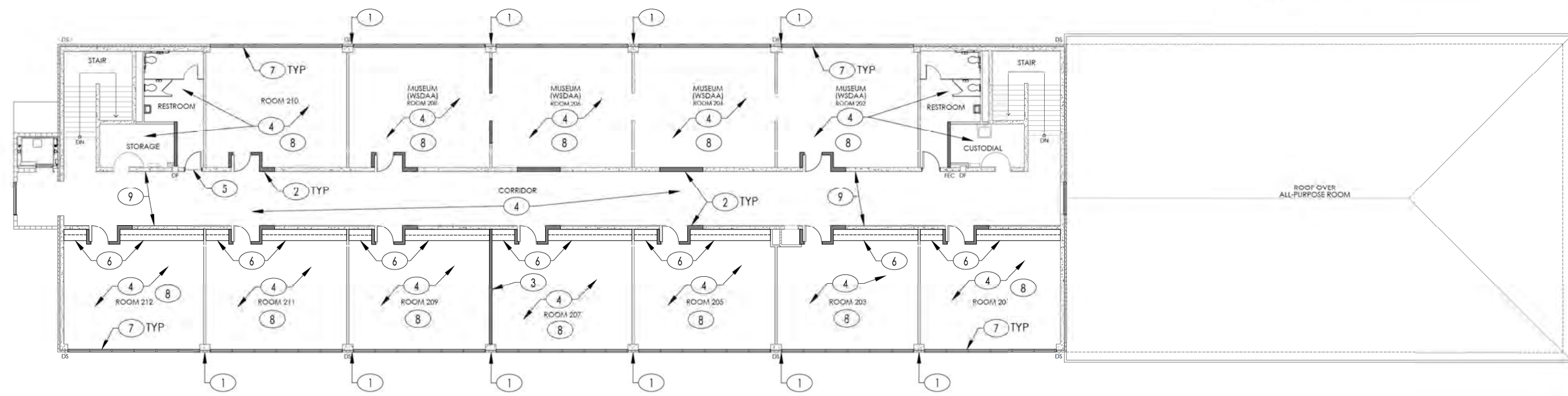
**NEW FLOOR PLAN - FIRST LEVEL**  
A2.11 1/8" = 1'-0"



22-129-25-129-A2.11 NEW FLOOR PLAN - FIRST LEVEL.dwg | 9/13/2022 1:52:17 PM



- KEYNOTES:**
1. REMOVE AND REPLACE BRICK VENEER TO ALLOW FOR INSTALLATION OF FIBERWRAP AROUND COLUMNS. WRAP EXTENDS FROM SILL OF EXTERIOR WINDOWS TO HEAD OF EXISTING WINDOWS.
  2. INFILL EXISTING OPENING WITH CONCRETE OR COLD FORMED METAL FRAMING.
  3. NEW 8" CONCRETE SHEAR WALL.
  4. INSTALL NEW SUSPENDED GYPSUM BOARD CEILING SYSTEM WITH 5/8" GWB AND 12"x12" ACOUSTIC TILES GLUED ON OVER. PROVIDE (34) 24"x24" PRE-FINISHED METAL ACCESS PANELS THIS FLOOR.
  5. NEW CHANNEL HEADER OVER NEW OPENING.
  6. NEW COUNTER W/ LOWER CABINETS AND WALL HUNG UPPER CABINETS.
  7. INSTALL NEW R-21 BATT INSULATION IN STUD BAY CAVITY BELOW WINDOW SILLS AND 5/8" GWB OVER.
  8. PAINT ALL WALLS.
  9. EXISTING WALL TILE TO REMAIN, UNPAINTED AT HALLWAY



**PRELIMINARY**
  
 NOT FOR CONSTRUCTION

PRELIMINARY 06/2022

Revision: \_\_\_\_\_ Closing Date: \_\_\_\_\_

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Sheet Title

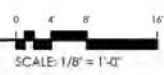
**NEW FLOOR PLAN - SECOND LEVEL**

Sheet No.
   
**A2.12**

MSG ARCHITECTS 22-A 29

25.1219.25.1219-A-2.12 NEW FLOOR PLAN - SECOND LEVEL.dwg - genrel - 9/13/2022 1:51


  
**NEW FLOOR PLAN - SECOND LEVEL**



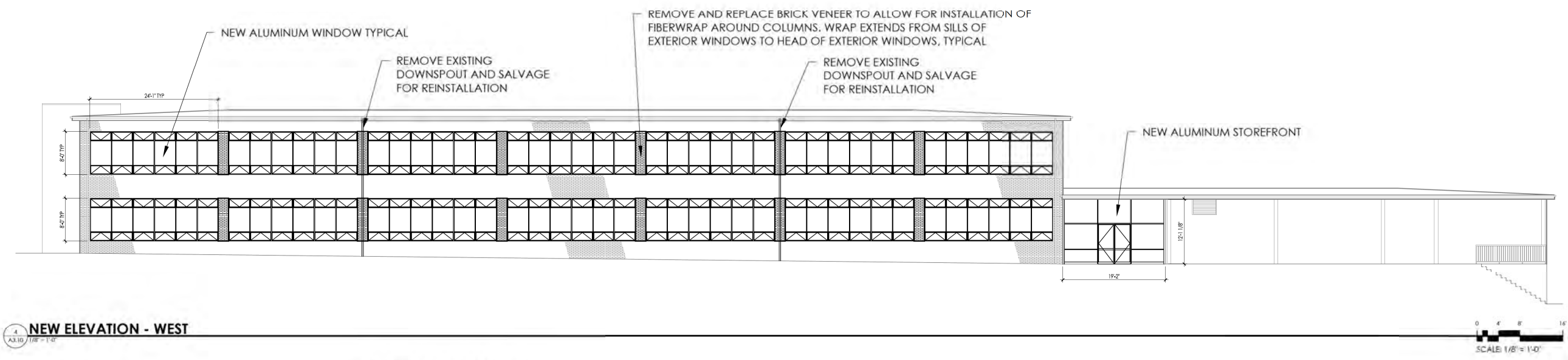
PRELIMINARY  
 NOT FOR CONSTRUCTION

PRELIMINARY 06/2022

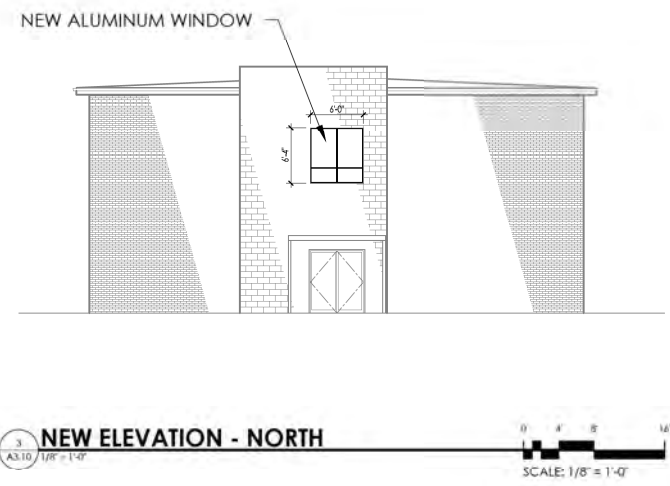
Revisions Closing Date

ALL RIGHTS RESERVED THESE DRAWINGS ARE THE PROPERTY OF MSGS ARCHITECTS AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER WITHOUT PRIOR WRITTEN PERMISSION.

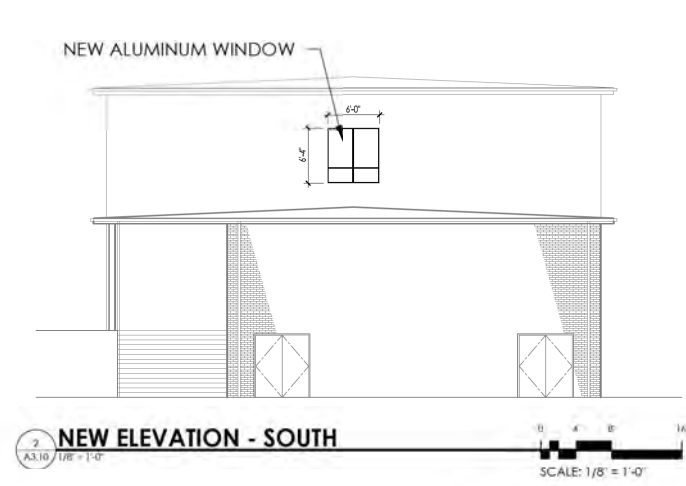
NEW ELEVATIONS



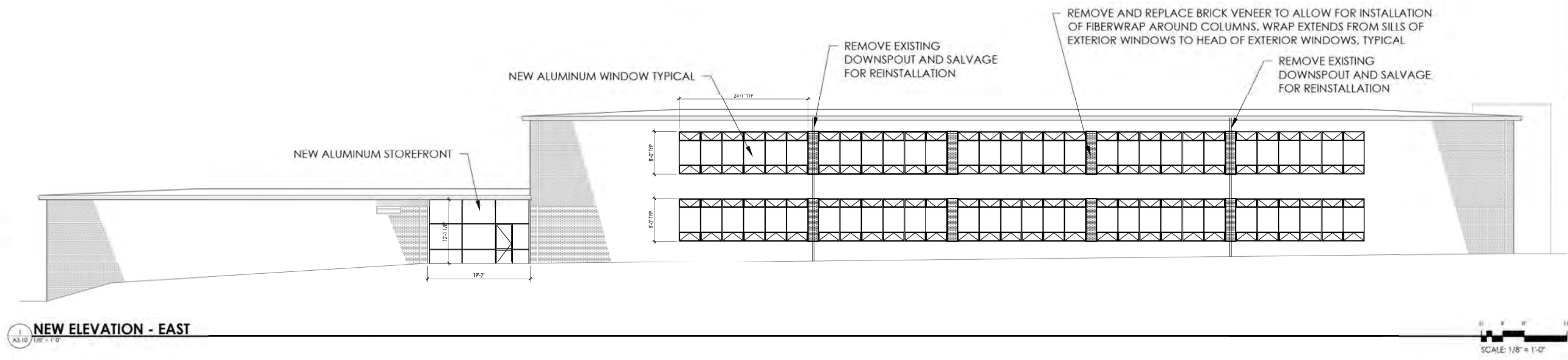
**4 NEW ELEVATION - WEST**  
 A3.10 1/8" = 1'-0"



**3 NEW ELEVATION - NORTH**  
 A3.10 1/8" = 1'-0"



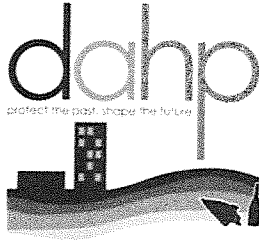
**2 NEW ELEVATION - SOUTH**  
 A3.10 1/8" = 1'-0"



**1 NEW ELEVATION - EAST**  
 A3.10 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"

22-129-129-A3.10 NEW ELEVATIONS.dwg - dmetz - 9/13/2022 11:24 AM



Allyson Brooks Ph.D., Director  
State Historic Preservation Officer

April 27, 2021

Mr. Keith Schreiber  
Schreiber Starling Whitehead Architects  
901 Fifth Ave  
No 3100  
Seattle, WA 98164

RECEIVED

MAY - 3 2021

Schreiber Starling Whitehead Architects

Dear Mr. Schreiber:

I am delighted to inform you that the **Northrop Primary School** at 611 Grand Blvd in Vancouver is being viewed for nomination to the State and National Register of Historic Places by the Washington State Advisory Council on Historic Preservation. You are cordially invited to attend the meeting of the Governor's Advisory Council on Thursday, May 13<sup>th</sup>, 2021, starting at 9:00am. Due to the pandemic, we will be meeting virtually... via a ZOOM call. You are welcome to observe or participate in the process and drop in and out of the call as needed. We will try our best to stick to an allotted agenda time. Please email or call our ACHP staff, Michael Houser (360) 890-2634 or [Michael.houser@dahp.wa.gov](mailto:Michael.houser@dahp.wa.gov), if you would like to speak during the ZOOM call.

Having a property listed in one or both of these registers is an honor. There are other potential benefits to having a property listed in one or both of these registers. For income producing properties there is a federal tax credit program available to offset rehabilitation costs, and some communities across the state offer special valuation, which is a reduction in your property taxes for a 10 year period. This program is controlled at the city/county level.

Listing of a property does not impose federal or state restrictive covenants or easements nor will it result in a taking. However, listing in the National Register of Historic Places and/or the Washington Heritage Register does assure protective review of a property should a federal or state action have a potential adverse effect to the property's historic values.

At our website is information that explains in greater detail the results of listing a property in the National Register of Historic Places. It also describes the rights and procedures should a property owner wish to object to having a property listed in the National Register.

Only owners of private properties nominated to the National Register of Historic Places have an opportunity to concur or object to listing in accordance with the National Historic Preservation Act of 1966 and 36 CFR Part 60. Any owner or partial owner of private property who chooses to object to listing is required to submit to the Office of Archaeology and Historic Preservation a notarized statement certify that the party is the



sole or partial owner of the private property and objects to listing. If you choose to object to listing of your property, the notarized objection must be submitted to the Department of Archaeology & Historic Preservation, 1110 S. Capitol Way, Suite 30, Olympia, WA 98501 no less than 5 days before the scheduled review meeting.

Should you have any further questions about the nomination process, please contact Michael Houser, *State Architectural Historian* at (360) 890-2634. The nomination form, meeting agenda, staff presentation and link to the ZOOM call can be found on-line at: <https://dahp.wa.gov/historic-registers/washington-state-advisory-council-on-historic-preservation> . If you cannot attend the meeting, please feel free to send a letter of support or objection to us regarding the designation.

Please accept my sincere congratulations on being a part of preserving our state's rich heritage.

Sincerely,



**Allyson Brooks, Ph.D.**  
State Historic Preservation Officer



**From:** [Houser, Michael \(DAHP\)](#)  
**To:** [Bill Sloane](#)  
**Cc:** [Borth, Holly \(DAHP\)](#)  
**Subject:** FW: Northrop Proposed Floor plans - WSD  
**Date:** Wednesday, September 14, 2022 10:14:06 AM  
**Attachments:** [Northrop Primary School Renovation - SCHEMATIC DESIGN Drwgs 7-19-22.pdf](#)

---

Bill:

Nice to chat with you yesterday about proposed work at Northrop School in Vancouver. Keep in mind that this is a pending NR listing and the beauty of this building and one of the main reasons it is being listed is how intact it is... the most intact building on the campus. Listing and its preservation was part of an MOA with the deaf school in which a master plan replaces all of the buildings on campus except for this one. Hence its preservation is paramount. The goal should be to retain as much original fabric as possible.

For a formal letter for GEO21-02 consultation you should work directly with Holly. I have noted this is a pre-design. Just a few quick issues to note in my mind... but the devil is always in the details. Here are a few things to think about:

- Window curtain wall replacement is doable, but the expectation would be that the replacement walls/window would be a near match to the existing conditions in terms of the glazing finish, the color of the material, and the size and profile of the existing framing system.
- The hallway tiled walls should be retained since this is a key defining feature.
- The various angled entries to the rooms should also be retained (another character defining feature).
- Various closet and bathroom spaces inside the rooms can be reconfigured as needed to meet current codes and ADA requirements.
- Preference would be to retain the carpet look in the hallway spaces which will help with acoustics.
- Replacement of lighting with design sensitive new fixtures should be OK.
- Removal of acoustical tile in classroom and hallway space should also be ok and should be replaced a new compatible product at the same height level.

Just a few quick thoughts.

**Michael Houser** | *State Architectural Historian*  
Cell: 360.890.2634  
[Michael.Houser@dahp.wa.gov](mailto:Michael.Houser@dahp.wa.gov)

*My weekly hours are 8am – 4:30pm, Mon-Fri*

**Dept. of Archaeology & Historic Preservation** | [www.dahp.wa.gov](http://www.dahp.wa.gov)  
1110 S. Capitol Way, Suite 30 | Olympia, WA 98501  
PO Box 48343 | Olympia WA 98504-8343



Like [DAHP on Facebook!](#)

*Please note that during the pandemic all DAHP employees are working from home. E-mail will be the best method of communication during this time. Response times may be delayed under the circumstances.*

---

**From:** Bill Sloane <bills@msgsaarch.com>  
**Sent:** Friday, September 9, 2022 10:35 AM  
**To:** Houser, Michael (DAHP) <Michael.Houser@DAHP.WA.GOV>  
**Subject:** Northrop Proposed Floor plans - WSD

External Email

Michael,

See attached conceptual Demolition and Proposed Floor Plans for the Northrop Primary School Building at the Washington School for the Deaf. On the floor plans, walls coming out are dashed on the Demo plans. Proposed walls on the new plans are shown filled in with a shade.

Also attached is a photo (4180) of one of the classroom's window wall and ceiling. The radiators below the window sills would come out and conditioned air distribution would be from the ceiling.

Photo 4164 shows the hallway wall tile – two tone - and a carpet placed on top of the terrazzo hall floor. We are proposing to remove the hall carpet.

Thanks for the discussion this morning.

Bill

Bill Sloane | aia | partner | LEEDap

**msgsa** architects

510 capitol way south, olympia wa 98501

[www.msgsaarch.com](http://www.msgsaarch.com)

Office number: **360 943 6774 x 108**

*a hands-on approach to creating beautiful, responsive and sustainable architecture*

NOTE: MSGS Architects remains committed to our clients' projects. The best way to contact me is by

**MEMORANDIUM OF UNDERSTANDING  
BETWEEN THE  
STATE OF WASHINGTON DEPARTMENT OF ARCHAEOLOGY  
AND HISTORIC PRESERVATION  
STATE OF WASHINGTON DEPARTMENT OF ENTERPRISE SERVICES  
AND THE CENTER FOR DEAF AND HARD OF HEARING YOUTH  
FOR THE MITIGATION OF THE WASHINGTON SCHOOL FOR THE DEAF  
REDEVELOPMENT PROJECT  
VANCOUVER, CLARK COUNTY, WASHINGTON**

Recitals:

**WHEREAS** the Department of Enterprise Services (DES) is the development agency and the Center for Deaf and Hard of Hearing Youth (CDHY) is their client agency, and

**WHEREAS** DES, in consultation for the Department of Archaeology and Historic Preservation (DAHP) have determined that the proposed redevelopment will have adverse impact upon properties eligible for listing in the National Register of Historic Places (NRHP) as a Historic District, and

**WHEREAS** the consulting parties agree that it is in the public interest to expend public funds for the appropriate mitigation of the loss of historic properties, and

**WHEREAS** DES, in consultation with DAHP, shall ensure that the mitigation measures identified herein will be implemented in a timely manner, and with adequate resources, and

**WHEREAS** CDHY have previously provided DAHP with Archival Research (by Archaeological Investigations Northwest (AINW), and

**WHEREAS** completed Statewide Historic Property Inventory Forms have been previously provided to DAHP in electronic form.

**NOW THEREFORE**, it is agreed by and between the parties hereto as follows:

**STIPULATIONS / MITIGATION PROCESS**

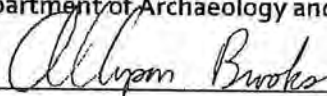
1.) Research and Documentation

- a. CDHY will complete/update the National Register of Historic Places Multiple Property Documentation (MPD) focusing on the life and work of Donald J. Stewart who was the Architect for many of the historic buildings on the WSD Campus. The MPD will document the life of Stewart and his main architectural designs. The MPD will contain photographs and a chronological listing of buildings designed by Stewart in the Vancouver and Portland area.

- b. In addition to the MPD CDHY will complete/update a National Historic Register Nomination Form for the Northrop Elementary School, a historically contributing campus building designed by Stewart. The Form will detail the historic significance of this building.
  - c. The MPD and individual nomination outlined in the above stipulations shall be considered satisfied upon successful completion of the nomination process through the Washington State Advisory Council on Historic Preservation and formal listing in the National Register of Historic Places.
- 2.) Education and Information
- a. CDHY will prepare exhibits and displays of the subject buildings and incorporate this information in the existing "Alumni Museum" located in the Northrop Building. CDHY will seek assistance from historic agencies to develop this material and the Museum.
  - b. CDHY will use the material in the MPD Form to augment the School History Chronology on its website.
  - c. CDHY will seek input from DAHP regarding the content and design of the displays in the museum, and the website, prior to finalizing either project.
- 3.) Creative Reuse
- a. DES will include the requirement in the design-build RFP to explore creative reuse of significant elements of the existing buildings in the new development. Any element of reuse should include educational signage and graphics giving the history and significance of the reused element. DES and CDHY shall continue consultation with DAHP regarding the design and ultimate construction and implementation.
- 4.) All ground disturbing activities shall have an unanticipated discovery plan on site.

**AGREED**

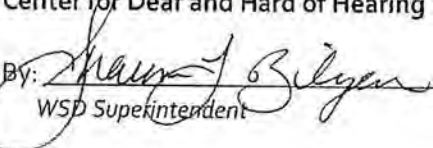
For the State of Washington  
Department of Archaeology and Historic Preservation

By:  Date: 3/8/2021  
State Historic Preservation Officer

For the State of Washington  
Department of Enterprise Services

By:  Date: 5/10/21  
E & A S Project Manager

For the State of Washington  
Center for Deaf and Hard of Hearing Youth

By:  Date: 5/10/21  
WSD Superintendent



**Independent Construction Cost Estimate**

for

**Northrop Primary School**  
**611 Grand Boulevard, Vancouver, WA**



prepared for:

**MSG Architects**

Mr. Bill Sloane  
510 Capitol Way South  
Olympia, WA 98501

September 14, 2022

**PROJECT:**  
**Address:**



**Northrop Primary School**  
611 Grand Blvd, Vancouver, WA

**Project Delivery Analysts, LLC**  
9001 Springwood Ave NE, Bainbridge Island, WA 98110

# Predesign Estimate Summary Alt 2

**Estimate By:** WPJ

**Page No.:** SUMMARY SHEET  
**Date:** 14-Sep-22

25,308 SF

25,308 SF

0 SF

**Duration (Mos.):** 12  
25,308 SF

NO.	DESCRIPTION	A. BUILDING ALT 2		B. SITEWORK		C. OFF-SITEWORK		LINE TOTALS	
		ESTIMATE	\$ / SF	ESTIMATE	\$ / SF	ESTIMATE	\$ / SF	ESTIMATE	\$ / SF
<b>DIRECT HARD COSTS</b>									
1.	Selective Building Demolition	\$ 0	\$ 0.00	\$ 415,601	\$ 16.42	\$ 0	\$ 0.00	\$ 415,601	\$ 16.42
2.	Earthwork, Site Demo, Prep	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
3.	Site Improvements	\$ 0	\$ 0.00	\$ 54,631	\$ 2.16	\$ 0	\$ 0.00	\$ 54,631	\$ 2.16
4.	Site Civil/Mech. Utilities	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
5.	Site Electrical	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
6.	Site Other / Play Area	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
7.	Foundations & Slab on Grade	\$ 14,097	\$ 0.56		\$ 0.00		\$ 0.00	\$ 14,097	\$ 0.56
8.	Vertical Structure	\$ 114,525	\$ 4.53		\$ 0.00		\$ 0.00	\$ 114,525	\$ 4.53
9.	Floor and Roof Structure	\$ 12,708	\$ 0.50		\$ 0.00		\$ 0.00	\$ 12,708	\$ 0.50
10.	Exterior Enclosure	\$ 551,572	\$ 21.79		\$ 0.00		\$ 0.00	\$ 551,572	\$ 21.79
11.	Roofing / Waterproofing	\$ 6,219	\$ 0.25		\$ 0.00		\$ 0.00	\$ 6,219	\$ 0.25
12.	Interior Construction	\$ 213,705	\$ 8.44		\$ 0.00		\$ 0.00	\$ 213,705	\$ 8.44
13.	Interior Finishes	\$ 701,238	\$ 27.71		\$ 0.00		\$ 0.00	\$ 701,238	\$ 27.71
14.	Fixed Equipment and Specialties	\$ 211,054	\$ 8.34		\$ 0.00		\$ 0.00	\$ 211,054	\$ 8.34
15.	Furnishings and Casework	\$ 211,919	\$ 8.37		\$ 0.00		\$ 0.00	\$ 211,919	\$ 8.37
16.	Special Construction / PEMB	\$ 0	\$ 0.00		\$ 0.00		\$ 0.00	\$ 0	\$ 0.00
17.	Conveying	\$ 0	\$ 0.00		\$ 0.00		\$ 0.00	\$ 0	\$ 0.00
18.	Fire Protection	\$ 436,563	\$ 17.25		\$ 0.00		\$ 0.00	\$ 436,563	\$ 17.25
19.	Plumbing	\$ 349,250	\$ 13.80		\$ 0.00		\$ 0.00	\$ 349,250	\$ 13.80
20.	HVAC	\$ 1,891,773	\$ 74.75		\$ 0.00		\$ 0.00	\$ 1,891,773	\$ 74.75
21.	Electrical	\$ 1,304,514	\$ 51.55		\$ 0.00		\$ 0.00	\$ 1,304,514	\$ 51.55
<b>DIRECT SUBTOTALS</b>		<b>\$ 6,019,137</b>	<b>\$ 237.84</b>	<b>\$ 470,232</b>	<b>\$ 18.58</b>	<b>\$ 0</b>	<b>\$ 0.00</b>	<b>\$ 6,489,368</b>	<b>\$ 256.42</b>
<b>INDIRECT HARD COSTS</b>									
20.	Security / Access Premium	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
21.	General Conditions / Mob @ 9%	\$ 541,722	\$ 21.41	\$ 42,321	\$ 1.67	\$ 0	\$ 0.00	\$ 584,043	\$ 23.08
22.	GC Bond, Insurance, B+O Tax	\$ 229,630	\$ 9.07	\$ 17,939	\$ 0.71	\$ 0	\$ 0.00	\$ 247,569	\$ 9.78
25.	G.C. OH & P @ 6%	\$ 407,429	\$ 16.10	\$ 31,830	\$ 1.26	\$ 0	\$ 0.00	\$ 439,259	\$ 17.36
26.	Estimating Contingency Incl Above	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
<b>INDIRECT SUBTOTALS</b>		<b>\$ 1,178,782</b>	<b>\$ 46.58</b>	<b>\$ 92,090</b>	<b>\$ 3.64</b>	<b>\$ 0</b>	<b>\$ 0.00</b>	<b>\$ 1,270,871</b>	<b>\$ 50.22</b>
<b>TOTALS - TODAY'S DOLLARS</b>		<b>\$ 7,198,000</b>	<b>\$ 284.41</b>	<b>\$ 562,000</b>	<b>\$ 22.22</b>	<b>\$ 0</b>	<b>\$ 0.00</b>	<b>\$ 7,760,000</b>	<b>\$ 306.63</b>

**ESTIMATE NOTES:**

1.	Estimate assumes Washington State Prevailing Wages throughout
2.	Alternate two is based upon an air cooled VRF mechanical system.
3.	
4.	
5.	

**ESCALATED TOTALS (not including WSST):**

1.	Cost Escalation to Jan 2025 Construction Midpoint	\$ 899,000	\$ 35.52
2.	Washington State Sales Tax - by Owner	\$ -	\$ -
<b>Escalated Total</b>		<b>\$ 8,659,000</b>	<b>\$ 342.14</b>

**SPECIFIC EXCLUSIONS:**

1.	Washington State Sales Tax, Change Order Contingency are by Owner
2.	Cost Escalation beyond projected mid point month above.
3.	Building and Environmental Permit Fees; Utility Fees and Meters
4.	Hazardous material abatement beyond the allowance included.
5.	Loose fixtures, furnishings and equipment.
6.	Other soft costs (Owner contingency, design, permits, test & inspect, CM/PM, bidding, etc)

<b>General conditions cost per month, for information:</b>	<b>\$ 48,670</b>
--	------------------



**PROJECT:**  
**Address:**



**Northrop Primary School**  
611 Grand Blvd, Vancouver, WA

**Project Delivery Analysts, LLC**  
9001 Springwood Ave NE, Bainbridge Island, WA 98110

# Predesign Estimate Summary Alt 3

**Estimate By:** WPJ

**Page No.:** SUMMARY SHEET  
**Date:** 14-Sep-22

25,308 SF

25,308 SF

0 SF

**Duration (Mos.):** 12  
25,308 SF

NO.	DESCRIPTION	A. BUILDING ALT 3		B. SITEWORK		C. OFF-SITEWORK		LINE TOTALS	
		ESTIMATE	\$ / SF	ESTIMATE	\$ / SF	ESTIMATE	\$ / SF	ESTIMATE	\$ / SF
<b>DIRECT HARD COSTS</b>									
1.	Selective Building Demolition	\$ 0	\$ 0.00	\$ 415,601	\$ 16.42	\$ 0	\$ 0.00	\$ 415,601	\$ 16.42
2.	Earthwork, Site Demo, Prep	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
3.	Site Improvements	\$ 0	\$ 0.00	\$ 54,631	\$ 2.16	\$ 0	\$ 0.00	\$ 54,631	\$ 2.16
4.	Site Civil/Mech. Utilities	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
5.	Site Electrical	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
6.	Site Other / Play Area	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
7.	Foundations & Slab on Grade	\$ 14,097	\$ 0.56	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 14,097	\$ 0.56
8.	Vertical Structure	\$ 114,525	\$ 4.53	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 114,525	\$ 4.53
9.	Floor and Roof Structure	\$ 12,708	\$ 0.50	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 12,708	\$ 0.50
10.	Exterior Enclosure	\$ 551,572	\$ 21.79	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 551,572	\$ 21.79
11.	Roofing / Waterproofing	\$ 6,219	\$ 0.25	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 6,219	\$ 0.25
12.	Interior Construction	\$ 213,705	\$ 8.44	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 213,705	\$ 8.44
13.	Interior Finishes	\$ 701,238	\$ 27.71	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 701,238	\$ 27.71
14.	Fixed Equipment and Specialties	\$ 211,054	\$ 8.34	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 211,054	\$ 8.34
15.	Furnishings and Casework	\$ 211,919	\$ 8.37	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 211,919	\$ 8.37
16.	Special Construction / PEMB	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
17.	Conveying	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
18.	Fire Protection	\$ 436,563	\$ 17.25	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 436,563	\$ 17.25
19.	Plumbing	\$ 349,250	\$ 13.80	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 349,250	\$ 13.80
20.	HVAC	\$ 1,992,575	\$ 78.73	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 1,992,575	\$ 78.73
21.	Electrical	\$ 1,304,514	\$ 51.55	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 1,304,514	\$ 51.55
<b>DIRECT SUBTOTALS</b>		<b>\$ 6,119,939</b>	<b>\$ 241.82</b>	<b>\$ 470,232</b>	<b>\$ 18.58</b>	<b>\$ 0</b>	<b>\$ 0.00</b>	<b>\$ 6,590,170</b>	<b>\$ 260.40</b>
<b>INDIRECT HARD COSTS</b>									
20.	Security / Access Premium	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
21.	General Conditions / Mob @ 9%	\$ 550,794	\$ 21.76	\$ 42,321	\$ 1.67	\$ 0	\$ 0.00	\$ 593,115	\$ 23.44
22.	GC Bond, Insurance, B+O Tax	\$ 233,476	\$ 9.23	\$ 17,939	\$ 0.71	\$ 0	\$ 0.00	\$ 251,415	\$ 9.93
25.	G.C. OH & P @ 6%	\$ 414,253	\$ 16.37	\$ 31,830	\$ 1.26	\$ 0	\$ 0.00	\$ 446,082	\$ 17.63
26.	Estimating Contingency Incl Above	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00	\$ 0	\$ 0.00
<b>INDIRECT SUBTOTALS</b>		<b>\$ 1,198,523</b>	<b>\$ 47.36</b>	<b>\$ 92,090</b>	<b>\$ 3.64</b>	<b>\$ 0</b>	<b>\$ 0.00</b>	<b>\$ 1,290,612</b>	<b>\$ 51.00</b>
<b>TOTALS - TODAY'S DOLLARS</b>		<b>\$ 7,318,000</b>	<b>\$ 289.18</b>	<b>\$ 562,000</b>	<b>\$ 22.22</b>	<b>\$ 0</b>	<b>\$ 0.00</b>	<b>\$ 7,881,000</b>	<b>\$ 311.39</b>

**ESTIMATE NOTES:**

1.	Estimate assumes Washington State Prevailing Wages throughout
2.	Alterante 3 is based upon a ground source open loop water cooled VRF system.
3.	The hard cost difference from Alternate 2 to 3 is in mechanical. Plus indirect cost mark up.
4.	
5.	

**ESCALATED TOTALS (not including WSST):**

1.	Cost Escalation to January 2025 Construction Midpoint	\$ 913,000	\$ 36.08
2.	Washington State Sales Tax - by Owner	\$ -	\$ -
<b>Escalated Total</b>		<b>\$ 8,794,000</b>	<b>\$ 347.48</b>

**SPECIFIC EXCLUSIONS:**

1.	Washington State Sales Tax, Change Order Contingency are by Owner
2.	Cost Escalation beyond projected mid point month above.
3.	Building and Environmental Permit Fees; Utility Fees and Meters
4.	Hazardous material abatement beyond the allowance included.
5.	Loose fixtures, furnishings and equipment.
6.	Other soft costs (Owner contingency, design, permits, test & inspect, CM/PM, bidding, etc)

<b>General conditions cost per month, for information:</b>	<b>\$ 49,426</b>
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# A. BUILDING ALT 2

# Estimate Detail

SHEET  
**EST A.2**

**AREAS:**

<b>Enclosed:</b>			
Basement.....	3,000 SF	Per plan A2.10; north mech room not counted as there is no work shown	
First floor.....	12,000 SF		
Second floor.....	10,308 SF		
	<b>Subtotal</b>	<b>25,308 SF</b>	Agrees with Designer's area
<b>Canopies</b>	0 SF @ 0% value	0 SF	Not counted toward gross area
	<b>Total GSF</b>	<b>25,308 SF</b>	

**CONTROL QUANTITIES:**

		Ratio to Gross Area
Number of Levels.....	3 EA	
Gross Area.....	25,308 SF	1.000
Covered Area / Canopies.....	0 SF	0.000
Perimeter length.....	674 LF	Includes return walls, alcoves

ITEM	DESCRIPTION	QTY	U/M	UNIT COST	EXTENSION	NOTES
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**7. Foundations & Slab on Grade**

7.01	Patch existing slab for MEP trenches, allowance	1	ALLOW	\$ 3,000.00	\$ 3,000	For new waste lines, etc
7.02	Patch back existing first floor slab at shear wall location	85	SF	\$ 12.00	\$ 1,020	Small quantity premium
7.03	Dowel new slab to existing slab	1	ALLOW	\$ 1,000.00	\$ 1,000	At SOG patches
7.04	Strip footing at shear wall 4'-0" x 2'-0" cont	6.8	CY	\$ 600.00	\$ 4,107	
7.05	Concrete pumping mob and demob	1	EA	\$ 750.00	\$ 750	Small job premium
7.06	Short yard charge	1	EA	\$ 300.00	\$ 300	
7.07	Footing Reinforcing steel at 175 lb./cy	0.7	Tons	\$ 2,400.00	\$ 1,725	
7.08	Foundation drainage 6" diameter	0	LF	\$ -	\$ 0	No work assume existing
7.09	Foundation wall waterproofing	0	SF	\$ 5.00	\$ 0	No work
7.10	Rough hardware, misc connector metal	3%	PCT	\$ 11,901	\$ 357	
7.11	Design / estimating contingency	15%	PCT	\$ 12,259	\$ 1,839	
<b>Subtotals</b>					<b>\$ 14,097</b>	

**8. Vertical Structure**

8.01	New 8" concrete shear wall, basement to roof	770	SF	\$ 24.00	\$ 18,480	Based on 35' total ht
8.02	Infill existing openings with concrete	20	EA	\$ 1,000.00	\$ 20,000	At existing interior corridor wall
8.03	Drill and dowel to existing concrete	328	EA	\$ 25.00	\$ 8,200	Along shear wall and opening fill
8.03	Interior non structural wall stud framing - see below	0	SF	\$ 5.25	\$ 0	See Interior Const for demising
8.04	Steel lintels over door openings in concrete wall	10	LF	\$ 50.00	\$ 500	Galvanized steel angle iron
8.05	Install fiberwrap around columns between windows	960	SF	\$ 48.00	\$ 46,080	Per PCS elevations
8.06	Misc wall blocking and backing for wall hung fixtures	25,308	GSF	\$ 0.25	\$ 6,327	
8.07	Design / estimating contingency	15%	PCT	\$ 99,587	\$ 14,938	
<b>Subtotals</b>					<b>\$ 114,525</b>	

**9. Floor and Roof Structure**

9.01	Pour back elevated 1st and 2nd floor slabs at shear wall slot	44	LF	\$ 100.00	\$ 4,400	Allowance, no detail
9.02	Tie new shear wall to roof structure	22	LF	\$ 75.00	\$ 1,650	Above
9.03	New roof opening framing, curbs, misc	1	EA	\$ 5,000.00	\$ 5,000	Allowance
9.04	Design / estimating contingency	15%	PCT	\$ 11,050	\$ 1,658	
<b>Subtotals</b>					<b>\$ 12,708</b>	

**10. Exterior Enclosure**

**Exterior Doors, Frames and Hardware -**

10.01	Exit doors Hollow Metal from MEP, HMxHM, insulated	0	LEAF	\$ 1,350.00	\$ 0	No work
10.02	Entry doors, frames Glass x Aluminum paired 6072	1	PR	\$ 3,000.00	\$ 3,000	To Foyer west

10.03	Entry doors, frames Glass x Aluminum single 3070	1	EA	\$ 1,600.00	\$ 1,600	To Foyer east
10.04	Door submittals and freight	15%	PCT	\$ 4,600.00	\$ 690	Small job premium
10.05	Field paint existing exterior HM doors	5	EA	\$ 150.00	\$ 750	
10.06	Key card access hardware	2	EA	\$ 2,000.00	\$ 4,000	Included at new doors only
10.07	Panic hardware sets per code	2	EA	\$ 650.00	\$ 1,300	At Foyer
10.08	ADA door operators	2	EA	\$ 4,000.00	\$ 8,000	Two locations assumed

**Windows and Glazing -**

10.09	Storefront entrances, dual glazed, insulated	463	SF	\$ 68.00	\$ 31,494	Per elevations
10.10	Storefront punch windows, dual glazed, insulated	76	SF	\$ 68.00	\$ 5,168	North and south elevation
10.11	Storefront strip windows, dual glazed, insulated	4,632	SF	\$ 68.00	\$ 314,976	East and west elevations
10.12	Operable premium, hardware and hinges	135	SF	\$ 20.00	\$ 2,696	25% area rule of thumb
10.13	Manual window cranks for operable windows, material	1	LS	\$ 2,500.00	\$ 2,500	
10.14	Manual window cranks for operable windows, labor	24	MH	\$ 100.00	\$ 2,400	
10.15	Brick veneer o/WAB restoration (no studs or sheathing)	320	SF	\$ 50.00	\$ 16,000	Patch work at column wraps
10.16	Install thermal batt insulation at exterior wall	10,054	SF	\$ 2.50	\$ 25,135	Worked from inside
10.17	Caulk window perimeter	1,663	LF	\$ 3.00	\$ 4,989	
10.18	Scaffolding for exterior trades	9,075	SF	\$ 6.00	\$ 54,450	Rental cost
10.19	Entry and exit canopy overhangs	0	SF	\$ 50.00	\$ 0	Assume existing
10.20	Weatherseal new brick masonry	320	SSF	\$ 1.50	\$ 480	
10.21	Design / estimating contingency	15%	PCT	\$ 479,628	\$ 71,944	

<b>Subtotals</b>	<b>\$ 551,572</b>
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**11. Roofing, Skylights and Waterproofing**

11.01	Repair at new MEP openings, allowance	1	EA	\$ 3,500.00	\$ 3,500	Min trip charge for roofing sub
11.02	Downspouts to replace existing	106	LF	\$ 18.00	\$ 1,908	From scupper to footing drain
11.03	Design / estimating contingency	15%	PCT	\$ 5,408	\$ 811	

<b>Subtotals</b>	<b>\$ 6,219</b>
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**12. Interior Construction**

**Interior Partitions and GWB -**

12.01	Interior Partition, GWB ea side, 2x6 MS, Sound Batts	5,388	SF	\$ 13.25	\$ 71,391	Full height partitions to +12'-0"
12.02	Add GWB layers and insulation batts to bearing wall	528	SF	\$ 6.50	\$ 3,432	Both faces of new shear wall
12.03	Chase / Plumbing Wall, GWB and extra wide stud	228	SF	\$ 15.25	\$ 3,477	At restrooms. Basement level
12.04	Replace interior GWB face of exterior wall	10,054	SF	\$ 2.75	\$ 27,649	After thermal insulation upgrade
12.05	Interior wood blocking and backing allow	1	LS	\$ 2,000.00	\$ 2,000	For surface mt accessories, misc
12.06	Firesealant and firestopping allow	25,308	SF	\$ 0.25	\$ 6,327	At floor penetrations, etc
12.07	Caulk dissimilar materials	754	SF	\$ 2.50	\$ 1,885	

**Interior Doors -**

12.08	Interior passage doors 3070 WD or HM x HM frame w/hz	9	EA	\$ 1,350.00	\$ 12,150	Slab Doors
12.09	Corridor/Office passage drs 3070 WD/HM frame w/hdwr	22	EA	\$ 1,400.00	\$ 30,800	With Vision Panels (at Corridors)
12.10	Panic hardware sets, allow	17	EA	\$ 600.00	\$ 10,200	Classroom/Corridor Exit Doors
12.11	Card reader access control hardware	0	EA	\$ 1,800.00	\$ 0	Assume none
12.12	Ceiling access doors to HVAC cassettes	34	EA	\$ 350.00	\$ 11,900	Per plan note

**Interior Glazing, Misc -**

12.13	Interior relites, none found	0	SF	\$ 60.00	\$ 0	Confirm any scope
12.14	Install vision panel glazing at door cut outs	132	SF	\$ 35.00	\$ 4,620	Assume 24"x36" door cut outs
12.15	Design / estimating contingency	15%	PCT	\$ 185,831	\$ 27,875	

<b>Subtotals</b>	<b>\$ 213,705</b>
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**13. Interior Finishes - Floors, Walls, Ceilings**

**Flooring -**

13.01	Luxury vinyl or carpet to replace exist	23,807	SF	\$ 6.00	\$ 142,841	Includes 10% cutting waste
13.02	Sealed concrete at mech spaces and storage	600	SF	\$ 1.00	\$ 600	Including Custodial
13.03	Ceramic tile at RR floor	1,076	SF	\$ 12.50	\$ 13,450	
13.04	Sport flooring at MP room	2,356	SF	\$ 13.00	\$ 30,628	Rubber or sprung

**Bases -**

13.05	Rubber base, 4"	1,360	LF	\$ 2.50	\$ 3,399	Typical unless noted
13.06	Tile base	298	LF	\$ 15.00	\$ 4,466	Both quarry and ceramic bases
13.07	Marble thresholders	11	EA	\$ 100.00	\$ 1,100	

**Walls -**

13.08	Ceramic tile at restroom to +4'	1,191	SF	\$	10.00	\$	11,910	4"x4" wall tile, wet walls
13.09	Paint interior fiberwrap	640	SF	\$	1.00	\$	640	Paint to +10' AFF
13.10	Paint interior walls, both faces, new	15,674	SF	\$	1.00	\$	15,674	Includes shear wall
13.11	Paint interior walls, both faces, existing	31,200	SF	\$	1.25	\$	39,000	Price includes wall prep
13.12	Paint or stain interior doors and frames, new	31	EA	\$	150.00	\$	4,650	
13.13	Paint or stain interior doors and frames, exist	19	EA	\$	165.00	\$	3,135	

**Ceilings -**

13.13	GWB ceilings with paint, restroom	1,076	SF	\$	9.00	\$	9,684	Drywall, suspension system, paint
13.14	Glue on ceiling tiles o/ susp. GWB at lobby, office, confer	26,163	SF	\$	12.50	\$	327,035	Replacement system at +10' AFF
13.15	Exposed structure elsewhere	600	SF	\$	0.00	\$	0	Mech and storage

**Miscellaneous Painting Scope -**

13.16	Touch up and punch list	24	MH	\$	65.00	\$	1,560	
13.17	Design / estimating contingency	15%	PCT	\$	609,772	\$	91,466	

<b>Subtotals</b>	<b>\$ 701,238</b>
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**14. Fixed Equipment & Specialties****Athletic Equipment:**

14.01	Soft flooring mats at MP room	400	SF	\$	15.00	\$	6,000	Per MSGS message
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**AV Equipment:**

14.02	Projection screens, misc AV scope	25,308	SF	\$	3.00	\$	75,924	SF allowance
14.03	Above ceiling projector mounts	0	EA	\$	-	\$	0	Included above

**Interior Specialties:**

14.04	Bathroom accessories per Restroom	10	RMS	\$	2,500.00	\$	25,000	Avg cost per restroom
14.05	Handicap bars	8	EA	\$	400.00	\$	3,200	
14.06	Changing tables	4	EA	\$	1,500.00	\$	6,000	
14.06	Bathroom partitions	4	EA	\$	1,750.00	\$	7,000	Porcelain enamel, ceiling mounted
14.07	Restroom signage and misc signs	31	EA	\$	75.00	\$	2,325	One per door + 3 code signs
14.08	Whiteboards	1,664	SF	\$	25.00	\$	41,600	Two 4' x8' per Classroom/Conf.
14.09	Tackboards	832	SF	\$	18.00	\$	14,976	One 4' x8' per Classroom/Conf.
14.10	Fire extinguisher cabinets - Allowance	6	EA	\$	250.00	\$	1,500	Two per floor
14.11	Design / estimating contingency	15%	PCT	\$	183,525	\$	27,529	

<b>Subtotals</b>	<b>\$ 211,054</b>
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**15. Furnishings and Casework**

15.01	Permanent walk off system	24	SF	\$	30.00	\$	720	One 3' x8' metal grid
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**Window Coverings:**

15.02	Mini blinds	5,171	SF	\$	5.50	\$	28,441	At storefront and punch windows
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**Casework:**

15.03	Lower cabinets	214	LF	\$	375.00	\$	80,063	Per revised plans dated 9-13-22
15.04	Upper cabinets	214	LF	\$	250.00	\$	53,375	
15.05	Full height cabinets	0	LF	\$	425.00	\$	0	
15.06	Reception desks	0	LF	\$	700.00	\$	0	
15.07	Work counters	0	LF	\$	175.00	\$	0	Counter only, wall supported
15.08	Plastic lam counters over base units above	497	SF	\$	32.00	\$	15,919	With 4" splashes

**Millwork, Misc. -**

15.09	Window sills, wood	576	LF	\$	10.00	\$	5,760	At replacement windows
15.10	Design / estimating contingency	15%	PCT	\$	184,277	\$	27,642	

<b>Subtotals</b>	<b>\$ 211,919</b>
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**16. Special Construction / Pre-Fabricated**

16.01	NO WORK	0	LS	\$	0.00	\$	0	
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<b>Subtotals</b>	<b>\$ 0</b>
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**17. Conveying**

17.01	NO WORK	0	LS	\$	0.00	\$	0	Confirm
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<b>Subtotals</b>	<b>\$ 0</b>
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**18. Fire Protection - see BCE estimate****Fire Protection System:**

18.01	Backflow preventer, fittings, 4" piping	1	LS	\$	0.00	\$	0	Included below
18.02	Full sprinkler coverage, complete	25,308	SF	\$	15.00	\$	379,620	General coverage, mostly concealed
18.03	Fire Protection Contractor OH+P	0.0%	PCT	\$	379,620	\$	0	Included above
18.04	Design / estimating contingency	15%	PCT	\$	379,620	\$	56,943	

<b>Subtotals</b>	<b>\$ 436,563</b>
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**19. Plumbing - see BCE estimate****Fixtures including Rough-in:**

19.01	Plumbing system, complete	25,308	SF	\$	12.00	\$	303,696	Piping, fixtures, valves, complete
19.02	Mechanical Contractor OH+P	0.0%	PCT	\$	-	\$	0	Included above
19.03	Design / estimating contingency	15%	PCT	\$	303,696	\$	45,554	

<b>Subtotals</b>	<b>\$ 349,250</b>
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**20. HVAC - see BCE estimate**

20.01	General mechanical	25,308	SF	\$	2.50	\$	63,270	Mob, submittals, close out
20.02	Demolition	25,308	SF	\$	2.00	\$	50,616	Assumes plumbing demo too
20.03	HVAC - Air cooled VRF with DOAS	25,308	SF	\$	50.00	\$	1,265,400	

**Ductwork and Kitchen Exhausts**

20.04	Exhaust Ductwork	0	LF	\$	-	\$	0	Included with HVAC \$/SF above
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**Controls, TAB and Commission**

20.05	Test, Adjust and Balance, CX and Close Out	25,308	SF	\$	3.50	\$	88,578	
20.06	Commissioning (Cx)	25,308	SF	\$	-	\$	0	Included with TAB above
20.07	DDC Controls	25,308	SF	\$	7.00	\$	177,156	
20.08	Mechanical Contractor OH+P	0.0%	PCT	\$	1,645,020	\$	0	Included above
20.09	Design / estimating contingency	15%	PCT	\$	1,645,020	\$	246,753	

<b>Subtotals</b>	<b>\$ 1,891,773</b>
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**21. Electrical - see BCE message****Building Power and Lighting Div. 26**

21.01	General electrical	25,308	SF	\$	3.00	\$	75,924	Mob, submittals, close out
21.02	Demolition	25,308	SF	\$	1.75	\$	44,289	
21.03	Lighting fixtures and controls	25,308	SF	\$	12.00	\$	303,696	New fixtures and controls
21.04	Electrical gear and distribution	25,308	SF	\$	8.00	\$	202,464	Full replacement
21.05	Branch wiring	25,308	SF	\$	10.00	\$	253,080	Partial re-use of existing conduit
21.06	New service	1	LS	\$	75,000	\$	75,000	

**Building Comm Systems Div. 27**

21.04	Comm and data, minor updates	25,308	SF	\$	3.50	\$	88,578	
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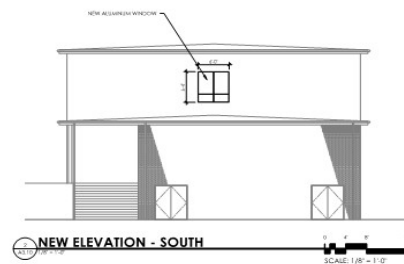
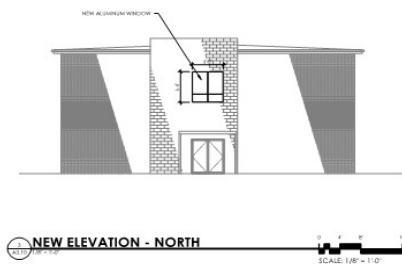
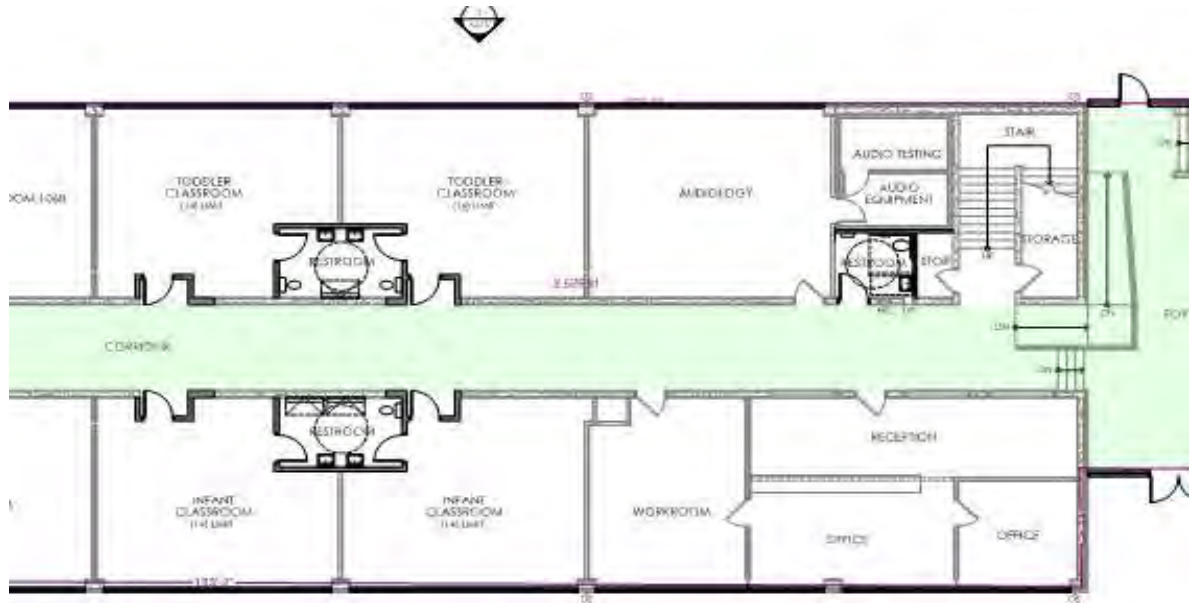
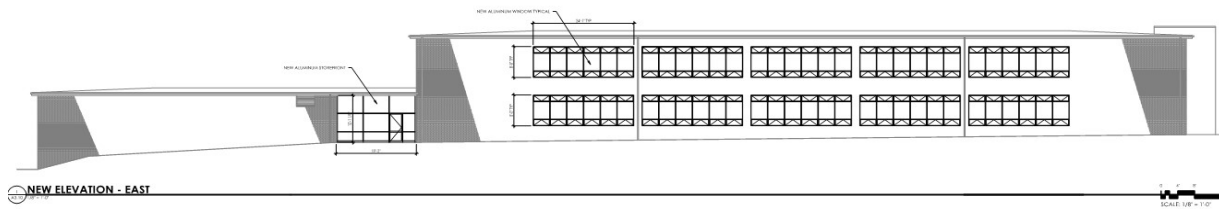
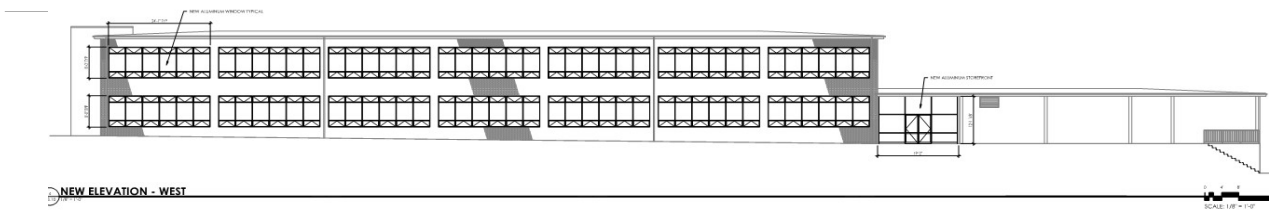
**Building Signal and Security Div. 28**

21.05	Fire alarm system	25,308	SF	\$	1.00	\$	25,308	
21.06	Include electronic security system per MSGS	25,308	SF	\$	3.00	\$	75,924	PDA allowance
21.07	Electrical Contractor OH+P	0%	PCT	\$	189,810	\$	0	Included
21.08	Design / estimating contingency	15%	PCT	\$	1,068,339	\$	160,251	Included

<b>Subtotals</b>	<b>\$ 1,304,514</b>
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<b>TOTALS</b>	<b>\$ 6,019,137</b>
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Check	\$ -
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**Northrop School Floor Plans & Elevations, Preliminary, by MSGS, June 2022**

Not to scale- images are re-formatted to fit the sheet.



**A. BUILDING ALT 2**

**Northrop Primary School**

**SHEET  
ESD-A1**





# A. BUILDING ALT 3

# Estimate Detail

**SHEET**  
**EST A.3**

**AREAS:**

**Enclosed:**

Basement.....	3,000 SF	Per plan A2.10; north mech room not counted as there is no work shown
First floor.....	12,000 SF	
Second floor.....	10,308 SF	

<b>Subtotal</b>	<b>25,308 SF</b>
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Agrees with Designer's area

**Canopies** 0 SF @ 0% value 0 SF

Not counted toward gross area

<b>Total GSF</b>	<b>25,308 SF</b>
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**CONTROL QUANTITIES:**

Ratio to Gross Area

Number of Levels.....	3 EA	
Gross Area.....	25,308 SF	1.000
Covered Area / Canopies.....	0 SF	0.000
Perimeter length.....	674 LF	Includes return walls, alcoves

ITEM	DESCRIPTION	QTY	U/M	UNIT COST	EXTENSION	NOTES
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**7. Foundations & Slab on Grade**

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7.02	Patch back existing first floor slab at shear wall location	85	SF	\$ 12.00	\$ 1,020	Small quantity premium
7.03	Dowel new slab to existing slab	1	ALLOW	\$ 1,000.00	\$ 1,000	At SOG patches
7.04	Strip footing at shear wall 4'-0" x 2'-0" cont	6.8	CY	\$ 600.00	\$ 4,107	
7.05	Concrete pumping mob and demob	1	EA	\$ 750.00	\$ 750	Small job premium
7.06	Short yard charge	1	EA	\$ 300.00	\$ 300	
7.07	Footing Reinforcing steel at 175 lb./cy	0.7	Tons	\$ 2,400.00	\$ 1,725	
7.08	Foundation drainage 6" diameter	0	LF	\$ -	\$ 0	No work assume existing
7.09	Foundation wall waterproofing	0	SF	\$ 5.00	\$ 0	No work
7.10	Rough hardware, misc connector metal	3%	PCT	\$ 11,901	\$ 357	
7.11	Design / estimating contingency	15%	PCT	\$ 12,259	\$ 1,839	

<b>Subtotals</b>	<b>\$ 14,097</b>
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**8. Vertical Structure**

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8.03	Interior non structural wall stud framing - see below	0	SF	\$ 5.25	\$ 0	See Interior Const for demising
8.04	Steel lintels over door openings in concrete wall	10	LF	\$ 50.00	\$ 500	Galvanized steel angle iron
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<b>Subtotals</b>	<b>\$ 114,525</b>
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**9. Floor and Roof Structure**

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9.03	New roof opening framing, curbs, misc	1	EA	\$ 5,000.00	\$ 5,000	Allowance
9.04	Design / estimating contingency	15%	PCT	\$ 11,050	\$ 1,658	

<b>Subtotals</b>	<b>\$ 12,708</b>
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**10. Exterior Enclosure**

**Exterior Doors, Frames and Hardware -**

10.01	Exit doors Hollow Metal from MEP, HMxHM, insulated	0	LEAF	\$ 1,350.00	\$ 0	No work
10.02	Entry doors, frames Glass x Aluminum paired 6072	1	PR	\$ 3,000.00	\$ 3,000	To Foyer west

10.03	Entry doors, frames Glass x Aluminum single 3070	1	EA	\$ 1,600.00	\$ 1,600	To Foyer east
10.04	Door submittals and freight	15%	PCT	\$ 4,600.00	\$ 690	Small job premium
10.05	Field paint existing exterior HM doors	5	EA	\$ 150.00	\$ 750	
10.06	Key card access hardware	2	EA	\$ 2,000.00	\$ 4,000	Included at new doors only
10.07	Panic hardware sets per code	2	EA	\$ 650.00	\$ 1,300	At Foyer
10.08	ADA door operators	2	EA	\$ 4,000.00	\$ 8,000	Two locations assumed

**Windows and Glazing -**

10.09	Storefront entrances, dual glazed, insulated	463	SF	\$ 68.00	\$ 31,494	Per elevations
10.10	Storefront punch windows, dual glazed, insulated	76	SF	\$ 68.00	\$ 5,168	North and south elevation
10.11	Storefront strip windows, dual glazed, insulated	4,632	SF	\$ 68.00	\$ 314,976	East and west elevations
10.12	Operable premium, hardware and hinges	135	SF	\$ 20.00	\$ 2,696	25% area rule of thumb
10.13	Manual window cranks for operable windows, material	1	LS	\$ 2,500.00	\$ 2,500	
10.14	Manual window cranks for operable windows, labor	24	MH	\$ 100.00	\$ 2,400	
10.15	Brick veneer o/WAB restoration (no studs or sheathing)	320	SF	\$ 50.00	\$ 16,000	Patch work at column wraps
10.16	Install thermal batt insulation at exterior wall	10,054	SF	\$ 2.50	\$ 25,135	Worked from inside
10.17	Caulk window perimeter	1,663	LF	\$ 3.00	\$ 4,989	
10.18	Scaffolding for exterior trades	9,075	SF	\$ 6.00	\$ 54,450	Rental cost
10.19	Entry and exit canopy overhangs	0	SF	\$ 50.00	\$ 0	Assume existing
10.20	Weatherseal new brick masonry	320	SSF	\$ 1.50	\$ 480	
10.21	Design / estimating contingency	15%	PCT	\$ 479,628	\$ 71,944	

<b>Subtotals</b>	<b>\$ 551,572</b>
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**11. Roofing, Skylights and Waterproofing**

11.01	Repair at new MEP openings, allowance	1	EA	\$ 3,500.00	\$ 3,500	Min trip charge for roofing sub
11.02	Downspouts to replace existing	106	LF	\$ 18.00	\$ 1,908	From scupper to footing drain
11.03	Design / estimating contingency	15%	PCT	\$ 5,408	\$ 811	

<b>Subtotals</b>	<b>\$ 6,219</b>
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**12. Interior Construction**

**Interior Partitions and GWB -**

12.01	Interior Partition, GWB ea side, 2x6 MS, Sound Batts	5,388	SF	\$ 13.25	\$ 71,391	Full height partitions to +12'-0"
12.02	Add GWB layers and insulation batts to bearing wall	528	SF	\$ 6.50	\$ 3,432	Both faces of new shear wall
12.03	Chase / Plumbing Wall, GWB and extra wide stud	228	SF	\$ 15.25	\$ 3,477	At restrooms. Basement level
12.04	Replace interior GWB face of exterior wall	10,054	SF	\$ 2.75	\$ 27,649	After thermal insulation upgrade
12.05	Interior wood blocking and backing allow	1	LS	\$ 2,000.00	\$ 2,000	For surface mt accessories, misc
12.06	Firesealant and firestopping allow	25,308	SF	\$ 0.25	\$ 6,327	At floor penetrations, etc
12.07	Caulk dissimilar materials	754	SF	\$ 2.50	\$ 1,885	

**Interior Doors -**

12.08	Interior passage doors 3070 WD or HM x HM frame w/hz	9	EA	\$ 1,350.00	\$ 12,150	Slab Doors
12.09	Corridor/Office passage drs 3070 WD/HM frame w/hdwr	22	EA	\$ 1,400.00	\$ 30,800	With Vision Panels (at Corridors)
12.10	Panic hardware sets, allow	17	EA	\$ 600.00	\$ 10,200	Classroom/Corridor Exit Doors
12.11	Card reader access control hardware	0	EA	\$ 1,800.00	\$ 0	Assume none
12.12	Ceiling access doors to HVAC cassettes	34	EA	\$ 350.00	\$ 11,900	Per plan note

**Interior Glazing, Misc -**

12.13	Interior relites, none found	0	SF	\$ 60.00	\$ 0	Confirm any scope
12.14	Install vision panel glazing at door cut outs	132	SF	\$ 35.00	\$ 4,620	Assume 24"x36" door cut outs
12.15	Design / estimating contingency	15%	PCT	\$ 185,831	\$ 27,875	

<b>Subtotals</b>	<b>\$ 213,705</b>
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**13. Interior Finishes - Floors, Walls, Ceilings**

**Flooring -**

13.01	Luxury vinyl or carpet to replace exist	23,807	SF	\$ 6.00	\$ 142,841	Includes 10% cutting waste
13.02	Sealed concrete at mech spaces and storage	600	SF	\$ 1.00	\$ 600	Including Custodial
13.03	Ceramic tile at RR floor	1,076	SF	\$ 12.50	\$ 13,450	
13.04	Sport flooring at MP room	2,356	SF	\$ 13.00	\$ 30,628	Rubber or sprung

**Bases -**

13.05	Rubber base, 4"	1,360	LF	\$ 2.50	\$ 3,399	Typical unless noted
13.06	Tile base	298	LF	\$ 15.00	\$ 4,466	Both quarry and ceramic bases
13.07	Marble thresholders	11	EA	\$ 100.00	\$ 1,100	

**Walls -**

13.08	Ceramic tile at restroom to +4'	1,191	SF	\$	10.00	\$	11,910	4"x4" wall tile, wet walls
13.09	Paint interior fiberwrap	640	SF	\$	1.00	\$	640	Paint to +10' AFF
13.10	Paint interior walls, both faces, new	15,674	SF	\$	1.00	\$	15,674	Includes shear wall
13.11	Paint interior walls, both faces, existing	31,200	SF	\$	1.25	\$	39,000	Price includes wall prep
13.12	Paint or stain interior doors and frames, new	31	EA	\$	150.00	\$	4,650	
13.13	Paint or stain interior doors and frames, exist	19	EA	\$	165.00	\$	3,135	

**Ceilings -**

13.13	GWB ceilings with paint, restroom	1,076	SF	\$	9.00	\$	9,684	Drywall, suspension system, paint
13.14	Glue on ceiling tiles o/ susp. GWB at lobby, office, confer	26,163	SF	\$	12.50	\$	327,035	Replacement system at +10' AFF
13.15	Exposed structure elsewhere	600	SF	\$	0.00	\$	0	Mech and storage

**Miscellaneous Painting Scope -**

13.16	Touch up and punch list	24	MH	\$	65.00	\$	1,560	
13.17	Design / estimating contingency	15%	PCT	\$	609,772	\$	91,466	

<b>Subtotals</b>	<b>\$ 701,238</b>
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**14. Fixed Equipment & Specialties****Athletic Equipment:**

14.01	Soft flooring mats at MP room	400	SF	\$	15.00	\$	6,000	Per MSGS message
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**AV Equipment:**

14.02	Projection screens, misc AV scope	25,308	SF	\$	3.00	\$	75,924	SF allowance
14.03	Above ceiling projector mounts	0	EA	\$	-	\$	0	Included above

**Interior Specialties:**

14.04	Bathroom accessories per Restroom	10	RMS	\$	2,500.00	\$	25,000	Avg cost per restroom
14.05	Handicap bars	8	EA	\$	400.00	\$	3,200	
14.06	Changing tables	4	EA	\$	1,500.00	\$	6,000	
14.06	Bathroom partitions	4	EA	\$	1,750.00	\$	7,000	Porcelain enamel, ceiling mounted
14.07	Restroom signage and misc signs	31	EA	\$	75.00	\$	2,325	One per door + 3 code signs
14.08	Whiteboards	1,664	SF	\$	25.00	\$	41,600	Two 4' x8' per Classroom/Conf.
14.09	Tackboards	832	SF	\$	18.00	\$	14,976	One 4' x8' per Classroom/Conf.
14.10	Fire extinguisher cabinets - Allowance	6	EA	\$	250.00	\$	1,500	Two per floor
14.11	Design / estimating contingency	15%	PCT	\$	183,525	\$	27,529	

<b>Subtotals</b>	<b>\$ 211,054</b>
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**15. Furnishings and Casework**

15.01	Permanent walk off system	24	SF	\$	30.00	\$	720	One 3' x8' metal grid
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**Window Coverings:**

15.02	Mini blinds	5,171	SF	\$	5.50	\$	28,441	At storefront and punch windows
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**Casework:**

15.03	Lower cabinets	214	LF	\$	375.00	\$	80,063	Per revised plans dated 9-13-22
15.04	Upper cabinets	214	LF	\$	250.00	\$	53,375	
15.05	Full height cabinets	0	LF	\$	425.00	\$	0	
15.06	Reception desks	0	LF	\$	700.00	\$	0	
15.07	Work counters	0	LF	\$	175.00	\$	0	Counter only, wall supported
15.08	Plastic lam counters over base units above	497	SF	\$	32.00	\$	15,919	With 4" splashes

**Millwork, Misc. -**

15.09	Window sills, wood	576	LF	\$	10.00	\$	5,760	At replacement windows
15.10	Design / estimating contingency	15%	PCT	\$	184,277	\$	27,642	

<b>Subtotals</b>	<b>\$ 211,919</b>
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**16. Special Construction / Pre-Fabricated**

16.01	NO WORK	0	LS	\$	0.00	\$	0	
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<b>Subtotals</b>	<b>\$ 0</b>
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**17. Conveying**

17.01	NO WORK	0	LS	\$	0.00	\$	0	Confirm
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<b>Subtotals</b>	<b>\$ 0</b>
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**18. Fire Protection - see BCE estimate****Fire Protection System:**

18.01	Backflow preventer, fittings, 4" piping	1	LS	\$	0.00	\$	0	Included below
18.02	Full sprinkler coverage, complete	25,308	SF	\$	15.00	\$	379,620	General coverage, mostly concealed
18.03	Fire Protection Contractor OH+P	0.0%	PCT	\$	379,620	\$	0	Included above
18.04	Design / estimating contingency	15%	PCT	\$	379,620	\$	56,943	
<b>Subtotals</b>							<b>\$</b>	<b>436,563</b>

**19. Plumbing - see BCE estimate****Fixtures including Rough-in:**

19.01	Plumbing system, complete	25,308	SF	\$	12.00	\$	303,696	Piping, fixtures, valves, complete
19.02	Mechanical Contractor OH+P	0.0%	PCT	\$	-	\$	0	Included above
19.03	Design / estimating contingency	15%	PCT	\$	303,696	\$	45,554	
<b>Subtotals</b>							<b>\$</b>	<b>349,250</b>

**20. HVAC - see BCE estimate**

20.01	General mechanical	25,308	SF	\$	2.50	\$	63,270	Mob, submittals, close out
20.02	Demolition	25,308	SF	\$	2.00	\$	50,616	Assumes plumbing demo too
20.03	HVAC - Water cooled VRF with DOAS	25,308	SF	\$	50.00	\$	1,265,400	
20.04	Site hydronic piping	1	LS	\$	75,000	\$	75,000	Incl necessary pumps and devices

**Ductwork and Kitchen Exhausts**

20.05	Exhaust Ductwork	0	LF	\$	-	\$	0	Included with HVAC \$/SF above
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**Controls, TAB and Commission**

20.06	Test, Adjust and Balance, CX and Close Out	25,308	SF	\$	3.50	\$	88,578	
20.07	Commissioning (Cx)	25,308	SF	\$	-	\$	0	Included with TAB above
20.08	DDC Controls	25,308	SF	\$	7.50	\$	189,810	
20.09	Mechanical Contractor OH+P	0.0%	PCT	\$	1,732,674	\$	0	Included above
20.10	Design / estimating contingency	15%	PCT	\$	1,732,674	\$	259,901	
<b>Subtotals</b>							<b>\$</b>	<b>1,992,575</b>

**21. Electrical - see BCE message****Building Power and Lighting Div. 26**

21.01	General electrical	25,308	SF	\$	3.00	\$	75,924	Mob, submittals, close out
21.02	Demolition	25,308	SF	\$	1.75	\$	44,289	
21.03	Lighting fixtures and controls	25,308	SF	\$	12.00	\$	303,696	New fixtures and controls
21.04	Electrical gear and distribution	25,308	SF	\$	8.00	\$	202,464	Full replacement
21.05	Branch wiring	25,308	SF	\$	10.00	\$	253,080	Partial re-use of existing conduit
21.06	New service	1	LS	\$	75,000	\$	75,000	

**Building Comm Systems Div. 27**

21.04	Comm and data, minor updates	25,308	SF	\$	3.50	\$	88,578	
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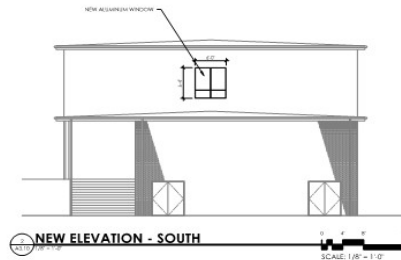
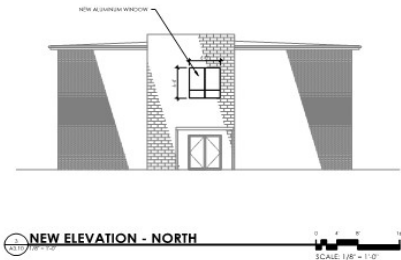
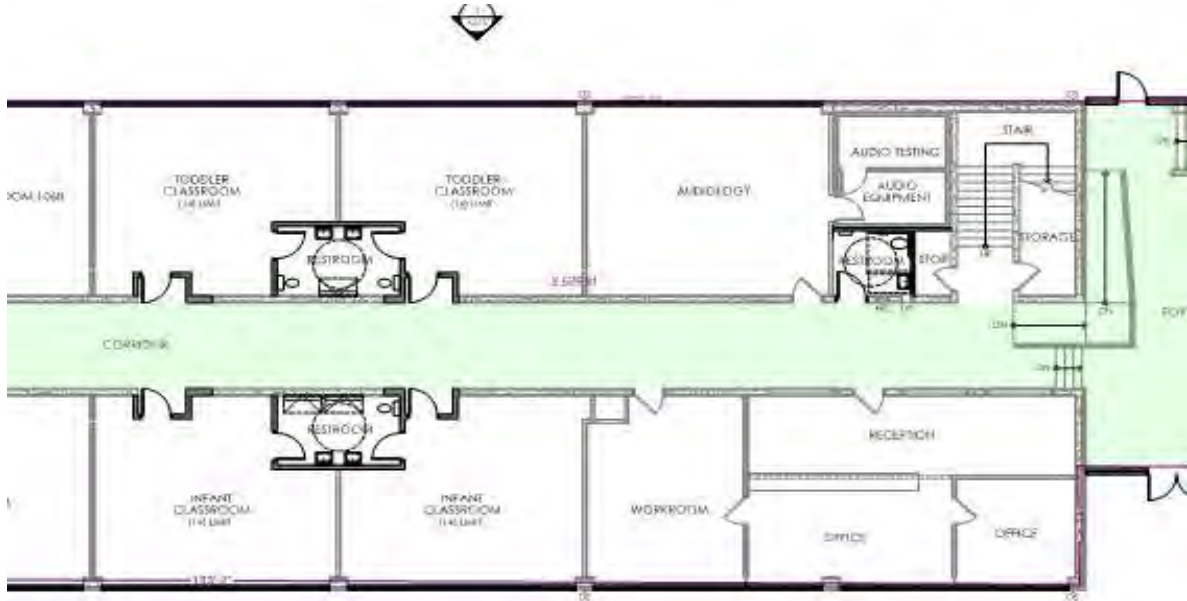
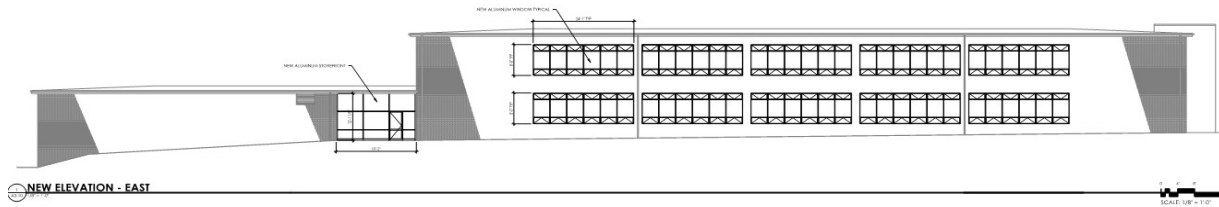
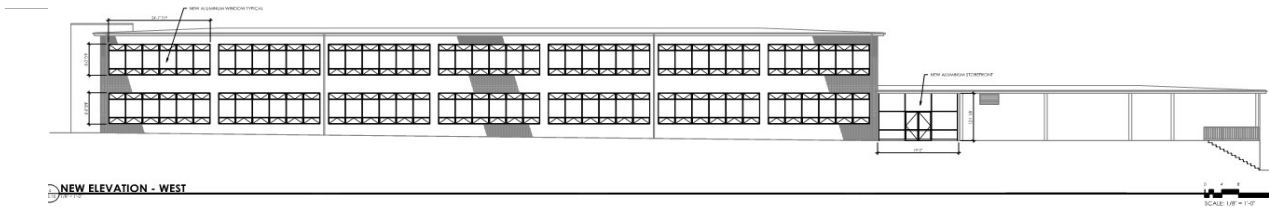
**Building Signal and Security Div. 28**

21.05	Fire alarm system	25,308	SF	\$	1.00	\$	25,308	
21.06	Include electronic security system per MSGS	25,308	SF	\$	3.00	\$	75,924	PDA allowance
21.07	Electrical Contractor OH+P	0%	PCT	\$	189,810	\$	0	Included
21.08	Design / estimating contingency	15%	PCT	\$	1,068,339	\$	160,251	Included

<b>Subtotals</b>	<b>\$</b>	<b>1,304,514</b>
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<b>TOTALS</b>	<b>\$</b>	<b>6,119,939</b>
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Check	\$	-
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**Northrop School Floor Plans & Elevations, Preliminary, by MSGS, June 2022**  
 Not to scale- images are re-formatted to fit the sheet.



**A. BUILDING ALT 3**

**Northrop Primary School**

**SHEET  
 ESD-A1**



## B. SITEWORK

## Estimate Detail

**SHEET  
EST B**

### AREAS:

<b>Overall site area:</b>	16,000	SF	0.37 Acres
Offsite area	0	SF	None
Building footprints	-12,000	SF	Main level outline of existing building
<b>Subtotal site</b>	<b>4,000</b>	SF	Restored outdoor space
Paved Areas.....	1,000	SF	Restoration of AC parking
Landscaped Area.....	3,000	SF	Patching of lawn and shrub beds
<b>Subtotal assigned area</b>	<b>4,000</b>	SF	Developed outdoor space
Remaining site area	0	SF	Native, existing, misc

### Existing Site Areas:

Overall site area.....	16,000	SF	Same as above
Existing building footprints.....	-12,000	SF	Main floor areas, incl porches and detached structures
<b>Subtotal existing site</b>	<b>4,000</b>	SF	
On site paving, sidewalks.....	0	SF	Pavement, hardscapes
Remaining open space.....	4,000	SF	Yards, lawns, parkway

ITEM	DESCRIPTION	QTY	U/M	UNIT COST	EXTENSION	NOTES
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### 1. Selective Building Demolition

#### Hard Demo:

1.01	Sawcut first floor conc slab for access to shear wall	50	LF	\$ 9.00	\$ 450	
1.02	Remove elevated first floor slab at shear wall	85	SF	\$ 15.00	\$ 1,275	Constrained working condition
1.03	Drill and dowel 2nd floor and roof diaphragm at shear wl	44	LF	\$ 20.00	\$ 880	
1.04	Cut and demo slabs for MEP trenches, pipes, conduit	1	ALLOW	\$ 3,000.00	\$ 3,000	
1.05	Spare		SF	\$ -	\$ 0	

#### Building Envelope Demo:

1.06	Demo brick veneer to allow for fiberwrap at columns	280	SF	\$ 15.00	\$ 4,200	Per structural redlines
1.07	Demo storefront	464	SF	\$ 8.00	\$ 3,712	
1.08	Demo punched and strip windows	4,708	SF	\$ 8.00	\$ 37,664	
1.09	Demo downspouts	106	LF	\$ 6.00	\$ 636	
1.10	Protect existing shrubs, plants and lawn	1	ALLOW	\$ 1,000.00	\$ 1,000	
1.11	Scaffolding - see building envelope estimate	0	SF	\$ -	\$ 0	

#### Soft Demo:

1.12	Demo interior GWB partitions	928	SF	\$ 4.00	\$ 3,712	Per AD plans
1.13	Demo toilet partitions	60	LF	\$ 12.00	\$ 716	
1.14	Demo 3' wide passage doors and frames	36	EA	\$ 100.00	\$ 3,600	
1.15	Demo built in closet doors	100	EA	\$ 40.00	\$ 4,000	
1.16	Demo base cabinets	122	LF	\$ 35.00	\$ 4,270	
1.17	Demo existing glue on ceiling tiles and ceiling structure	26,163	SF	\$ 1.00	\$ 26,163	
1.18	Demo bath flooring, mosaic tile	169	SF	\$ 4.00	\$ 676	Only shown at basement level
1.19	Demo remaining flooring - carpet or vinyl	23,807	SF	\$ 1.00	\$ 23,807	
1.20	Demo wall tile wainscote at hallways - no work	0	Sf	\$ -	\$ 0	OK to exclude per MSGS
1.21	Demo misc wall hung specialties, fixtures	1	ALLOW	\$ 2,000.00	\$ 2,000	Toilet accessories, white boards, etc
1.22	Remove interior GWB layer of exterior wall and insulatio	10,054	SF	\$ 1.50	\$ 15,081	For thermal upgrade work
1.23	MEP demo - see building estimate	0	EA	\$ -	\$ 0	With BCE estimates
1.24	Hazardous material abatement	1	LS	\$ 179,550	\$ 179,550	Per PBS consultant report
1.25	Lead based paint removal allowance	1	LS	\$ 15,000	\$ 15,000	
1.26	ACM training program	1	LS	\$ 5,000	\$ 5,000	
1.27	Concealed and unidentified material allowance	1	LS	\$ 25,000	\$ 25,000	
1.28	Design / estimating contingency	15%	PCT	\$ 361,392	\$ 54,209	

**Subtotals \$ 415,601**

**2. Site Demolition / Earthwork / Site Preparation**

2.01 NO WORK	0	LS	\$	0.00	\$	0	
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<b>Subtotals</b>	<b>\$ 0</b>
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**3. Site Improvements****Portland Cement Concrete -**

3.01	Widen existing sidewalks by one foot: 4" slab o/ 4" CSB	560	SF	\$	8.00	\$	4,480	Demo and prep included
3.02	Add handicap ramp handrail, one side of path	140	LF	\$	75.00	\$	10,500	Per MSGS message
3.03	Add handrail to inside face of exist guard rail	40	LF	\$	60.00	\$	2,400	
3.04	Spare	0	SF	\$	-	\$	0	

**Asphalt Concrete -**

3.05	Seal coat to existing AC parking lot	11,500	SF	\$	1.50	\$	17,250	Per MSGS message
3.06	Pavement markings - misc arrow, legends	1	LS	\$	1,000.00	\$	1,000	PDA estimate
3.07	Pavement markings, striping personal vehicle stalls	29	EA	\$	100.00	\$	2,875	Assume one stall per 400 SF area

**Landscape and Irrigation -**

3.08	Patch and restore plantings	3,000	SF	\$	3.00	\$	9,000	Due to constr phase damage
3.34	Design / estimating contingency	15%	PCT	\$	47,505	\$	7,126	

<b>Subtotals</b>	<b>\$ 54,631</b>
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**4. Site Civil / Mechanical Utilities****Mechanical Utilities:**

4.01	Site hydronic piping - see Alt 3 HVAC estimate	0	LF	\$	0.00	\$	0	
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<b>Subtotals</b>	<b>\$ 0</b>
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**5. Site Electrical and Communications****Site Power:**

5.01	New service - see Building Electrical estimate	0	LS	\$	0.00	\$	0	See BCE estimate
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<b>Subtotals</b>	<b>\$ 0</b>
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**6. Site Other - Outdoor Play**

6.01 NO WORK	0	LS	\$	0.00	\$	0	
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<b>Subtotals</b>	<b>\$ 0</b>
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<b>TOTALS</b>	<b>\$ 470,232</b>
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**Aerial Site Photo, by MSGS, received Sep 2022**



## DESIGN / ESTIMATE REVIEW NOTES

**Project:** Northrop Primary School

**Date:** 9/14/22

**Sort codes:** 1=standard qualifications; 2=specific qualifications; 3=assumptions; 4=exclusions; 5=inclusions; 6=value engineering; 7=constructability / buildability; 8=added from prior estimate; 9=questions

Sort code	No.	Reference	Date	Item Description
1	1			Design / estimating contingency is included at 15% for pre-design phase, renovation work.
1	2			Estimate based upon Northrop Primary School Floor Plans and Elevations, SD Set dated 7-19-22 and received by PDA 8-22-22, and redline structural plans by PCS received 9-8-22 and more detailed architectural plans received 9-13-22.
1	3			Handling & disposal of hazardous materials (asbestos, lead paint, mercury, etc.) is per the haz mat consultant's estimate.
1	4			Payment and performance bond premiums are included.
1	5			Specific main exclusions are shown on the main summary sheet.
1	6			The direct construction costs are done in today's dollars for Vancouver WA. Cost escalation is included below the line to a mid point of January 2025.
1	7			The estimate presumes a competitive bid climate, particularly four to six responsive bidders among the General Contractors and major subs.
1	8			The estimate was prepared assuming a single phase continuous 12 month construction schedule, and delivered via conventional design/bid/build process.
3	9			The gross area was confirmed very closely using Bluebeam to the area shown by BCE of 25,308 GSF using AutoCADD, assuming no work the mechanical space at north end of basement.
3	10			Labor to participate in commissioning is included with BCE's mechanical estimate. The commissioning agent should be paid via an Owner cost.
3	11			Roof scope limited to a small allowance for MEP curbs and patching penetrations. Basically a minimum trip charge by the certified roofer.
3	12			Sitework improvements include a seal coat to the existing asphalt parking lot, widening an existing concrete walk, and adding ADA ramp handrail. A new service is with the electrical estimate, while Alt 3 mechanical includes site hydronic piping.
4	13			The estimate does not include telephone equipment, telephones, routers, switches, computers, network cards or network software.
4	14			The estimate does not include utility company charges for power, television or telephone to the site.
4	19			No work included at existing elevator.
4	15			An allowance of \$3.00 per GSF is included for A/V equipment per MSGS request. Includes projection screens, built in monitors, speakers, etc.
4	16			Athletic equipment is limited to 400 SF of soft floor padding at MP room.
5	17			Access control door hardware is included with new storefront doors added to Foyer. Coordinate electrical requirements with BCE.
5	18			Two whiteboards and one tackboard is included at each classroom and conference room.
5	20			Low voltage security scope was not part of the BCE estimate scope. MSGS requested PDA include a sq ft cost for a new security system.
5	21		9/13/22	Casework is included per revised architectural plans received today.
<b>End of Section</b>				

**STATE OF WASHINGTON**  
**AGENCY / INSTITUTION PROJECT COST SUMMARY**

*Updated June 2022*

Agency	Washington School for the Deaf
Project Name	Northrop Primary School, Aternate #3
OFM Project Number	

**Contact Information**

Name	Glen Gipe
Phone Number	
Email	

**Statistics**

Gross Square Feet	25,308	MACC per Gross Square Foot	\$311
Usable Square Feet	20,246	Escalated MACC per Gross Square Foot	\$347
Alt Gross Unit of Measure			
Space Efficiency	80.0%	A/E Fee Class	A
Construction Type	Special schools for physici	A/E Fee Percentage	12.52%
Remodel	Yes	Projected Life of Asset (Years)	50

**Additional Project Details**

Procurement Approach	DBB	Art Requirement Applies	Yes
Inflation Rate	4.90%	Higher Ed Institution	No
<a href="#">Sales Tax Rate %</a>	8.50%	Location Used for Tax Rate	Vancouver WA
Contingency Rate	10%		
Base Month (Estimate Date)	September-22	OFM UFI# (from FPMT, if available)	
Project Administered By	DES		

**Schedule**

Predesign Start	July-22	Predesign End	September-22
Design Start	January-23	Design End	January-24
Construction Start	June-24	Construction End	June-25
Construction Duration	12 Months		

Green cells must be filled in by user

**Project Cost Estimate**

Total Project	<b>\$11,674,392</b>	Total Project Escalated	<b>\$12,886,418</b>
		Rounded Escalated Total	<b>\$12,886,000</b>

## Cost Estimate Summary

Acquisition			
<b>Acquisition Subtotal</b>	<b>\$0</b>	<b>Acquisition Subtotal Escalated</b>	<b>\$0</b>

Consultant Services			
Predesign Services	\$169,000		
Design Phase Services	\$748,886		
Extra Services	\$484,178		
Other Services	\$336,456		
Design Services Contingency	\$173,852		
<b>Consultant Services Subtotal</b>	<b>\$1,912,371</b>	<b>Consultant Services Subtotal Escalated</b>	<b>\$2,023,302</b>

Construction			
Maximum Allowable Construction Cost (MACC)	\$7,880,783	Maximum Allowable Construction Cost (MACC) Escalated	\$8,775,392
DBB Risk Contingencies	\$0		
DBB Management	\$0		
Owner Construction Contingency	\$788,078		\$877,683
Non-Taxable Items	\$0		\$0
Sales Tax	\$736,853	Sales Tax Escalated	\$820,511
<b>Construction Subtotal</b>	<b>\$9,405,715</b>	<b>Construction Subtotal Escalated</b>	<b>\$10,473,586</b>

Equipment			
Equipment	\$177,138		
Sales Tax	\$15,057		
Non-Taxable Items	\$0		
<b>Equipment Subtotal</b>	<b>\$192,195</b>	<b>Equipment Subtotal Escalated</b>	<b>\$214,048</b>

Artwork			
<b>Artwork Subtotal</b>	<b>\$64,112</b>	<b>Artwork Subtotal Escalated</b>	<b>\$64,112</b>

Agency Project Administration			
Agency Project Administration Subtotal	\$0		
DES Additional Services Subtotal	\$0		
Other Project Admin Costs	\$100,000		
<b>Project Administration Subtotal</b>	<b>\$100,000</b>	<b>Project Administration Subtotal Escalated</b>	<b>\$111,370</b>

Other Costs			
<b>Other Costs Subtotal</b>	<b>\$0</b>	<b>Other Costs Subtotal Escalated</b>	<b>\$0</b>

Project Cost Estimate			
Total Project	<b>\$11,674,392</b>	Total Project Escalated	<b>\$12,886,418</b>
		Rounded Escalated Total	<b>\$12,886,000</b>

## Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	New Approp Request 2023-2025	2025-2027	Out Years
<b>Acquisition</b>					
Acquisition Subtotal	\$0				\$0
<b>Consultant Services</b>					
Consultant Services Subtotal	\$1,950,815				\$1,950,815
<b>Construction</b>					
Construction Subtotal	\$10,110,551				\$10,110,551
<b>Equipment</b>					
Equipment Subtotal	\$209,839				\$209,839
<b>Artwork</b>					
Artwork Subtotal	\$61,902				\$61,902
<b>Agency Project Administration</b>					
Project Administration Subtotal	\$109,180				\$109,180
<b>Other Costs</b>					
Other Costs Subtotal	\$0				\$0

<b>Project Cost Estimate</b>					
Total Project	\$12,442,287	\$0	\$0	\$0	\$12,442,287
	\$12,442,000	\$0	\$0	\$0	\$12,442,000
Percentage requested as a new appropriation			0%		

What is planned for the requested new appropriation? (Ex. Acquisition and design, phase 1 construction, etc.)

*Insert Row Here*

What has been completed or is underway with a previous appropriation?

*Insert Row Here*

What is planned with a future appropriation?

*Insert Row Here*

## Cost Estimate Details

### Acquisition Costs

Item	Base Amount		Escalation Factor	Escalated Cost	Notes
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
<b>ACQUISITION TOTAL</b>	<b>\$0</b>		<b>NA</b>	<b>\$0</b>	

Green cells must be filled in by user

## Cost Estimate Details

Consultant Services				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
<b>1) Pre-Schematic Design Services</b>				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study	\$169,000			
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$169,000</b>	<b>1.0161</b>	<b>\$171,721</b>	Escalated to Design Start
<b>2) Construction Documents</b>				
<b>A/E Basic Design Services</b>	\$748,886			69% of A/E Basic Services
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$748,886</b>	<b>1.0407</b>	<b>\$779,366</b>	Escalated to Mid-Design
<b>3) Extra Services</b>				
Civil Design (Above Basic Svcs)	\$94,474			
Geotechnical Investigation	\$17,714			
Commissioning	\$53,141			
Site Survey	\$17,714			
Testing	\$41,332			
LEED Services	\$47,237			
Voice/Data Consultant	\$11,810			
Value Engineering	\$35,428			
Constructability Review	\$35,428			
Environmental Mitigation (EIS)	\$5,904			
Landscape Consultant	\$23,618			
Kitchen	\$11,810			
ELCCA	\$23,618			
Envelope Consultant	\$23,618			
HAZMAT Identification	\$17,714			
Reimbursable Expense	\$23,618			
<b>Sub TOTAL</b>	<b>\$484,178</b>	<b>1.0407</b>	<b>\$503,885</b>	Escalated to Mid-Design
<b>4) Other Services</b>				
<b>Bid/Construction/Closeout</b>	\$336,456			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$336,456</b>	<b>1.1137</b>	<b>\$374,711</b>	Escalated to Mid-Const.
<b>5) Design Services Contingency</b>				
Design Services Contingency	\$173,852			
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$173,852</b>	<b>1.1137</b>	<b>\$193,619</b>	Escalated to Mid-Const.
<b>CONSULTANT SERVICES TOTAL</b>				
	<b>\$1,912,371</b>		<b>\$2,023,302</b>	

Green cells must be filled in by user

## Cost Estimate Details

Construction Contracts				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
<b>1) Site Work</b>				
G10 - Site Preparation				
G20 - Site Improvements	\$54,631			
G30 - Site Mechanical Utilities				
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$54,631</b>	<b>1.0659</b>	<b>\$58,232</b>	
<b>2) Related Project Costs</b>				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$0</b>	<b>1.0659</b>	<b>\$0</b>	
<b>3) Facility Construction</b>				
A10 - Foundations	\$14,097			
A20 - Basement Construction	\$0			
B10 - Superstructure	\$127,233			
B20 - Exterior Closure	\$551,572			
B30 - Roofing	\$6,219			
C10 - Interior Construction	\$636,678			
C20 - Stairs	\$0			
C30 - Interior Finishes	\$701,238			
D10 - Conveying	\$0			
D20 - Plumbing Systems	\$349,250			
D30 - HVAC Systems	\$1,891,773			
D40 - Fire Protection Systems	\$436,563			
D50 - Electrical Systems	\$1,304,514			
F10 - Special Construction	\$0			
F20 - Selective Demolition	\$415,601			
General Conditions	\$584,043			
GC Bond, Insurance, B+O Tax	\$247,569			
GC Fee	\$439,259			
<b>Sub TOTAL</b>	<b>\$7,705,609</b>	<b>1.0918</b>	<b>\$8,412,984</b>	
<b>4) Maximum Allowable Construction Cost</b>				
<b>MACC Sub TOTAL</b>	<b>\$7,760,240</b>		<b>\$8,471,216</b>	
	\$307		\$335 per GSF	

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**7) Owner Construction Contingency**

Allowance for Change Orders	\$776,024		
Other			
Insert Row Here			
<b>Sub TOTAL</b>	<b>\$776,024</b>	<b>1.0918</b>	<b>\$847,264</b>

**8) Non-Taxable Items**

Other			
Insert Row Here			
<b>Sub TOTAL</b>	<b>\$0</b>	<b>1.0918</b>	<b>\$0</b>

**9) Sales Tax**

<b>Sub TOTAL</b>	<b>\$725,582</b>		<b>\$792,071</b>
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<b>CONSTRUCTION CONTRACTS TOTAL</b>	<b>\$9,261,846</b>		<b>\$10,110,551</b>
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## Cost Estimate Details

Equipment				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
<b>1) Equipment</b>				
E10 - Equipment	\$88,569			
E20 - Furnishings	\$88,569			
F10 - Special Construction	\$0			
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$177,138</b>	<b>1.0918</b>	<b>\$193,400</b>	
<b>2) Non Taxable Items</b>				
Other				
Insert Row Here				
<b>Sub TOTAL</b>	<b>\$0</b>	<b>1.0918</b>	<b>\$0</b>	
<b>3) Sales Tax</b>				
<b>Sub TOTAL</b>	<b>\$15,057</b>		<b>\$16,439</b>	
<b>EQUIPMENT TOTAL</b>	<b>\$192,195</b>		<b>\$209,839</b>	

Green cells must be filled in by user

## Cost Estimate Details

Artwork					
Item	Base Amount		Escalation Factor	Escalated Cost	Notes
<b>1) Artwork</b>					
Project Artwork	\$61,902				0.5% of total project cost for new construction
Higher Ed Artwork	\$0				0.5% of total project cost for new and renewal construction
Other					
Insert Row Here					
<b>ARTWORK TOTAL</b>	<b>\$61,902</b>		<b>NA</b>	<b>\$61,902</b>	

Green cells must be filled in by user

## Cost Estimate Details

Project Management					
Item	Base Amount		Escalation Factor	Escalated Cost	Notes
<b>1) Agency Project Management</b>					
Agency Project Management	\$0				
Additional Services					
Owner Project Coordination	\$100,000				
Insert Row Here					
<i>Subtotal of Other</i>	<i>\$100,000</i>				
<b>PROJECT MANAGEMENT TOTAL</b>	<b>\$100,000</b>		<b>1.0918</b>	<b>\$109,180</b>	

Green cells must be filled in by user

## Cost Estimate Details

Other Costs					
Item	Base Amount		Escalation Factor	Escalated Cost	Notes
Mitigation Costs					
Hazardous Material Remediation/Removal					
Historic and Archeological Mitigation					
Other					
Insert Row Here					
<b>OTHER COSTS TOTAL</b>	<b>\$0</b>		<b>1.0659</b>	<b>\$0</b>	

Green cells must be filled in by user

**C-100(2022)**  
**Additional Notes**

**Tab A. Acquisition**

<i>Insert Row Here</i>

**Tab B. Consultant Services**

<i>Insert Row Here</i>

**Tab C. Construction Contracts**

<i>Insert Row Here</i>

**Tab D. Equipment**

<i>Insert Row Here</i>

**Tab E. Artwork**

<i>Insert Row Here</i>

**Tab F. Project Management**

<i>Insert Row Here</i>

**Tab G. Other Costs**

Hazardous material removal is included under Construction contracts, select demo F20.
<i>Insert Row Here</i>



### Ownership Option 1 Information Sheet

\* **Requires a user input**      Green Cell = Value can be entered by user.      Yellow Cell = Calculated value.

\* **Project Description**      Renovation upgrade of historically significant, three-story, 25,308 sq ft facility with twenty classroom / educational spaces, four museum room spaces, and large multipurpose room. Ownership Option 1 / Report Alternate #2 is based upon an air cooled VRF mechanical system.

\* **Construction or Purchase/Remodel**      Construction

\* **Project Location**      Vancouver      Market Area = Southwest Washington

Statistics	
Gross Sq Ft	25,308
Usable Sq Ft	20,246
Space Efficiency	80%
Estimated Acres Needed	2.00
MACC Cost per Sq Ft	\$306.63
Estimated Total Project Costs per Sq Ft	\$454.93
Escalated MACC Cost per Sq Ft	\$376.32
Escalated Total Project Costs per Sq Ft	\$558.31

\* **Move In Date**      6/1/2025

Interim Lease Information	Start Date
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced (\$/SF/Year)	
One Time Costs (if double move)	

<b>Construction Cost Estimates (See Capital Budget System For Detail)</b>				
	<b>Known Costs</b>	<b>Estimated Costs</b>	<b>Cost to Use</b>	
	<b>Acquisition Costs Total</b>	\$ 0	\$ 500,000	\$ 0
<b>A &amp; E</b>	<b>Consultant Services</b>			
	A & E Fee Percentage (if services not specified)		8.13% Std	8.13%
	Pre-Schematic Design services	\$ 169,000		
	Construction Documents	\$ 738,609		
	Extra Services	\$ 484,178		
	Other Services	\$ 331,839		
	Design Services Contingency	\$ 172,363		
	<b>Consultant Services Total</b>	\$ 1,895,989	\$ 629,313	\$ 1,895,989
<b>MACC</b>	<b>Construction Contracts</b>			
	Site Work	\$ 54,631		
	Related Project Costs	\$ -		
	Facility Construction	\$ 7,705,608		
	<b>MACC SubTotal</b>	\$ 7,760,239	\$ 9,158,459	\$ 7,760,239
	Construction Contingency (5% default)	\$ 776,024	\$ 388,012	\$ 776,024
	Non Taxable Items			\$ -
	Sales Tax	\$ 725,582	\$ 799,305	\$ 725,582
	<b>Construction Additional Items Total</b>	\$ 1,501,606	\$ 1,187,317	\$ 1,501,606
	<b>Equipment</b>			
Equipment	\$ 177,138			
Non Taxable Items	\$ -			
Sales Tax	\$ 15,057			
<b>Equipment Total</b>	\$ 192,195		\$ 192,195	
<b>Art Work Total</b>	\$ 63,223	\$ 38,801	\$ 63,223	
<b>Other Costs</b>				
	\$ -			
	\$ -			
<b>Other Costs Total</b>	\$ -		\$ -	
<b>Project Management Total</b>	\$ 100,000		\$ 100,000	
<b>Grand Total Project Cost</b>	\$ 11,513,252	\$ 11,513,890	\$ 11,513,252	



Construction One Time Project Costs		
One Time Costs	Estimate	Calculated
Moving Vendor and Supplies	\$ 15,000	\$ 12,579
Other (not covered in construction)		
<b>Total</b>	<b>\$ 15,000</b>	<b>\$ 15,000</b>

\$300 / Person in FY22

Ongoing Building Costs					
Added Services	New Building Operating Costs	Known Cost /GSF/ 2025	Estimated Cost /GSF/ 2025	Total Cost / Year	Cost / Month
<input checked="" type="checkbox"/>	Energy (Electricity, Natural Gas)	\$ 0.97	\$ 1.08	\$ 24,651	\$ 2,054
<input checked="" type="checkbox"/>	Janitorial Services	\$ -	\$ 1.83	\$ 46,223	\$ 3,852
<input checked="" type="checkbox"/>	Utilities (Water, Sewer, & Garbage)	\$ -	\$ 1.54	\$ 38,907	\$ 3,242
<input checked="" type="checkbox"/>	Grounds	\$ -	\$ 0.08	\$ 1,995	\$ 166
<input checked="" type="checkbox"/>	Pest Control	\$ -	\$ 0.12	\$ 2,993	\$ 249
<input checked="" type="checkbox"/>	Security	\$ -	\$ 0.12	\$ 2,993	\$ 249
<input checked="" type="checkbox"/>	Maintenance and Repair	\$ -	\$ 7.33	\$ 185,555	\$ 15,463
<input checked="" type="checkbox"/>	Management	\$ -	\$ 1.09	\$ 27,601	\$ 2,300
<input checked="" type="checkbox"/>	Road Clearance	\$ -	\$ 0.08	\$ 1,995	\$ 166
<input checked="" type="checkbox"/>	Telecom	\$ -	\$ -	\$ -	\$ -
	Additional Parking	\$ -	\$ -	\$ -	\$ -
	Other	\$ -	\$ -	\$ -	\$ -
	<b>Total Operating Costs</b>	<b>\$ 0.97</b>	<b>\$ 13.26</b>	<b>\$ 332,912</b>	<b>\$ 27,743</b>

### Ownership Option 2 Information Sheet

\* *Requires a user input*      Green Cell = Value can be entered by user.      Yellow Cell = Calculated value.

\* **Project Description**      Renovation upgrade of historically significant, three-story, 25,308 sq ft facility with twenty classroom spaces, four museum room spaces, and large multipurpose room. Ownership Option 2 / Report Alternate #3 is based upon a ground source water cooled VRF mechanical system.

\* **Construction or Purchase/Remodel**      Construction

\* **Project Location**      Vancouver      Market Area = Southwest Washington

Statistics	
Gross Sq Ft	25,308
Usable Sq Ft	20,246
Space Efficiency	80%
Estimated Acres Needed	2.00
MACC Cost per Sq Ft	\$311.38
Estimated Total Project Costs per Sq Ft	\$461.28
Escalated MACC Cost per Sq Ft	\$382.15
Escalated Total Project Costs per Sq Ft	\$566.11

\* **Move In Date**      6/1/2025

Interim Lease Information	Start Date
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced (\$/SF/Year)	
One Time Costs (if double move)	

Construction Cost Estimates (See Capital Budget System For Detail)				
	Known Costs	Estimated Costs	Cost to Use	
<b>Acquisition Costs Total</b>				
	\$ 0	\$ 500,000	\$ 0	
A & E	<b>Consultant Services</b>			
	A & E Fee Percentage (if services not specified)		8.11% Std 8.11%	
	Pre-Schematic Design services	\$ 169,000		
	Construction Documents	\$ 748,860		
	Extra Services	\$ 484,178		
	Other Services	\$ 336,444		
	Design Services Contingency	\$ 173,848		
	<b>Consultant Services Total</b>	\$ 1,912,330	\$ 639,067	\$ 1,912,330
MACC	<b>Construction Contracts</b>			
	Site Work	\$ 54,361		
	Related Project Costs			
	Facility Construction	\$ 7,826,152		
	<b>MACC SubTotal</b>	\$ 7,880,513	\$ 9,158,459	\$ 7,880,513
	Construction Contingency (5% default)	\$ 788,051	\$ 788,051	\$ 788,051
	Non Taxable Items			\$ -
	Sales Tax	\$ 736,828	\$ 811,693	\$ 736,828
	<b>Construction Additional Items Total</b>	\$ 1,524,879	\$ 1,524,879	\$ 1,524,879
	<b>Equipment</b>			
Equipment	\$ 177,138			
Non Taxable Items				
Sales Tax	\$ 15,057			
<b>Equipment Total</b>	\$ 192,195		\$ 192,195	
<b>Art Work Total</b>	\$ 64,110	\$ 39,403	\$ 64,110	
<b>Other Costs</b>				
	\$ -			
	\$ -			
<b>Other Costs Total</b>	\$ -		\$ -	
<b>Project Management Total</b>	\$ 100,000		\$ 100,000	
<b>Grand Total Project Cost</b>		\$ 11,861,807	\$ 11,674,027	

Construction One Time Project Costs		
One Time Costs	Estimate	Calculated
Moving Vendor and Supplies	\$ 15,000	\$ 12,579
Other (not covered in construction)		
<b>Total</b>	<b>\$ 15,000</b>	<b>\$ 15,000</b>

*\$300 / Person in FY22*

Ongoing Building Costs					
Added Services	New Building Operating Costs	Known Cost /GSF/ 2025	Estimated Cost /GSF/ 2025	Total Cost / Year	Cost / Month
<input checked="" type="checkbox"/>	Energy (Electricity, Natural Gas)	\$ 0.93	\$ 1.08	\$ 23,589	\$ 1,966
<input checked="" type="checkbox"/>	Janitorial Services	\$ -	\$ 1.83	\$ 46,223	\$ 3,852
<input checked="" type="checkbox"/>	Utilities (Water, Sewer, & Garbage)	\$ -	\$ 1.54	\$ 38,907	\$ 3,242
<input checked="" type="checkbox"/>	Grounds	\$ -	\$ 0.08	\$ 1,995	\$ 166
<input checked="" type="checkbox"/>	Pest Control	\$ -	\$ 0.12	\$ 2,993	\$ 249
<input checked="" type="checkbox"/>	Security	\$ -	\$ 0.12	\$ 2,993	\$ 249
<input checked="" type="checkbox"/>	Maintenance and Repair	\$ -	\$ 7.33	\$ 185,555	\$ 15,463
<input checked="" type="checkbox"/>	Management	\$ -	\$ 1.09	\$ 27,601	\$ 2,300
<input checked="" type="checkbox"/>	Road Clearance	\$ -	\$ 0.08	\$ 1,995	\$ 166
<input checked="" type="checkbox"/>	Telecom	\$ -	\$ -	\$ -	\$ -
	Additional Parking	\$ -	\$ -	\$ -	\$ -
	Other	\$ -	\$ -	\$ -	\$ -
	<b>Total Operating Costs</b>	<b>\$ 0.93</b>	<b>\$ 13.26</b>	<b>\$ 331,850</b>	<b>\$ 27,654</b>

**Life Cycle Cost Analysis - Project Summary**

<b>Agency</b>	State of Washington DES
<b>Project Title</b>	Washington School for the Deaf: Northrop Primary School Renovation

<b>Existing Description</b>	Existing school building is of mid-1950's vintage and in fair condition. The building does not meet current state energy codes or accessibility requirements.
-----------------------------	---

<b>Lease Option 1 Description</b>	
-----------------------------------	--

<b>Lease Option 2 Description</b>	
-----------------------------------	--

<b>Ownership Option 1 Description</b>	Renovation upgrade of historically significant, three-story, 25,308 sq ft facility with twenty classroom / educational spaces, four museum room spaces, and large multipurpose room. Ownership Option 1 / Report Alternate #2 is based upon an air-cooled VRF mechanical system.
---------------------------------------	--

<b>Ownership Option 2 Description</b>	Renovation upgrade of historically significant, three-story, 25,308 sq ft facility with twenty classroom spaces, four museum room spaces, and large multipurpose room. Ownership Option 2 / Report Alternate #3 is based upon a ground-source water-cooled VRF mechanical system.
---------------------------------------	---

<b>Ownership Option 3 Description</b>	
---------------------------------------	--

Lease Options Information	Existing Lease	Lease Option 1	Lease Option 2
Total Rentable Square Feet	-	-	-
Annual Lease Cost (Initial Term of Lease)	\$ -	\$ -	\$ -
Full Service Cost/SF (Initial Term of Lease)	\$ -	\$ -	\$ -
Occupancy Date	n/a		
Project Initial Costs	n/a	\$ -	\$ -
Persons Relocating	50	-	-
RSF/Person Calculated	-	-	-

Ownership Information	Ownership 1	Ownership 2	Ownership 3
Total Gross Square Feet	25,308	25,308	-
Total Rentable Square Feet	20,246	20,246	-
Occupancy Date	6/1/2025	6/1/2025	
Initial Project Costs	\$ 15,000	\$ 15,000	\$ -
Est Construction TPC (\$/GSF)	\$ 558	\$ 566	\$ -

RSF/Person Calculated	405	-	-
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**Financial Analysis of Options**

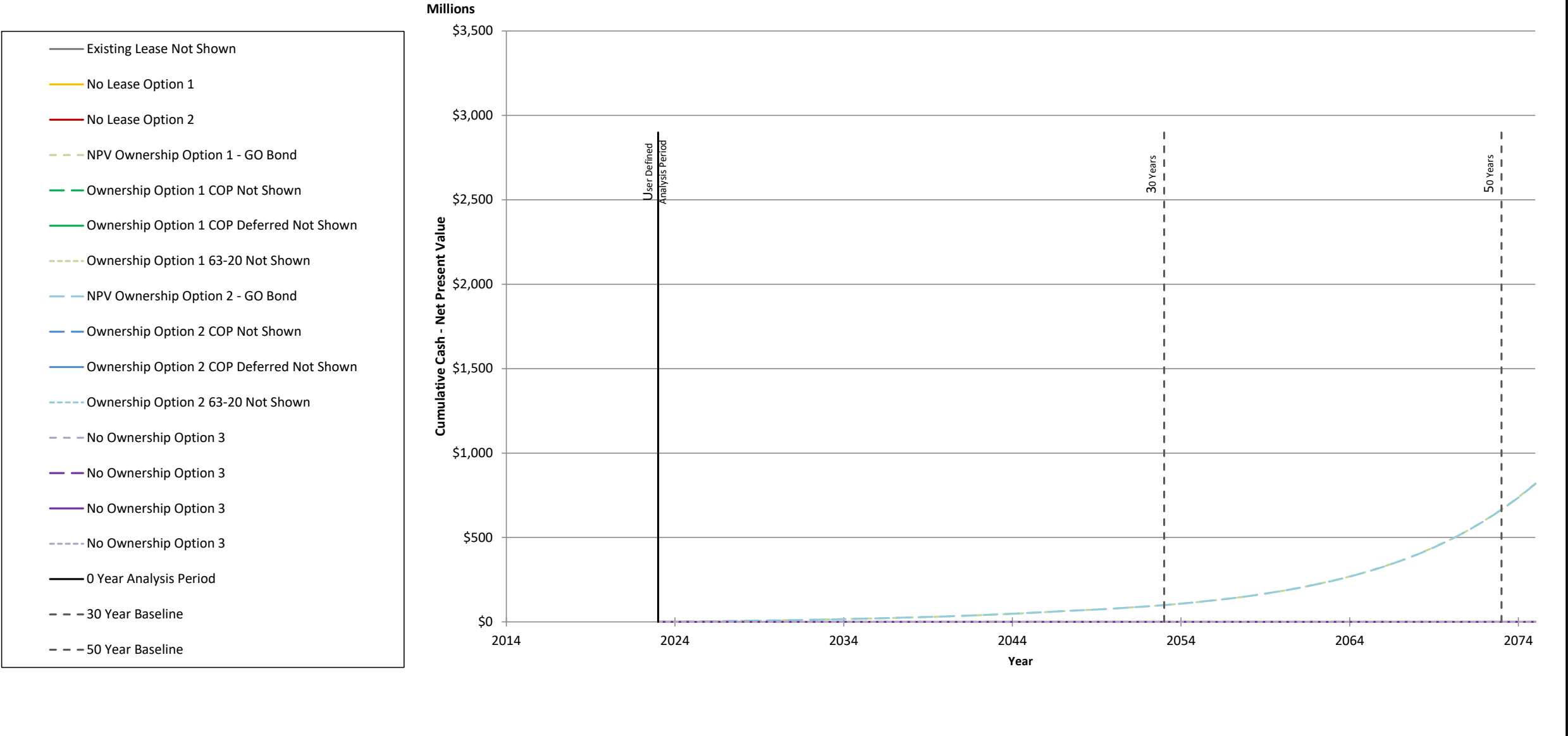
		Display Option?	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	Yes	No
		Existing Lease	Lease 1	Lease 2	Ownership 1				Ownership 2				Ownership 3				
Years	Financial Comparisons	Current	Current	Current	GO Bond	COP	COP Deferred *	63-20	GO Bond	COP	COP Deferred	63-20	GO Bond	COP	COP Deferred	63-20	
0	0 Year Cumulative Cash				\$ -				\$ -						\$ -		
	0 Year Net Present Value				\$ -				\$ -						\$ -		
	Lowest Cost Option (Analysis Period)																

		Existing Lease	Lease 1	Lease 2	Ownership 1				Ownership 2				Ownership 3			
Years	Financial Comparisons	Current	Current	Current	GO Bond	COP	COP Deferred *	63-20	GO Bond	COP	COP Deferred	63-20	GO Bond	COP	COP Deferred	63-20
30	30 Year Cumulative Cash				\$ 44,046,213				\$ 44,180,663						\$ -	
	30 Year Net Present Value				\$ 91,289,441				\$ 91,471,008						\$ -	
	Lowest Cost Option (30 Years)				1				2							

		Existing Lease	Lease 1	Lease 2	Ownership 1				Ownership 2				Ownership 3			
Years	Financial Comparisons	Current	Current	Current	GO Bond	COP	COP Deferred *	63-20	GO Bond	COP	COP Deferred	63-20	GO Bond	COP	COP Deferred	63-20
50	50 Year Cumulative Cash				\$ 139,719,137				\$ 139,548,508						\$ -	
	50 Year Net Present Value				\$ 595,349,947				\$ 593,924,182						\$ -	
	Lowest Cost Option (50 Years)				2				1							

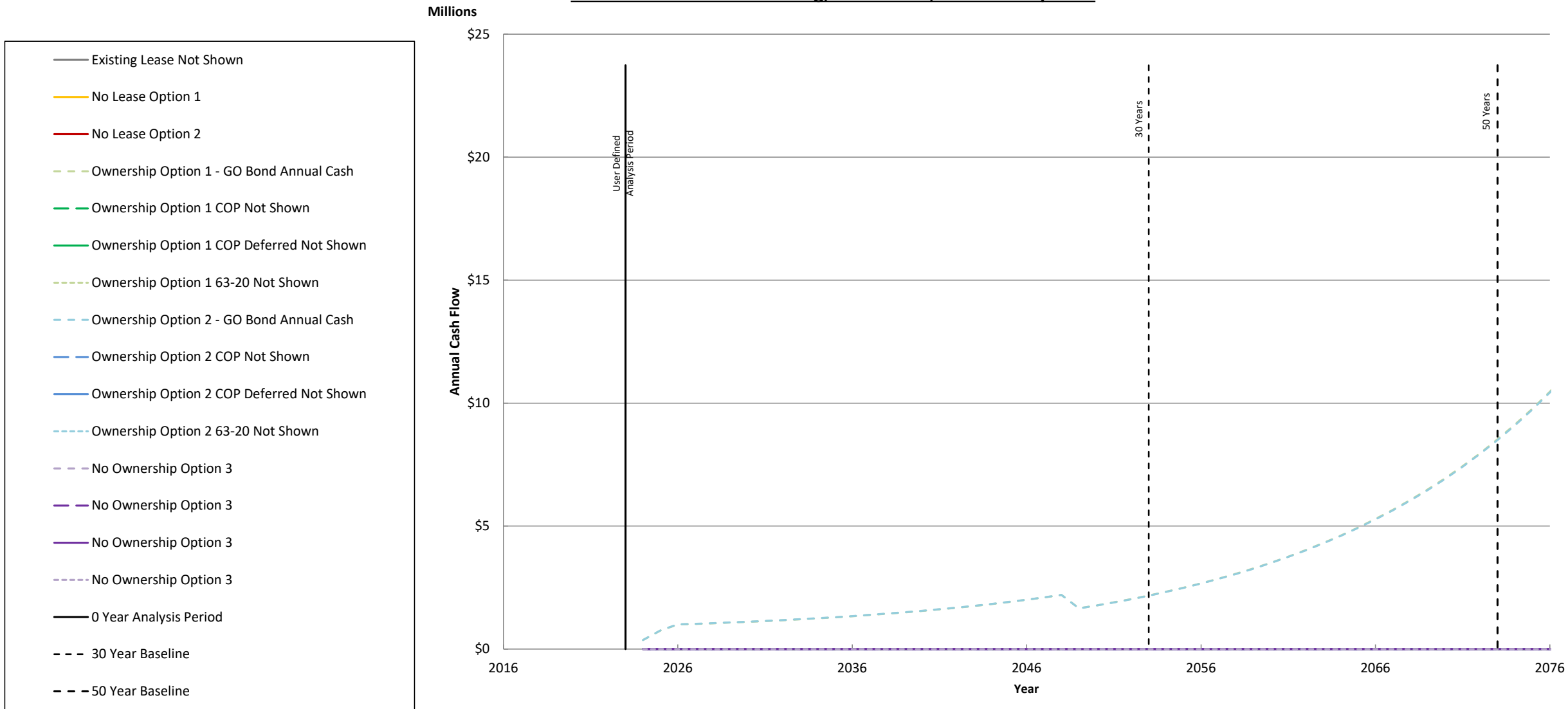
\* - Defers payment on principle for 2 years while the building is being constructed. See instructions on Capitalized Interest.

**Cumulative Cash - NPV of Exist, Lease, and Own Options**





### Annual Cash Flow of Existing, New Lease, and Own Options



**Financial Assumptions**

Date of Life Cycle Cost Analysis:	9/15/2022
Analysis Period Start Date	6/2/2023
User Input Years of Analysis	0

All assumptions subject to change to reflect updated costs and conditions.

	Lease Options			Ownership Option 1			Ownership Option 2			Ownership Option 3		
	Existing Lease	Lease Option 1	Lease Option 2	GO Bond	COP	63-20	GO Bond	COP	63-20	GO Bond	COP	63-20
Inflation / Interest Rate	7.064%	7.064%	7.064%	2.881%	2.981%	3.131%	2.881%	2.981%	3.131%	2.881%	2.981%	3.131%
Discount Rate	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%
Length of Financing	N/A	N/A	N/A	25	25	25	25	25	25	25	25	25

See Financial Assumptions tab for more detailed information

COP Deferred and 63-20 Financing defer the payment on principle until construction completion.

**New Lease Assumptions**

Real Estate Transaction fees are 2.5% of the lease for the first 5 years and 1.25% for each year thereafter in the initial term of the lease.

Tenant Improvements are typically estimated at \$19 per rentable square foot.

IT infrastructure is typically estimated at \$1500 per person.

Furniture costs are typically estimated at \$7000 per person and do not include new workstations.

Moving Vendor and Supplies are typically estimated at \$300 per person.

**Default Ownership Options Assumptions**

Assumes a 2 month lease to move-in overlap period for outfitting building and relocation.

Assumes surface parking.

The floor plate of the construction option office building is 25,000 gross square feet.

The estimated total project cost for construction is \$506.63 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.

# ARCHAEOLOGICAL & CULTURAL RESOURCES

## TRIBAL CONTACT INFORMATION

### DEPARTEMENT OF ARCHAEOLOGICAL & HISTORICAL PRESERVATION (DAHP) CONTACT:

Rob Whitlam  
State Historic Preservation Officer  
Dept of Archaeology & Historic Preservation  
1110 S. Capitol Way, Suite 30  
P.O. Box 48343, Olympia, WA 98504-8343  
Tel: (360) 890-2615  
Email: [rob.whitlam@DAHP.wa.gov](mailto:rob.whitlam@DAHP.wa.gov)

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*Notification to each Tribe shall be initiated during Schematic Design Phase and no later than Design Development completion*

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### TRIBAL CONTACTS:

#### Cowlitz Indian Tribe

James Gordon, Cultural Resources Technician  
Seth Russell, Tribal Historic Preservation Officer  
Office: 360-353-9924; Cell: 202-669-4936  
Email: [srussell@cowlitz.org](mailto:srussell@cowlitz.org)

#### Confederated Tribes of the Chehalis Reservation

The Honorable Harry Pickernell, Sr., Chairman  
Dan Penn, Tribal Historic Preservation Officer  
P.O. Box 536, Oakville, WA 98568  
Office: 360-273-5911; Direct: 360-709-1747  
Email: [dpenn@chehalisreservation.org](mailto:dpenn@chehalisreservation.org)

#### Confederated Tribes and Bands of the Yakama Nation

The Honorable Delano Saluskin  
Kate Valdez, Tribal Historic Preservation Officer  
Office: 509-865-1068  
Email: [kate@yakama.com](mailto:kate@yakama.com)  
Jerry Meninick, Deputy Cultural Resources  
Office: 509-865-1068  
Email: [jerry\\_meninick@yakama.com](mailto:jerry_meninick@yakama.com)

#### Quinalt Indian Nation

Guy Capoeman, President  
Office: 360-276-8211 ext-7309  
[Guy.Capoeman@quinalt.org](mailto:Guy.Capoeman@quinalt.org)  
Dave Bingaman, Director  
Office: 360-276-8211 ext-7309  
[dbingaman@quinalt.org](mailto:dbingaman@quinalt.org)

#### Nisqually Indian Tribe

The Honorable Willie Frank III, Chair  
Brad Beah, Tribal Historic Preservation Officer  
Office: 360-3456-5221  
Email: [beach.brad@nisqually-nsn.gov](mailto:beach.brad@nisqually-nsn.gov)

#### Squaxin Island Tribe

The Honorable Kristopher Peters, Chair  
Rhonda Foster, Tribal Historic Preservation Officer  
Email: [rfoster@squaxin.us](mailto:rfoster@squaxin.us)  
Shaun Dinubilo, Archaeologist  
Email: [sdinubilo@squaxin.us](mailto:sdinubilo@squaxin.us)

## Design Criteria

- Code: 2018 International Building Code
- Roof Loads:
  - Dead Load – 115psf (estimate)
  - Live Load (Snow) – 25psf
- Floor Loads
  - Dead Load – 130psf (estimate)
  - Live Loads:
    - Classrooms – 40psf + 15psf (partition)
    - Corridors – 100psf (ground floor), 80psf (elevated floors)
    - Stairs – 100psf
    - Mechanical Floors – 40psf + Mechanical Equipment
- Site/Soil Properties (Geotechnical Report not available at the time Structural Narrative was written – values from existing structural drawings)
  - Soil Bearing Pressure – 4000psf
  - Site Class “D” (assumed)
  - Passive Pressure: 200pcf (assumed)
  - Coefficient of Friction: 0.35 (assumed)
- Seismic Design:
  - $S_s=0.834$ ,  $S_1=0.376$ ,  $F_a=1.166$ ,  $F_v=NA$
  - Importance Factor,  $I=1.25$
  - $S_{DS}=0.667$
  - Response Modification Coefficient:
    - $R=4$  (Ordinary Reinforced Concrete Shear Walls)
- Wind Design:
  - Basic Wind Speed: 115mph
  - Exposure Category: “B”

## Project Description

The Northop Primary School is typically a two-story concrete framed structure with a partial basement that is located in Vancouver, Washington. The southern portion of the building is a single-story concrete and wood structure that houses an All-Purpose Room. The northern portion of the building is identified as the two-story classroom wing within this report.

An ASCE-41 Tier 1 analysis was performed to identify structural concerns as related to the lateral/seismic force resisting system. The existing architectural and structural drawings by Donald J Stewart, AIA dated September 22, 1952 were used to help facilitate this study.

## Existing Vertical Load Carrying System

The existing vertical load carrying system of the two-story classroom wing consists of cast-in-place concrete joists at the roof and floors. These joists span between exterior concrete walls/beams and interior concrete shear/bearing walls. The concrete joists support 2 ½" thick concrete floor and roof slabs. A cast-in-place concrete slab spans over the corridor at the roof and second floor. A wood framed hipped roof overbuild exists over the two-story classroom wing. The slab on grade consists of a 4" cast-in-place concrete slab reinforced with welded wire mesh.

The exterior walls and corridor walls at the two-story classroom wing are typically 8" thick and are reinforced with #5 vertical and horizontal bars at 15" on center. These walls act as shear and bearing walls for the building and typically extend from the foundation to the roof with punched openings for the doors/corridors.

The building is supported by cast-in-place spread and continuous foundation systems. The continuous foundations under the shear/bearing walls are typically 2'-0" wide by 1'-0" thick. The exterior foundation walls support brick veneer around the perimeter of the building.

The All-Purpose Room walls typically consist of 10" to 15" thick cast-in-place concrete walls reinforced with #5 vertical and horizontal bars at 12" on center. The roof structure at the All-Purpose Room consists of glu-laminated beams at 10'-0" on center that support 6x10 roof purlins that support 2x6 diagonal T&G roof decking.

## Existing Lateral Force Resisting System

At the two-story classroom wing, the existing lateral force resisting system consists of concrete floor and roof diaphragms that transfer the lateral forces to the interior and exterior cast-in-place concrete shear and bearing walls. At the All-Purpose Room, the lateral forces are transferred through the wood roof diaphragm to the exterior cast-in-place concrete shear and bearing walls. Ultimately, lateral forces for both buildings are resisted by passive pressure on the soils and friction at the foundation/soil interface.

## Concept Summary

The purpose of the pre-design study is to explore three options for a future design. The first option would be to provide minor upgrades to the architectural finishes. The remaining two options featured different levels of mechanical upgrades and a full seismic upgrade for both. This Pre-Design Report will focus on the likely seismic upgrades to the structure.

## Seismic Upgrades

Based on the ASCE-41 Tier 1 analysis, several likely seismic upgrades have been identified. They are:

- Provide a new 8" thick concrete shear wall at the lower level and second floor level. This new wall should stack from foundation to roof and be located near the center of the building. This new wall should be connected to the existing floor, roof, and exterior and corridor walls. The foundation for the new wall will be approximately 4'-0" wide by 2'-0" thick.
- There are concrete columns at the exterior walls between the existing window bays. These columns are not reinforced adequately to support the secondary effects due to the seismic loading. Fiber wrap should be installed around the concrete columns over the exposed height of the column to increase the column strength. This should occur on all columns along the exterior where windows exist on each side.
- Supplemental reinforcing should be provided at any new penetration through an existing concrete shear/bearing wall. This would likely consist of a structural steel channel. Depending on the size of the new penetration, it is possible that the existing concrete can support the loading and that supplemental reinforcing wouldn't be required. However, for the sake of this study it should be assumed that some supplemental reinforcing would be required.
- All existing openings in concrete walls that are scheduled to be infilled should be done so with either reinforced concrete to match the thickness of the existing wall or with metal stud framing that is 25 gauge or heavier.
- While a connection exists between the glu-laminated beams and the exterior concrete shear/bearing walls at the All-Purpose Room, this connection does not likely work for current code force or detailing requirements. Additional strapping and anchorage should be provided at all glu-lam and purlin connections to the existing exterior concrete shear/bearing walls.
- The in-plane shear connection between the roof diaphragm and the existing concrete walls should be addressed. This would likely include the addition of nailing through the roof diaphragm into the 4x10 blocking along with the addition of an A35 clip connecting the blocking to the sill plate. This will provide a positive connection between the roof diaphragm and the existing concrete shear wall.

There are several maintenance items that should be addressed in the future project. While these do not pertain to the lateral force resisting system these elements should be address. They are as follows:

- Many of the still lintel angles that support the veneer over the top of the windows appear to be rusted/deteriorated. These angles should be removed and replaced. Where the angle is observed to be in sound condition, any rust observed should be removed and the angle should be treated with a rust inhibiting zinc rich paint.
- The brick veneer on the exterior should be re-pointed and sealed.
- There were locations where the brick veneer was cracked and or damaged. The cracked and/or damaged brick should be removed and replaced.
- Several of the exterior steel columns at the exterior canopy contained minor locations of rusting. The rust should be ground off and the column should be protected with a rust inhibiting zinc rich paint.

If the upgrades recommended within this report are implemented, we would anticipate that the building would perform well in a wind or seismic event.



## **WASHINGTON SCHOOL FOR THE DEAF - PREDESIGN MECHANICAL EXISTING CONDITIONS NARRATIVE**

### **GENERAL**

The school building was originally built in 1953, with some relatively minor remodels throughout its time to present.

### **PLUMBING**

The plumbing system is operational, but a mixture of original and changes that were made between then and now. The water service is galvanized with a shut off valves (no pressure gauges) located in the basement boiler room with no apparent backflow devices. The water piping systems throughout the building are predominantly galvanized piping with some small select sections of copper piping at some fixtures that were replaced. The waste and vent piping system is cast iron hub and spigot type, that appears was part of the original construction, with some select areas of plastic piping where failures have occurred over time or fixtures were replaced. The building does have gas available to the site, that currently serves the domestic water heating and heating water boiler systems.

The plumbing fixtures are operational and for their age in fairly reasonable condition. There is a mixture of original (1950's) and newer (1980's) fixtures, both of which are higher volume fixtures that would need to be replaced to achieve higher water efficiency for the building and/or meet current codes.

The domestic hot water generation is accomplished by a nearly new tank-type, high efficiency gas-fired water heater located in the basement boiler room. It appears to be less than 5 years old, which is well within its useful life expectancy. Recirculation system appears to be in place, pumps are operational.

### **HVAC**

In general, the heating system is operational throughout the building. The central heating system consists of (1) 2000 MBH condensing gas-fired boiler that feeds hot water throughout the building. This boiler is less than 5 years old, it was part of a HVAC upgrade that removed the steam-to-water heat exchanger system from the central plant and created an independent heating system for this building.. The distribution piping system is steel, which appears in decent shape, without being able to open up piping and verifying wall thickness remaining. The insulation on the hot water piping systems is a mix between original and newer insulation material. The older material is most likely asbestos containing and will need to be tested and abated for any renovations disturbing those piping systems.



The hot water distribution piping feeds old radiators/convectors throughout the building (all areas, including classrooms, offices, hallways and common areas). These radiators appear to be from the original construction. These units are well past their useful lives. The heating water system also serves the air handling system (with tertiary pumping) that feeds the gymnasium space. This equipment is located in a mechanical cavity space on the end of the gym area.

In general, there is no ventilation supplied to this building, operable windows are the main source of direct ventilation for the individual spaces. A central exhaust system (served by two fans located at each end of the roof) serves all of the restrooms as well as transfer from each classroom space into and through the corridor and up to the roof fans. The idea of the overall system was to have the exhaust pull the building negative and allow the operable windows to make-up the air and provide ventilation. The exhaust fans on the roof appear to be operational, though not able to confirm.

There are window mounted air conditioning units located throughout the building to serve individual select areas. They appear to be functional, with no ventilation being introduced.

## **CONTROLS**

The control of the building is old pneumatic controls. The controls for the building, in general, are operational, but are completely antiquated and difficult to maintain. This system is well beyond its useful life and would need to be replaced to meet current codes. The air compressor serving the pneumatic system has recently been replaced, which would need to be repurposed.

## **FIRE SPRINKLING**

There is no current fire sprinkler system serving this building. There are empty existing hose cabinets (that were most likely served by the domestic water system) that are no longer active/available. There is no distribution throughout the building currently.

## MECHANICAL SYSTEM PROPOSED RECOMMENDATIONS/OPTIONS

### PLUMBING

Due to the planned reconfiguration of the restrooms and plumbing fixture location approach throughout the building, all new domestic water, waste and vent piping would need to be provided throughout the building. The plumbing fixtures and faucets/flush valves will need to be replaced to comply current water conservation requirements. The existing domestic hot water heater could be reused, however it is existing and has been connected to old plumbing systems that could have compromised or shortened the life expectancy of the equipment. The kitchen equipment would remain, but the piping systems serving the fixtures would be replaced.

### HVAC

OPTION #1: Building to remain as-is (no scope mechanically).

OPTION #2: Air-cooled VRF with central DOAS:

All new HVAC systems would be provided to all areas of the building that comply with current WSEC. Being all electric at this building, and with current code requirements, there will be a need to utilize heat pump technology for these systems. This proposed system would include a ventilation system that utilizes Dedicated Outside Air System (DOAS) that serves ventilation air that is ducted throughout the building. The DOAS units would include supply and return fans as well as energy recovery and coils fed from the VRF system to provide room neutral ventilation air. Two DOAS units would feed the multi-story classroom structure and another DOAS would serve the gym space. The gym unit would be located in the mechanical space adjacent to the gym and lobby areas. The classroom DOAS units would be either located on the roof, or will be located in areas on grade to allow ducting into the building, but locate the units in discrete enough locations so as not to inhibit the visual of the building. The space heating and cooling will utilize air-cooled Variable Refrigerant Flow (VRF) heat pump systems that utilize refrigerant piping to convey the medium for space conditioning to all areas of the building. The VRF terminal units are comprised of in-ceiling cassette type units as well as ducted fan coil units for spaces with adequate ceiling space and ductwork routing within each zone. The gym area will be served by an air handler that utilizes a VRF coil to provide the required heating and cooling for the Gym. The sizing for the VRF system will be approximately 100 tons of capacity to serve the building as well as the DOAS units.

OPTION #3: Water-cooled VRF with central DOAS:

The system will be the same configuration as Option #2, except for the following:

The space heating and cooling will utilize water-cooled Variable Refrigerant Flow (VRF) heat pump systems that utilize refrigerant piping to convey the medium for space conditioning to all areas of the building. The condensing unit sections will utilize the ground source water from the underground aquifer to utilize as a heat sync and allow the VRF system to pull heat from and push heat to the ground source water system. The water cooled VRF system can handle temperatures below 50F, which from the data acquired on the ground loop system, the temperatures are well within range. This project would require approximately 130 GPM of ground source water to feed the VRF plant that provides all the heating and cooling as well as serves the DOAS units and the air handler for the gym. The VRF terminal units are comprised of in-ceiling cassette type units as well as ducted fan coil units for spaces with adequate ceiling space and ductwork routing within each zone.

**CONTROLS**

All new Direct Digital Controls (DDC) will need to be provided to operate the building systems within the requirements of the current codes.

**FIRE SPRINKLING**

A full new water service and sprinkler system would need to be installed throughout the building to meet current codes. This would include a wet system for full coverage within the building and a dry system to serve and cover the attic area. Hose cabinets to be removed.



BCE Engineers, Inc.  
6021 12th St E, Ste 200  
Fife, WA 98424  
253.922.0446

Project Number: 222-176

Date: 8/16/2022

Project Name: Northrup Primary Bldg Predesign

Prepared by:  
Scott Zimbelman, PE

Project Status: Predesign Cost Opinion

Item No.	Item Description			Material & Labor		Lump Sum		Total Item Cost
		Units	Quantity	Price/Unit	Total	Price/Unit	Total	
<b>MECHANICAL: Option 2-Air Cooled VRF</b>								
1	General Mechanical (1)	SF	25308			\$2.50	\$63,270.00	\$63,270.00
2	Demolition	SF	25308			\$2.00	\$50,616.00	\$50,616.00
3	Plumbing (2)	SF	25308	\$12.00	\$303,696.00			\$303,696.00
4	HVAC (3)	SF	25308	\$50.00	\$1,265,400			\$1,265,400.00
5	Controls	SF	25308	\$7.00	\$177,156.00			\$177,156.00
6	TAB/CX/Closeout	SF	25308			\$3.50	\$88,578.00	\$88,578.00
7	Fire Sprinkling (4)	SF	25308	\$15.00	\$379,620.00			\$379,620.00
<b>Total Sheet Cost</b>								<b>\$2,328,336.00</b>

Notes:

- 1) Includes Mobilization, Submittals, O&M's, and Project Closeout.
- 2) Includes all new piping systems, plumbing fixtures and faucets/fluchvalves throughout the building. Kitchen fixtures to reamin, with new piping systems
- 3) Includes 2018 WSEC compliant HVAC system (VRF with DOAS). DOAS to be located in Attic space.
- 4) Includes full fire sprinling coverage, with wet system withint eh buildign and a dry system in the attic. Will require space for the sprinkler header.
- \* Estimate based on present day construction costs, excluding GC OH&P, Bonds and WSST.





## **WASHINGTON SCHOOL FOR THE DEAF - PREDESIGN ELECTRICAL EXISTING CONDITIONS NARRATIVE**

### **GENERAL**

The school building was originally built in 1953, with some relatively minor remodels throughout its time to present.

### **LIGHTING**

The existing lighting system consists of linear fluorescent (T8), compact fluorescent and HID (metal halide and high pressure sodium) sources. Linear fluorescent fixtures consist of standard prismatic acrylic wraps in the corridors and classroom spaces. Compact fluorescent fixtures are generally utilized in smaller spaces. HID sources appear to be used in building-mounted exterior applications.

Lighting controls generally consist of manual switches in the interior and time-clock and/or photocell controls on the exterior. Standard occupancy and daylight harvesting sensors do not appear to be present.

Fixtures appear to be in serviceable condition with adequate light levels throughout most spaces.

### **POWER**

The existing service has been modified since the building's construction. It's currently fed from the Main Gear in the Support Building at 480V. A newer (manufactured in 2007) 150kVA dry-type transformer steps the voltage down to 208V, 3-Phase and connects to the existing (original) 400A service disconnect. A second service, for emergency power, is also present. It is fed from Panel ESDP in the Support Building and is stepped down to 208V via a 15kVA dry-type transformer.

The balance of the electrical panels throughout the building appear to date to the original construction. Several are mounted in public spaces (ie. corridors).

Receptacles and wiring devices are also aging. Classrooms have surface raceway and cabling routed along the walls. Receptacle quantities are extremely limited in many spaces.

### **LOW VOLTAGE SYSTEMS**

#### *Telecommunications*

Data and phone lines come in from the existing campus distribution system. Outlets and wifi are sprinkled throughout the facility.

#### *Intercom*

An existing video intercom system has been retrofitted throughout the building. Each occupied space is provided with a monitor and apple TV with internet connection. The system appears to be fully functional. An existing Bogen voice-only intercom system exists as well. It includes speakers, call switches and indicator lights. It is unknown if this aging system is fully operational.

*Electronic Security Systems*

Access Control and CCTV systems appear to be relatively recent additions. Proximity card readers are utilized at primary entrance points and CCTV cameras cover the exterior perimeter of the facility. Interior CCTV cameras monitor entrances and public spaces.

*Audio-Visual Systems*

Monitors are utilized throughout the facility for communication purposes. The gym has multiple monitors. Classrooms do not appear to have monitors or projectors dedicated to learning. Some classrooms have Smartboards (or similar) for instruction.

*Fire Alarm System*

The existing fire alarm system is a Simplex 4010ES addressable system. It appears to be functional.

## ELECTRICAL SYSTEM PROPOSED RECOMMENDATIONS/OPTIONS

### LIGHTING

While the existing lighting is in adequate shape and appears fully functional, it does not meet current energy code. The fixtures are substantially less efficient than modern LED fixtures, and there aren't any automatic shut-off or daylight harvesting controls. Energy code will allow the existing fixtures to remain in areas that are minimally impacted- provided that we don't demolish/replace more than 50% of them. Newly created spaces will require new fixtures that meet energy code. In a similar manner, existing lighting controls can remain in areas that don't incorporate new lighting or revised circuiting. New spaces and areas that have revised lighting/fixture wiring will require new controls that meet current energy code.

We recommend replacing all of the existing fixtures as part of the building renovation to lower energy costs and reduce the maintenance requirements that exist with replacing fluorescent bulbs.

### POWER

Other than the service feeders and associated dry transformers, the balance of the electrical distribution system is well past its expected lifespan of 30 years. Used circuit breakers and listed refurbished breakers that fit these older panels are difficult to obtain (and are becoming more so). Extremely old breakers do not function as well as new breakers.

The existing service is only rated at 150kVA (400A at 208V, 3-phase). That size is barely adequate for the current building and associated mechanical system. Any changes to the mechanical system- particularly with the Options that replace gas heating with electrical, will necessitate an electrical service size upgrade.

We recommend replacing all of the existing panelboards within the building to modern panels with safe, readily available breakers. Upgrades to the service and additional panels may be required based on the renovation program.

### LOW VOLTAGE SYSTEMS

#### *Telecommunications*

The existing system is functional, but could use a refresh and update to modern equipment. A building refresh would allow visible cables and surface raceway to be concealed.

#### *Intercom*

The existing video intercom system appears to be functional.

#### *Electronic Security Systems*

The existing ESS appear to be functional.



*Audio-Visual Systems*

Upgraded Video systems with larger monitors/projectors could be added to classrooms to allow simplified use by teachers, staff and students.

*Fire Alarm System*

The existing fire Simplex 4010ES system appears to be functional.

**HVAC OPTIONS- ELECTRICAL IMPACTS**

OPTION #1: Building to remain as-is

Option #1 has no electrical scope, unless the school would like to address current electrical deficiencies.

OPTION #2: Air-cooled VRF with central DOAS:

Option #2 would require an electric service upgrade to the facility. Preliminary estimates indicate a service size increase to 600A at 480V will be required. It is unlikely that the Support Building can accommodate a service of that size. A new utility service would either require:

1. An extension of the existing underground primary distribution system on campus to a new transformer near the north end of the Northrop Building.
2. Coordinating with the utility to extend (3) phase overhead power from the corner of Ash and Clark to the campus.

OPTION #3: Water-cooled VRF with central DOAS:

Option #3 would require an electric service upgrade to the facility. Preliminary estimates indicate a similar service size increase to Option #2 (600A at 480V). A new service solution would be required as described in Option #2.



BCE Engineers, Inc.  
6021 12th St E, Ste 200  
Fife, WA 98424  
253.922.0446

Project Number: 222-176  
Project Name: **Northrup Primary Bldg Predesign**  
Project Status: Predesign Cost Opinion

Date: 8/16/2022  
Prepared by: Ben Hedin, PE

Item No.	Item Description			Material & Labor		Lump Sum		Total Item Cost
		Units	Quantity	Price/Unit	Total	Price/Unit	Total	
<b>ELECTRICAL: Option 2-Air Cooled VRF</b>								
1	General Electrical (1)	SF	25308			\$3.00	\$75,924.00	\$75,924.00
2	Demolition	SF	25308			\$1.75	\$44,289.00	\$44,289.00
3	Lighting Fixtures and Controls (2)	SF	25308	\$12.00	\$303,696.00			\$303,696.00
4	Electrical Gear and Distribution (3)	SF	25308	\$8.00	\$202,464			\$202,464.00
5	Branch Wiring (4)	SF	25308	\$10.00	\$253,080.00			\$253,080.00
6	Low Voltage Systems (minor updates)	SF	25308			\$3.50	\$88,578.00	\$88,578.00
7	Fire Alarm	SF	25308			\$1.00	\$25,308.00	\$25,308.00
8	New Service	LS	1			\$75,000.00	\$75,000.00	\$75,000.00

**Total Sheet Cost** **\$1,068,339.00**

Notes:

- 1) Includes Mobilization, Submittals, O&M's, and Project Closeout for full Electrical scope.
- 2) Includes all new fixtures and controls.
- 3) Assumes full replacement and upsized service.
- 4) Assumes full electrical scope with partial reuse of existing conduit.
- \* Estimate based on present day construction costs, excluding GC OH&P, Bonds and WSST.



BCE Engineers, Inc.  
 6021 12th St E, Ste 200  
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Project Number: 222-176

Date: 8/16/2022

Project Name: Northrup Primary Bldg Predesign

Prepared by:

Project Status: Predesign Cost Opinion

Ben Hedin, PE

Item No.	Item Description			Material & Labor		Lump Sum		Total Item Cost
		Units	Quantity	Price/Unit	Total	Price/Unit	Total	
	<b>ELECTRICAL: Option 3- Watercooled VRF</b>							
1	General Electrical (1)	SF	25308			\$3.00	\$75,924.00	\$75,924.00
2	Demolition	SF	25308			\$1.75	\$44,289.00	\$44,289.00
3	Lighting Fixtures and Controls (2)	SF	25308	\$12.00	\$303,696.00			\$303,696.00
4	Electrical Gear and Distribution (3)	SF	25308	\$8.00	\$202,464			\$202,464.00
5	Branch Wiring (4)	SF	25308	\$10.00	\$253,080.00			\$253,080.00
6	Low Voltage Systems (minor updates)	SF	25308			\$3.50	\$88,578.00	\$88,578.00
7	Fire Alarm	SF	25308			\$1.00	\$25,308.00	\$25,308.00
8	New Service	LS	1			\$75,000.00	\$75,000.00	\$75,000.00

**Total Sheet Cost**      **\$1,068,339.00**

- Notes:
- 1) Includes Mobilization, Submittals, O&M's, and Project Closeout for full Electrical scope.
  - 2) Includes all new fixtures and controls.
  - 3) Assumes full replacement and upsized service.
  - 4) Assumes full electrical scope with partial reuse of existing conduit.
  - \* Estimate based on present day construction costs, excluding GC OH&P, Bonds and WSST.



**LEED v4.1 BD+C: Schools**  
Project Checklist

Y ? N

1		Credit	Integrative Process	1
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**5 1 0 Location and Transportation 15**

		Credit	LEED for Neighborhood Development Location	15
1		Credit	Sensitive Land Protection	1
	1	Credit	High Priority Site and Equitable Development	2
2		Credit	Surrounding Density and Diverse Uses	5
		Credit	Access to Quality Transit	4
1		Credit	Bicycle Facilities	1
		Credit	Reduced Parking Footprint	1
1		Credit	Electric Vehicles	1

**3 2 0 Sustainable Sites 12**

Y		Prereq	Construction Activity Pollution Prevention	Required
Y		Prereq	Environmental Site Assessment	Required
		Credit	Site Assessment	1
		Credit	Protect or Restore Habitat	2
		Credit	Open Space	1
		Credit	Rainwater Management	3
	2	Credit	Heat Island Reduction	2
1		Credit	Light Pollution Reduction	1
1		Credit	Site Master Plan	1
1		Credit	Joint Use of Facilities	1

**4 1 0 Water Efficiency 12**

Y		Prereq	Outdoor Water Use Reduction	Required
Y		Prereq	Indoor Water Use Reduction	Required
Y		Prereq	Building-Level Water Metering	Required
1		Credit	Outdoor Water Use Reduction	2
2	1	Credit	Indoor Water Use Reduction	7
		Credit	Optimize Process Water Use	2
1		Credit	Water Metering	1

**13 5 0 Energy and Atmosphere 31**

Y		Prereq	Fundamental Commissioning and Verification	Required
Y		Prereq	Minimum Energy Performance	Required
Y		Prereq	Building-Level Energy Metering	Required
Y		Prereq	Fundamental Refrigerant Management	Required
4		Credit	Enhanced Commissioning	6
6	2	Credit	Optimize Energy Performance	16
1		Credit	Advanced Energy Metering	1
		Credit	Grid Harmonization	2
2	3	Credit	Renewable Energy	5
		Credit	Enhanced Refrigerant Management	1

Project : Northrop Bldg  
Date : 22- Sep

**4 0 0 Materials and Resources 13**

Y		Prereq	Storage and Collection of Recyclables	Required
3		Credit	Building Life-Cycle Impact Reduction	5
1		Credit	Environmental Product Declarations	2
		Credit	Sourcing of Raw Materials	2
1		Credit	Material Ingredients	2
2		Credit	Construction and Demolition Waste Management	2

**7 3 0 Indoor Environmental Quality 16**

Y		Prereq	Minimum Indoor Air Quality Performance	Required
Y		Prereq	Environmental Tobacco Smoke Control	Required
Y		Prereq	Minimum Acoustic Performance	Required
		Credit	Enhanced Indoor Air Quality Strategies	2
3		Credit	Low-Emitting Materials	3
1		Credit	Construction Indoor Air Quality Management Plan	1
1		Credit	Indoor Air Quality Assessment	2
1		Credit	Thermal Comfort	1
1	1	Credit	Interior Lighting	2
		Credit	Daylight	3
	1	Credit	Quality Views	1
	1	Credit	Acoustic Performance	1

**2 0 0 Innovation 6**

1		Credit	Innovation	5
1		Credit	LEED Accredited Professional	1

**0 0 0 Regional Priority 4**

		Credit	Regional Priority: Specific Credit	1
		Credit	Regional Priority: Specific Credit	1
		Credit	Regional Priority: Specific Credit	1
		Credit	Regional Priority: Specific Credit	1

**39 12 0 TOTALS Possible Points: 110**

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum

## Detailed Project Schedule

### PREFERRED ALTERNATIVE #3

Northrop Primary School Building Renovation

#### PRELIMINARY

BUDGET APPROVED	April 2023
SURVEY ( if required)	July 2023
GEOTECHNICAL INVESTIGATION	Not Required
DESIGN	April, 2023 – January, 2024

#### SCHEMATIC DESIGN

April 1, 2023 – June 30, 2023

Stakeholder identification and presentations	April/May 2023
LEED™ Charette (NC greater than 5000 GSF)	May 2023
DES LEED™ QA Process	June 2023
LEED™ Checklist & Design Features-end of <u>each design phase</u>	June 2023
SD Const Cost Estimate	June 30, 2023
SD Project Schedule Update	June 30, 2023
<i>VE (end of SD or no later than early DD), Team participation &amp; Doc VE – incorporate decisions</i>	July 2023
NTP with DD in writing (by DES PM)	July 7, 2023

#### DESIGN DEVELOPMENT

July 1, 2023 – September 30, 2023

LEED Checklist & Design Features-end of <u>each design phase</u>	September 30, 2023	
Metering Plan (for Owner tracking of energy & water sys)	September 30, 2023	
Value Engineering	Team participation	August 1, 2023
Accessibility - SFAC Review	(per EO 96-04)	August 31, 2023
Accessibility – Incorporate Comments in Final DD		
Utility Coordination, Owner incentives (energy & water), LEED™ coordination.		
Base Bid & Alts – All shall not exceed the MACC* unless approved by DES/Client		
Prioritize Alternates		
DD Const Cost Estimate	September 30, 2023	
DD Project Schedule Update	September 30, 2023	
DD Final Docs – drawings, outline specs, and product data		
NTP with CD in writing (by DES PM)	October 7, 2023	

#### CONTRACT DOCUMENTS

October 1, 2023 – January 31, 2024

LEED™ Checklist & Design Features at end of <u>each design phase</u>	
Utility Coordination, secure Owner incentives from utility (energy & water), LEED™ coordination	
Base Bid & Alts – clearly draw and specify alternates	
Boiler Plate (Division 00 and 01 coordination)	
Review Prebid Walk-Through Agenda Template	
Final Review for Bidding	
Bidding Schedule/Strategy	
Liquidated Damages Checklist	
Special Inspections and Testing	
Other construction services -	
Bid Advertisement	
Constructability Review	November 1, 2023

Final CD Const Cost Estimate	January 31, 2024
Final Construction Schedule	January 31, 2024
CD Final Docs – drawings, specs, boilerplate	
DES & Owner Review	January 31 – Feb 7, 2024
Approval Signatures on Drawings & Project Manual	February 7, 2024
NTP with Bidding in writing (by DES PM)	February 7, 2024
<b>PERMITTING</b> (allow 6 weeks)	September 1, 2023 – January 15, 2024
Engineering	September 1, 2023 – November 30, 2024
Building	December 1, 2023 – January 31, 2024
L&I	December 1, 2023 – January 31, 2024
<b>BIDDING</b> (4 weeks)	February 7, 2024 – March 7, 2024
Prebid Conference	February 14, 2024
Addenda	February 29, 2024
Bid Opening	March 7, 2023
<b>CONTRACTS</b> (30-days)	March 7, 2023 – April 7, 2023
Bid Evaluation / Responsibility Criteria	
Insurance, etc	
<b>CONSTRUCTION</b>	<b>April 8, 2024 – April 7, 2025 (365 days)</b>
NTP	April 8, 2024
Preconstruction Conference	April 8, 2024
Preconstruction Submittals	
Mobilization	April 8, 2024
Progress Meetings	Weekly on Tuesday
Material Submittals	(throughout)
Midpoint of Construction	November, 2024
Site Observations	(throughout)
Contract Changes / Contractor Invoices	(throughout)
<b>EQUIPMENT INSTALLATION</b>	
Special Requirements	
Testing and Air Balancing	
Commissioning	
Indoor Air Quality	
LEED™ Reporting	
Apprenticeship Reporting	
Substantial Completion (336 days)	April 7, 2025
Completion/Closeout (30 days)	May 7, 2025
O&M Manuals	
Owner Training	
Record Documents	
Final Acceptance	May 7, 2025
<b>OCCUPANCY</b>	June, 2025
<b>FULL OPERATION</b>	September, 2025
<b>LEED™ REPORTING</b> (post-const)	
One-Year Warranty Walk	11 months from final acceptance

September 12, 2022  
ENERGY MODELING REPORT

RE: 222-xxx Vancouver Northrop Remodel, Clark County, WA, Climate Zone 4C, WSEC-2018  
REV1 changed typo from \$0.77/kwh to \$0.077/kwh

	<u><b>Air Cooled VRF</b></u>	<u><b>PROPOSED</b></u>
Roof Description	U= 0.027 (24" metal o.c. w/R-38)	U= 0.027 (24" metal o.c. w/R-38)
Wall Description	U=0.104 (mass wall R-9.5 c.i.)	U=0.104 (mass wall R-9.5c.i.)
Floor	slab, F=0.74 no insulation	same
Windows	metal frame fixed U=0.38, SHGC = 0.4	same
Doors	U=0.37	same
Floor Area	26,000 sqft	same
Wall Area	10,625 sqft	same
Roof Area	26,000 sqft	same
Windows	5,101 sqft	same
Heating	(3) 240 MBH VRF, 3.2 COP*	(3) 240 MBH VRF, 4.1 COP**
Cooling	(3) 240 VRF 11 EER*	(3) 240 VRF 14 EER**
Fans (kw/cfm)	(24) VRF SF= 0.0002	(24) VRF SF= 0.000
Supply Airflow (cfm)	21,637	21,637
	continuous, proportional control	continuous, proportional acting control
OSA Airflow (cfm)	7,612	same
Unit Safety Factor	Clg = 1.0, Htg = 1.0	Clg and Htg = 1.0
Economizer	no	no
Demand Control Ventilation	none	same
Heat Recovery	DOAS Sensible wheel eff=0.76	same
DHW	electric, 34 MBH, 70 gal tank	same
Temperature Limits	Occupied Htg.= 68 F, Clg.= 75 F	same
Humidity H. Limit	none	same
Lights	interior= 0.81 w/sqft*** exterior = 1.76 kW	same same
Occupancy	6:00 a.m. – 6:00 p.m. 5 days a week	
Process Loads	131 MBTU, 21% of baseline	same
People	253	same
Utilities	Electric \$25/month, 0.077 \$/kwh, 6.77 \$/kw	same
Energy Consumption (Kbtu/sqft-yr)	23.7 @ 0 clg., 28 htg. unmet hours	23.0 @ 0 clg., 28 htg. unmet hours 2.9 % energy savings
Energy Cost (\$)	\$20,086	\$19,221 4.3 % energy cost savings

Notes:

\*This is based on the standard Daikin Air Cooled Emerion Heat Recovery Condenser. The DOAS contains a 9 ton VRF indoor unit. The EUI increases significantly if it is replaced by and electric heater. See table below for Emerion Heat Recovery condenser efficiency values.

\*\* This is based on the Daikin Water Cooled VRV-T Series Heat Recovery Condenser. I could not model a water cooled VRF so all I could do was change the condenser efficiency. This means that any pumping or water

cooling energy required for the water loop is not accounted for in this model. Both models use the Daikin air cooled condenser performance curves. It is possible that the lack water pumping/cooling water loop energy could be offset by the use of the Daikin air cooled condenser performance curves. The Daikin water cooled condenser performance curves are probably different.

The DOAS contains a 9 ton VRF indoor unit. The EUI increases significantly if it is replaced by an electric heater. See table below for VRV-T Heat Recovery condenser efficiency values.

\*\*\*ASHRAE 90.1-2018

### AIR COOLED EMERION HEAT RECOVERY CONDENSER EFFICIENCIES

VRV EMERION CERTIFIED DATA - HEAT RECOVERY, -230V/60HZ/3PH, 460V/60HZ/3PH																
Product #	Capacity (Tons)	IEER Non-Ducted	IEER Ducted	IEER Mixed	SCHE Non-Ducted	SCHE Ducted	SCHE Mixed	COP @ 47°F Non-Ducted	COP @ 47°F Ducted	COP @ 47°F Mixed	COP @ 17°F Non-Ducted	COP @ 17°F Ducted	COP @ 17°F Mixed	EER Non-Ducted	EER Ducted	EER Mixed
REYQ72AA	6	28.00	23.00	25.50	26.10	22.00	24.05	4.35	3.58	3.97	2.50	2.40	2.45	15.70	12.80	14.25
REYQ96AA	8	30.00	25.30	27.65	26.10	21.10	23.60	4.30	3.56	3.93	2.48	2.25	2.37	14.60	12.80	13.70
REYQ120AA	10	27.50	23.50	25.50	26.10	22.20	24.15	4.00	3.48	3.74	2.38	2.25	2.32	13.20	12.40	12.80
REYQ144AA	12	26.50	22.50	24.50	25.60	22.10	23.85	3.80	3.35	3.58	2.20	2.10	2.15	12.50	12.00	12.25
REYQ168AA	14	24.00	21.40	22.70	25.60	22.30	23.95	3.50	3.20	3.35	2.10	2.10	2.10	11.50	11.10	11.30
REYQ192AA	16	24.00	21.00	22.50	26.60	22.80	24.70	3.85	3.45	3.65	2.05	2.05	2.05	12.30	11.50	11.90
REYQ216AA	18	23.00	20.50	21.75	25.50	21.90	23.70	3.70	3.25	3.48	2.05	2.05	2.05	11.50	11.00	11.25
REYQ240AA	20	21.60	19.70	20.65	25.60	21.80	23.70	3.45	3.20	3.33	2.05	2.05	2.05	11.00	10.80	10.90
REYQ264AA	22	23.90	19.20	21.55	26.20	18.20	22.20	3.70	3.20	3.45	2.35	2.10	2.23	12.00	10.60	11.30
REYQ288AA	24	23.20	19.30	21.25	23.40	20.00	21.70	3.60	3.27	3.44	2.41	2.13	2.27	12.00	11.00	11.50
REYQ312AA	26	22.80	19.20	21.00	24.40	20.80	22.60	3.60	3.25	3.43	2.35	2.10	2.23	11.30	10.80	11.05
REYQ336AA	28	22.10	18.60	20.35	23.40	19.80	21.60	3.60	3.23	3.42	2.20	2.10	2.15	10.50	10.60	10.55
REYQ360AA	30	21.00	18.20	19.60	23.00	19.40	21.20	3.60	3.21	3.41	2.05	2.05	2.05	11.50	10.70	11.10
REYQ384AA	32	22.00	18.80	20.40	22.00	17.00	19.50	3.40	3.25	3.33	2.05	2.05	2.05	10.70	10.50	10.60
REYQ408AA	34	21.50	18.40	19.95	21.90	18.40	20.15	3.40	3.25	3.33	2.05	2.05	2.05	10.70	10.50	10.60
REYQ432AA	36	21.10	18.10	19.60	20.30	18.20	19.25	3.40	3.25	3.33	2.05	2.05	2.05	10.70	10.10	10.40
REYQ456AA	38	20.20	17.50	18.85	18.90	18.00	18.45	3.40	3.25	3.33	2.05	2.05	2.05	9.90	9.80	9.85
REYQ480AA	40	19.40	17.20	18.30	16.90	16.50	16.70	3.40	3.25	3.33	2.05	2.05	2.05	9.70	9.60	9.65

Certified efficiency data in accordance with ANSI/AHRI Standard 1230 2014, "Performance Rating of Variable Refrigerant Flow Multi-Split Air Conditioning and Heat Pump Equipment" for the VRV series. The VRV EMERION series has been designed and optimized to meet or exceed the latest minimum efficiency requirements in 10 C.F.R. Part 431 as determined by the U.S. Department of Energy (DOE) and baseline efficiencies as defined by ASHRAE 90.1 2016. Systems under 65MBH are currently certified to AHRI 210/240. IEER ratings are as defined in ASHRAE 90.1 2016.



## WATER COOLED VRV-T HEAT RECOVERY CONDENSER EFFICIENCIES

VRV T-SERIES WATER-COOLED CERTIFIED DATA, 208-230V/60HZ/3PH AND 460V/60HZ/3PH														
Function	System Name	Tonnage	IEER Non-Ducted	IEER Ducted	IEER Mixed	SCHE Non-Ducted (Heat Recovery only)	SCHE Ducted (Heat Recovery only)	SCHE Mixed (Heat Recovery only)	EER Non-Ducted	EER Ducted	EER Mixed	COP @ 68°F Non-Ducted	COP @ 68°F Ducted	COP @ 68°F Mixed
Heat Pump	RWEYQ72PC	6 Tons	24.1	22.3	23.2	N/A	N/A	N/A	14.0	14.0	14.0	4.89	4.78	4.84
	RWEQ96T	8 Tons	30.8	25.4	28.1	N/A	N/A	N/A	19.6	15.4	17.5	6.27	5.8	6.035
	RWEQ120T	10 Tons	29.4	23.5	26.45	N/A	N/A	N/A	16	13.6	14.8	6.1	5.55	5.83
	RWEQ144T	12 Tons	24.3	19.8	22.05	N/A	N/A	N/A	15.4	12.6	14.0	6.01	5.33	5.67
	RWEQ192T	16 Tons	26.8	24.7	25.75	N/A	N/A	N/A	16.5	14.6	15.55	5.82	5.82	5.82
	RWEQ216T	18 Tons	26.3	23.8	25.05	N/A	N/A	N/A	15.0	13.8	14.4	5.68	5.62	5.65
	RWEQ240T	20 Tons	25.7	22.7	24.2	N/A	N/A	N/A	14.0	12.8	13.4	5.52	5.38	5.45
	RWEQ264T	22 Tons	23.5	2.00	21.75	N/A	N/A	N/A	13.5	12.1	12.8	5.34	4.96	5.15
	RWEQ288T	24 Tons	20.9	18.8	19.85	N/A	N/A	N/A	12.6	11.3	11.95	5.3	4.81	5.06
	RWEQ312T	26 Tons	21.9	21.8	21.85	N/A	N/A	N/A	13.7	12.7	13.2	5.5	4.86	5.18
	RWEQ336T	28 Tons	21.5	21.4	21.45	N/A	N/A	N/A	13.5	12.3	12.9	5.42	4.73	5.08
	RWEQ360T	30 Tons	21.2	20.2	20.7	N/A	N/A	N/A	12.4	11.7	12.05	5.3	4.7	5.0
	RWEQ384T	32 Tons	19.5	17.9	18.7	N/A	N/A	N/A	12	11	11.5	4.53	4.12	4.33
RWEQ408T	34 Tons	18.2	17.2	17.7	N/A	N/A	N/A	11.1	10.7	10.9	4.35	4.03	4.19	
RWEQ432T	36 Tons	17.0	16.6	16.8	N/A	N/A	N/A	10.5	10.3	10.4	4.19	3.92	4.06	
Heat Recovery	RWEYQ72PC	6 Tons	24.1	22.3	23.2	17.8	19.2	18.5	14.0	14.0	14.0	4.89	4.78	4.84
	RWEQ96T	8 Tons	30.8	25.4	28.1	25.7	21.3	23.5	19.6	15.4	17.5	6.27	5.8	6.035
	RWEQ120T	10 Tons	29.4	23.5	26.45	26.3	22.5	24.4	16	13.6	14.8	6.1	5.55	5.83
	RWEQ144T	12 Tons	24.3	19.8	22.05	26.5	22.7	24.6	15.4	12.6	14	6.01	5.33	5.67
	RWEQ192T	16 Tons	26.8	24.7	25.75	26.0	22.9	24.45	16.5	14.6	15.55	5.82	5.82	5.82
	RWEQ216T	18 Tons	26.3	23.8	25.05	25.5	22.1	23.8	15.0	13.8	14.4	5.68	5.62	5.65
	RWEQ240T	20 Tons	25.7	22.7	24.2	25.4	21.9	23.65	14.0	12.8	13.4	5.52	5.38	5.45
	RWEQ264T	22 Tons	23.5	2.00	21.75	25.2	19.2	22.2	13.5	12.1	12.8	5.34	4.96	5.15
	RWEQ288T	24 Tons	20.9	18.8	19.85	23.5	20.0	21.75	12.6	11.3	11.95	5.3	4.81	5.06
	RWEQ312T	26 Tons	21.9	21.8	21.85	24.5	20.7	22.6	13.7	12.7	13.2	5.5	4.86	5.18
	RWEQ336T	28 Tons	21.5	21.4	21.45	23.5	20.0	21.75	13.5	12.3	12.9	5.42	4.73	5.08
	RWEQ360T	30 Tons	21.2	20.2	20.7	23.2	19.1	21.15	12.4	11.7	12.05	5.3	4.7	5.0
	RWEQ384T	32 Tons	19.5	17.9	18.7	22.0	19.1	20.55	12.0	11.0	11.5	4.53	4.12	4.33
RWEQ408T	34 Tons	18.2	17.2	17.7	21.2	18.5	19.85	11.1	10.7	10.9	4.35	4.03	4.19	
RWEQ432T	36 Tons	17.0	16.6	16.8	20.5	17.7	19.1	10.5	10.3	10.4	4.19	3.92	4.055	

# AIR COOLED VRF

222-Northrop Remodel

DOE-2.3-50h 9/11/2022 14:23:02 BDL RUN 1

REPORT- BEPS Building Energy Performance

WEATHER FILE- Portland OR TMY2

	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
EM1 ELECTRICITY													
MBTU	204.8	0.0	131.0	51.2	54.7	0.0	8.8	125.1	0.0	0.0	22.7	19.0	617.4
FM1 NATURAL-GAS													
MBTU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU	204.8	0.0	131.0	51.2	54.7	0.0	8.8	125.1	0.0	0.0	22.7	19.0	617.4

TOTAL SITE ENERGY 617.36 MBTU 23.7 KBTU/SQFT-YR GROSS-AREA 23.7 KBTU/SQFT-YR NET-AREA  
 TOTAL SOURCE ENERGY 1852.08 MBTU 71.2 KBTU/SQFT-YR GROSS-AREA 71.2 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 1.05  
 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.00  
 HOURS ANY ZONE ABOVE COOLING THROTTLING RANGE = 0  
 HOURS ANY ZONE BELOW HEATING THROTTLING RANGE = 28

NOTE: ENERGY IS APPORTIONED HOURLY TO ALL END-USE CATEGORIES.

222-Northrop Remodel

DOE-2.3-50h 9/11/2022 14:23:02 BDL RUN 1

REPORT- ES-D Energy Cost Summary

WEATHER FILE- Portland OR TMY2

UTILITY-RATE	RESOURCE	METERS	METERED ENERGY UNITS/YR	TOTAL CHARGE (\$)	VIRTUAL RATE (\$/UNIT)	RATE USED ALL YEAR?
Custom Elec Rate	ELECTRICITY	EM1	180886. KWH	20086.	0.1110	YES
				20086.		

ENERGY COST/GROSS BLDG AREA: 0.77  
 ENERGY COST/NET BLDG AREA: 0.77

# WATER COOLED VRF

222-Northrop Remodel DOE-2.3-50h 9/11/2022 14:24:24 BDL RUN 1

REPORT- BEPS Building Energy Performance WEATHER FILE- Portland OR TMY2

	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
EM1 ELECTRICITY													
MBTU	204.8	0.0	131.0	42.5	43.2	0.0	8.7	125.1	0.0	0.0	22.7	19.0	597.1
FM1 NATURAL-GAS													
MBTU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU	204.8	0.0	131.0	42.5	43.2	0.0	8.7	125.1	0.0	0.0	22.7	19.0	597.1

TOTAL SITE ENERGY 597.10 MBTU 23.0 KBTU/SQFT-YR GROSS-AREA 23.0 KBTU/SQFT-YR NET-AREA  
 TOTAL SOURCE ENERGY 1791.30 MBTU 68.9 KBTU/SQFT-YR GROSS-AREA 68.9 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 1.05  
 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.00  
 HOURS ANY ZONE ABOVE COOLING THROTTLING RANGE = 0  
 HOURS ANY ZONE BELOW HEATING THROTTLING RANGE = 28

NOTE: ENERGY IS APPORTIONED HOURLY TO ALL END-USE CATEGORIES.

222-Northrop Remodel DOE-2.3-50h 9/11/2022 14:24:24 BDL RUN 1

REPORT- ES-D Energy Cost Summary WEATHER FILE- Portland OR TMY2

UTILITY-RATE	RESOURCE	METERS	METERED ENERGY UNITS/YR	TOTAL CHARGE (\$)	VIRTUAL RATE (\$/UNIT)	RATE USED ALL YEAR?
Custom Elec Rate	ELECTRICITY	EM1	174950. KWH	19221.	0.1099	YES
				=====		
				19221.		

ENERGY COST/GROSS BLDG AREA: 0.74  
 ENERGY COST/NET BLDG AREA: 0.74