


COUNCIL OF EDUCATIONAL FACILITY PLANNERS INTERNATIONAL
2015 James D. MacConnell Award Submission

Lake Roosevelt School

Grand Coulee Dam School District
Coulee Dam, WA



The image shows the exterior of a school building. It features large, multi-paned windows with white frames. The walls are constructed from light-colored, irregular stone blocks. A prominent red metal beam runs diagonally across the upper right portion of the image. The sky is visible in the background, and the overall scene is brightly lit.

Executive Summary Lake Roosevelt School

The Grand Coulee Dam School District serves students from five counties, six communities and the Colville Indian Reservation.

The Grand Coulee Dam School District (GCDSD) serves students from five counties, six communities and the Colville Indian Reservation. Until the construction of the new school, education services were provided in school buildings constructed by the Bureau of Reclamation in the late 1940's and early 1950's.

The school district has very limited access to traditional property tax revenues, due to the presence of the federal facilities (Grand Coulee Dam, Lake Roosevelt National Recreation Area, US Army Corp of Engineers and the Bureau of Reclamation Columbia Basin Project), tribal and federal trust ownership of properties on the Colville Indian Reservation, Washington State owned properties (state parks, wildlife conservation areas and protected shorelines) and the tax-advantaged open space within the district's boundaries. While the State of Washington has a shared cost model for the construction of new school facilities that requires local districts to pay for a portion of the cost of new facilities, the GCDSD has never been able to access the state match portion of the funds due to the limited amount of taxable property within its boundaries. In fact, only 1% of the property within the district's boundaries is taxed at its full market value with much of the remaining being tax exempt, making the construction of a new school facility under the state match model impossible for the district.

In 2009, after visits to the schools identified them as failing and dangerous, the Washington Legislature approved a \$500,000 grant to replace the nearly fifty year old electrical transformers in the Lake Roosevelt High School and commission the planning and conceptual drawing of a comprehensive, K-12 school facility that would replace all of the district's aged and failing school buildings. The district selected a design team to supervise the transformer replacement and develop the concepts for the new building.

After years of lobbying, fund raising and seeking alternative funding, the district had the means and vision to create a school that would bring several communities and cultures together. The communities, school district and designers worked together to create a facility that would meet their diverse needs.



Scope of Work Lake Roosevelt School

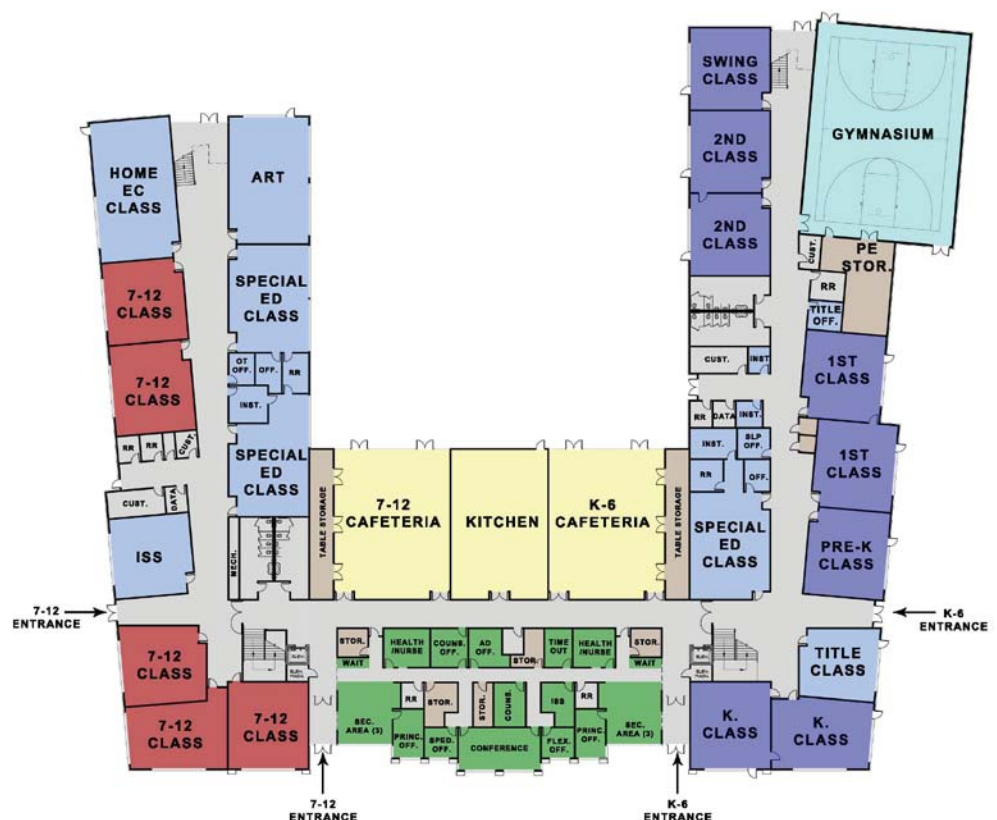


One of the priority tasks facing the design team was to determine the design specifications and location for the new facility. The communities that compose the school district have a proud and well-earned reputation of being very independent.



Lake Roosevelt School

- The new Grand Coulee Dam School District K-12 facility was planned to consolidate the District's current rundown elementary school, middle school and high school into one K-12 facility. The main building consists of a K-6 classroom wing, core area and a 7-12 classroom wing.
- The K-6 wing is a two story portion of the building separated from the 7-12 wing, while being connected with the center core of the building.



First Floor Plan

Scope of Work

- The core area of the building includes the administration for both the K-6 grade levels and the 7-12 grade levels. It includes the necessary storage, office and secretarial areas for both grade level groupings. The Core Area includes one kitchen that serves both a K-6 Cafeteria/Commons and a 7-12 Cafeteria/Commons.
- The 7-12 wing is a two-story portion of the building connected to the center core area of the building.
- This exciting project includes new high-performance classrooms, high performance and flexible science classrooms, flexible libraries and high-performance specialty classrooms.
- The new high school gym and modernization of the existing high school gym, locker rooms, shops and sports fields are planned for future phases.



Second Floor Plan



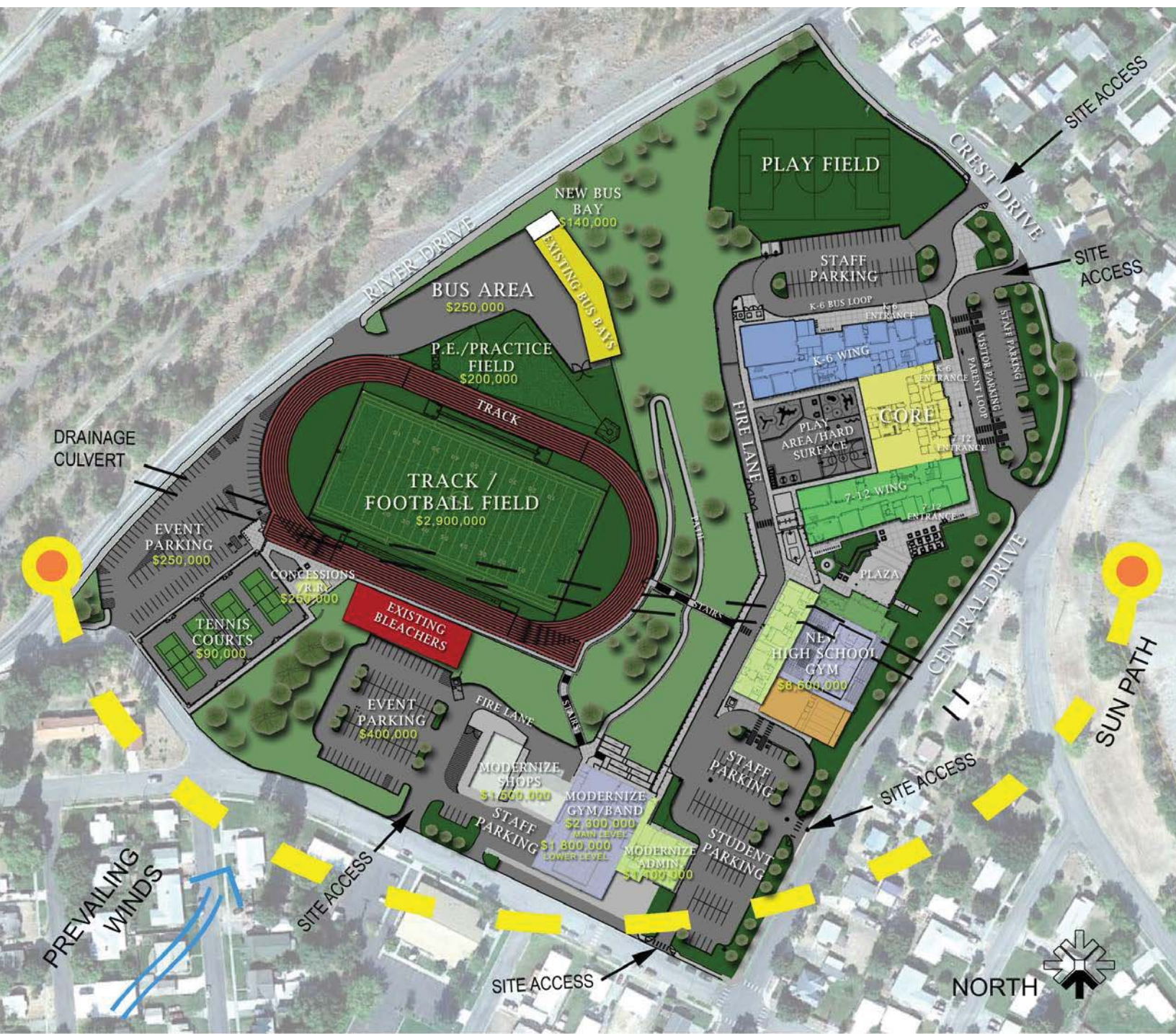
A wide staircase with wooden steps and metal railings, leading up to a large window. The staircase is the central focus, with steps that have a light-colored wood grain. The railings are made of polished metal. To the right, a wall with large wooden panels and a metal handrail is visible. At the top of the stairs, a large window with a grid pattern looks out onto a clear blue sky. The ceiling is white with recessed lighting.

Budget Lake Roosevelt School

The district and the design team maintained communications with Senator Linda Evans Parlette on the progress of the transformer replacements, the site selection process, the development of the conceptual plan and the community support being shown through the “Build a School” fundraisers.

Funding Process

- The design team worked with the district to build community support for the selected site. Since the selected site was located within the boundaries of the Colville Indian Reservation all elements of the Colville Tribe's Tribal Employment Rights Ordinance (TERO) applied, including Tribal employment preferences and nearly \$1,000,000 of impact/training fees. The district communicated with the Tribal TERO Commission and Tribal Council regarding the fees and the district's commitment to honor the employment preferences. The TERO Commission and Tribal Council agreed to waive the impact/training fees, because the new school would benefit their students as well as the non-native students in attendance.
- To aid in the funding process, the project was broken out into smaller pieces and their respective associated costs. This breakdown is still being used today to aid in obtaining funding for the remaining projects.



Budget

- The local Rotary Club began a “Build a School” campaign, and they raised over \$17,000 from numerous spaghetti feeds and other fund raising events. A highlight of the club’s endeavors included three “Walk the Dam, Build a School” fundraisers, which came to fruition through a partnership with the Bureau of Reclamation, that included the opportunity to walk across the one mile wide Grand Coulee Dam.
- The district and the design team maintained communications with Senator Linda Evans Parlette on the progress of the site selection process, the development of the conceptual plan and the community support being shown through the “Build a School” fundraisers. An opportunity became available during the state’s 2012 legislative session when the legislature looked at developing a Distressed Schools Construction Grant as a means of stimulating the economy in selected, severely impacted areas of the state. The project was quickly identified as “shovel ready” and cost projections were developed for consideration by the legislature.

Budget

Area: 101,632 SF

Construction Budget: \$24.1 Million

Construction Cost: \$23.2 Million

Floors: 2

Students: 800

Occupied: Fall 2014



Community Engagement Process
Lake Roosevelt School

LAKE ROOSEVELT
JUNIOR/SENIOR HIGH SCHOOL



The design team held several community and staff meetings to determine the overall expectations for the new building.

State of the Existing Facilities

- The existing facilities were in dire straits throughout the district. Immediate action was warranted. A portion of the initial \$500,000 grant was used to replace the aging transformer that was located inside the educational space of the existing high school.

- **Existing Buildings**



A E Wright Elementary School | Built 1949
Constructed with funds provided by federal appropriation



Lake Roosevelt High School | Built 1951
Constructed with funds provided by federal appropriation

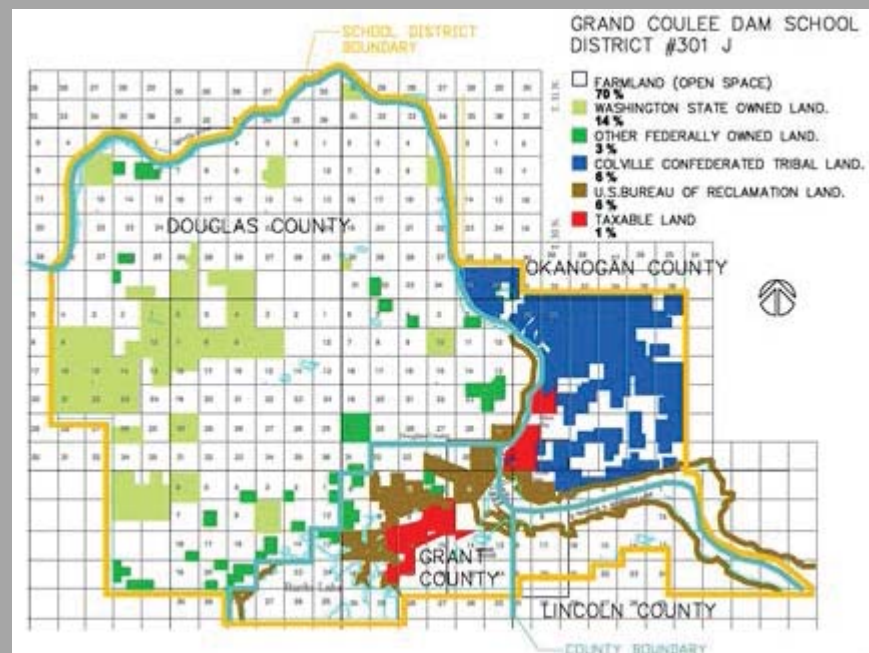


Center Elementary School | Built 1952
Constructed with funds provided by federal appropriation



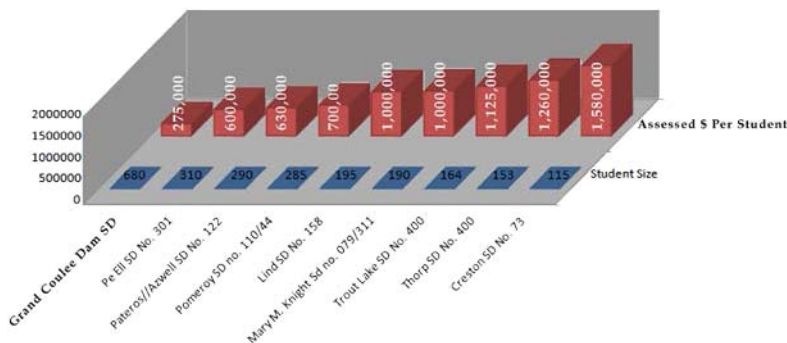
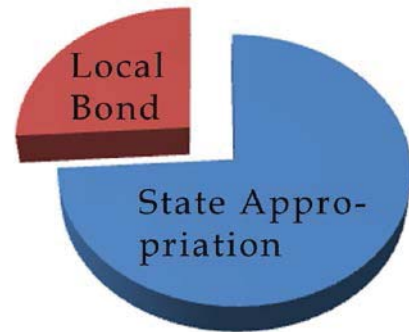
Grand Coulee Dam Middle School | Built 1955
Constructed with funds provided by federal appropriation

- **Funding:**
 - Only 1% of the property within the district's boundaries is taxed at its full market value.
 - Property tax disadvantages
 - Largest employers in the school district do not pay property taxes including:
 - Bureau of Reclamation
 - Parks Department
 - Colville
 - Confederate Tribe
 - Other Federal Agencies



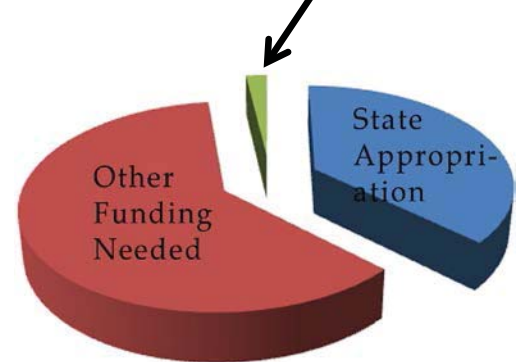
High Tax Rate on Patrons

- The patrons within the Grand Coulee Dam School District are already taxed higher than most of the surrounding districts for the operating costs alone. Typical school funding of a non-taxed disadvantaged school district did not fit this unique tax disadvantaged school district.



Assessed Value Per Pupil Comparable –
Like Size School District

Max Local Potential Bond



Stakeholders

- The community outreach & separate presentations were given to the following:
 - Five counties
 - Six communities
 - The Colville Indian reservation
 - Nespelem School District
 - Bureau of Reclamation
 - Various clubs & organizations
 - Neighboring City Councils



Public Input to Identify Project Challenges

- The design team school district gathered public input during several community meetings with the various stakeholders. The meetings occurred during site selection, plan development and continued on through color and material selection.
- The site selection process was narrowed down to two possible solutions. The school district issued a survey to all of the patrons and community members in order to get their input on final location of the consolidated school site. All of the findings, from both the design team and the public input meetings, were presented to the school board with a recommendation. The site was then selected and the building program followed.



OPTION A



New K-12 Building

(Current middle school site, Grand Coulee)

Your input is important to the GCDSD Board of Directors as they prepare to move forward to seek funding for a new K-12 facility. Please attach any additional information. Thank you.

Completed surveys can be returned to any school office or the district office located at 110 Stevens Avenue in Coulee Dam.

Surveys must be returned by 4:00 PM on Monday, January 11, 2010.

Design West Architecture's presentation containing additional information on both options can be found on the district's web-site at www.gcdsd.org.

If you need additional information please call the district office at 633-2143.

OPTION B



New K-12 Building, Partial Sports Complex

(Current high school site, Coulee Dam)



New Sports Complex

(Current high school site, Coulee Dam)



New Partial Sports Complex

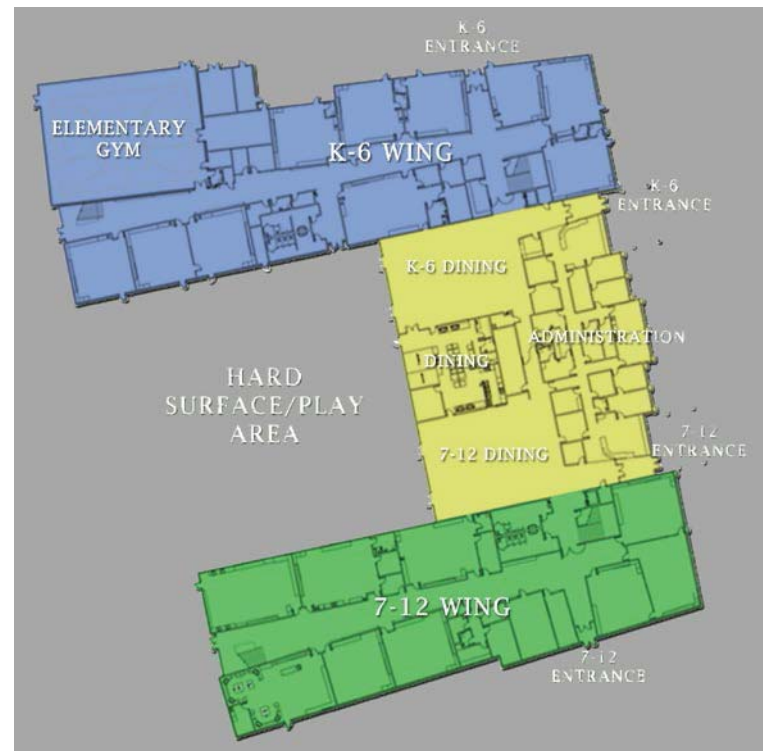
(Current middle school site, Grand Coulee)

- **Consolidating to a K-12 Model**


- The consolidation from three schools into one saves on operating costs.
- The unique challenges that a K-12 model brings along with it were expressed and discussed throughout the community meetings. The district and design team gathered the information from these to help develop the design goals of the K-12 model.
- The main concern from the public was the ability to keep the younger students separated from the older students, throughout the day, including before and after school. This created a number of design challenges to keep the traffic flow fluid, while fitting all of the separate traffic flow patterns within the site and throughout the building.

Value of the Public Input Process

- The design team held several community and staff meetings to determine the overall expectations for the new building:
 - Separates K-6 students from 7-12 students
 - Durable, low maintenance construction
 - Structure that is harmonious with the local environment
 - Energy efficient systems
 - Warm and inviting atmosphere
 - Timeless & frugal design
 - Incorporate modern technology
 - Meet diverse community needs



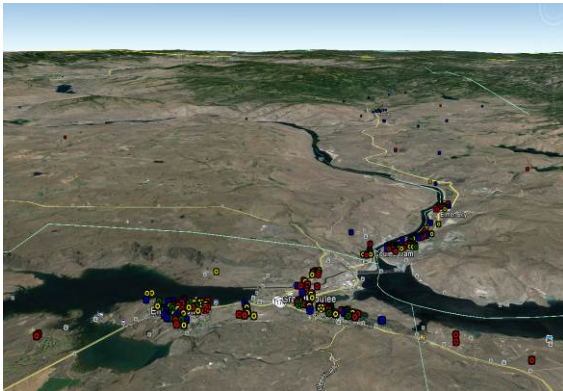
Process Lake Roosevelt School

A wide-angle photograph of a modern school cafeteria. The room features a high ceiling with exposed yellow steel trusses and large, rectangular skylights. Several large, white, rectangular light fixtures are suspended from the ceiling. The walls are painted yellow and feature large, red, rectangular acoustic panels. The floor is made of polished, light-colored tiles. In the foreground, there are several round tables with dark metal bases and red plastic chairs. In the background, there are more tables and chairs, and a large glass door leading outside. The overall atmosphere is bright and open.

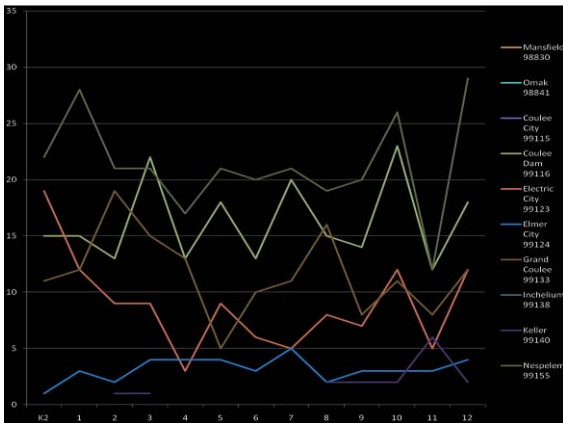
For site selection, the design team gathered public input during several community meetings, used a scoring rubric/matrix to develop an objective analysis of each proposed site and presented the findings and conclusions to the school board with a site recommendation. The recommended site was selected, the building was constructed as planned and it is now looked upon as a true asset to our communities.



Demographic Study of Current K-6 Students



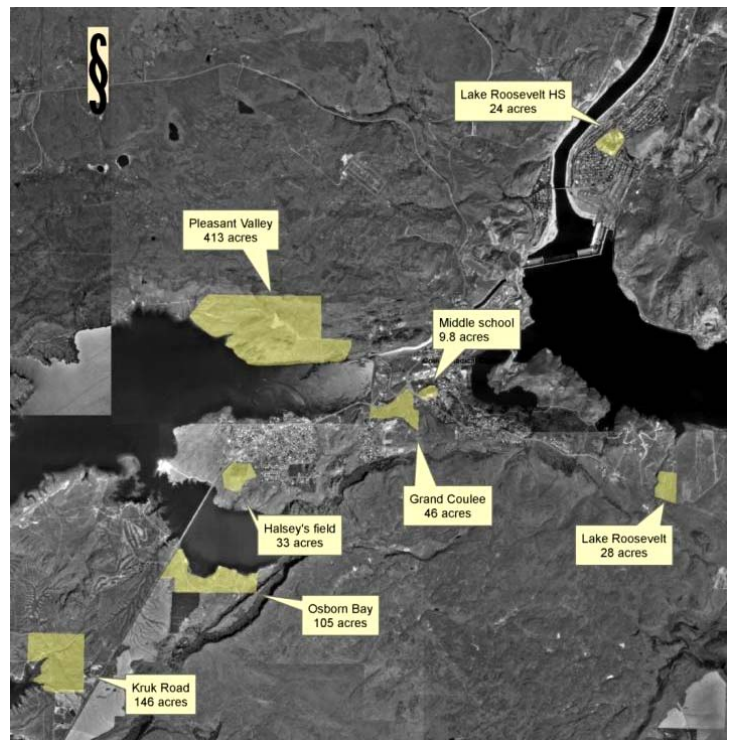
Demographic Study of Current 7-12 Students



Student Growth Trend by Area / Town

Site Selection

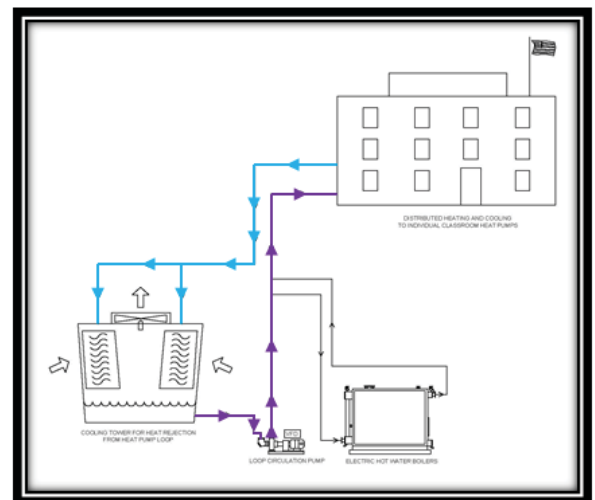
- Current student disbursement mapping within the district helped to determine the selected site. The site selected help to minimize student time in the busses and the fuel consumption of the bus fleet because the site selected is centrally located per the current and projected student locations throughout the district.
- Projected student disbursement/growth mapping within the district
- Public meetings
- Extensive outreach for community input
- School district surveyed public for input
- K-12 School complex



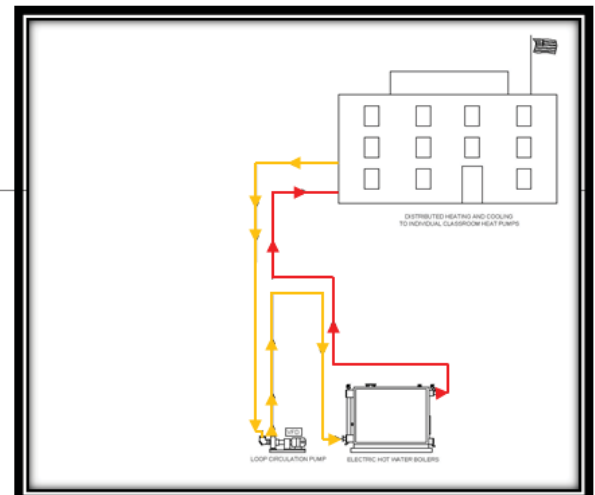


Sustainable Goals & High Performance Features (WSSP)

- An Eco-Charrette was held during the mid-schematic design phase to ensure that the sustainable strategies could be incorporated into the design process throughout the project. The new K-12 building exceeded the minimum requirements with the Washington Sustainable School Protocol (WSSP).
- The project design team, the district representatives and the end users all attended the Eco-Charrette.
- The Sustainable Mission Statement for GCDSD is: *"The new K-12 school shall be a high-performance building that is both timeless and durable while promoting energy savings now and for the life of the building and improving health and educational achievement. The school will provide ample controlled natural light to occupants, enhance the indoor air and water quality, and create a superior work and learning environment."*
- The team created a list of important and attainable goals/credits from the WSSP score card:
 - **Site - Selection & Use**
 - Greenfields
 - Joint use of on-site facilities
 - Joint use of off-site facilities



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- **Site - Transportation**
 - Public transportation
 - Bicycles (lanes & security)
- **Site - Stormwater Management**
 - On-site infiltration
 - Stormwater (runoff) treatment or reduction
- **Site - Outdoor Surfaces**
 - Heat island reduction through landscaping
 - Heat island reduction through roof design
- **Site - Outdoor Lighting**
 - Light pollution reduction
- **Water – Indoor Systems**
 - Portable water use for building sewage reduction (45%)
 - Potable water use reduction (20% - 30%)
- **Materials – Environmental Procurement**
 - Materials with recycled content
 - Certified wood (20%, 50%, chain-of-custody)
 - Eliminate ozone-depleting substances
 - Region/Local materials (20% manufactured 20% extracted)
- **Energy – Controls**
 - Daylight-responsive controls
- **Energy - Management**
 - Energy management
- **Indoor Environmental Quality – Daylighting**
 - Fixed-position shading
- **Indoor Environmental Quality – Indoor Air Quality**
 - Low-emitting interior finishes
 - Low-emitting materials – furniture & seating
 - Source control – minimize contamination
 - Ducted HVAC returns
- **Indoor Environmental Quality – Acoustics**
 - Enhanced audio



- **Indoor Environmental Quality – User Controls**
 - User controls (operable windows)
 - User controls (temperature & lighting)
 - It was determined that at a minimum, this high performance project is to achieve the equivalent of silver to gold rating for LEED.

Design Goals

The building is timeless and durable, while promoting energy savings now and for the life of the building, and improving the health and educational achievement. The school provides ample controlled natural light to occupants, enhance the indoor air and water quality, and create a superior work and learning environment. The overall project is cost effective utilizing basic sustainable building materials in exciting ways. The design incorporates durable and lasting materials relevant to a K-12 school.

The following are a few of the design features that were incorporated into the proposed building:

- **Sustainability** - The building has high performing systems, building envelope, glazing, materials, etc.
- **Building orientation** - The building has been oriented on the site to maximize daylight, site development and accessibility.
- **Air Quality** - The building has adequate volume of fresh comfortable tempered air, obtaining dedicated outside air.
- **High performance** - The building will be considered as such through mechanical systems, lighting systems, building envelope and acoustics.
- **Security** - The ability to zone the building during and after hours, controlled access points, open student gathering areas, visible stairways and corridors have all been incorporated.
- **Site circulation** - The site design provides separation between cars, busses, students, staff and pedestrians. Bike lanes and spaces for storing bikes were provided.
- **Flexible building utilization** - The building has multiple sized education and meeting spaces. It includes 'swing' classrooms, small enclosed and open instructional spaces. The building is such that it can be easily segregated and secured into athletics, arts, academics and administration for activities and functions.



K-6 Classroom Wing

- The K-6 wing is a two story portion of the building separated from the 7-12 wing while being connected through the center core of the building. Pre-K through 2nd grade classrooms are on the main level while 3rd grade through 6th grade is on the upper level. This allows the grade level students to be separated within the same wing. The grade level classrooms are grouped together and where possible a passage door is provided to the adjacent classroom for ease of team teaching and security.
- The elementary gymnasium has a hard wood floor and insulated fiberglass skylights to provide natural diffused daylight. The gymnasium is accessible after hours for sports practice and community use. It is used for PE by Kindergarten through 6th grade throughout the day. This is achievable because the core portion of the building includes a dedicated K-6 cafeteria.
- Special Instructional areas are provided throughout the K-6 wing. There are small open and closed instructional spaces dispersed on both floor levels that will be available for small group instruction, testing, etc. A computer lab is provided in the K-6 wing that can be utilized throughout the day by all grade levels K-6.



Core Area

- The core area of the building includes the administration for both the K-6 grade levels and the 7-12 grade levels. It includes the necessary storage, office and secretarial areas for both grade level groupings. A connecting corridor between the two administration areas allows for ease of communicating between them and provides the ability for the staff to accommodate either wing.
- The entrances to both the K-6 wing and the 7-12 wing have controlled access points such that the secretaries are able to control who comes into the building by utilizing a succession of security doors and the security system.
- A single kitchen serves a separate K-6 cafeteria and 7-12 cafeteria. The cafeteria spaces have large expanses of windows that look out over the plaza and play field areas, with direct access to the plaza and play fields. The cafeteria spaces are available for use before and after serving times.

7-12 Class Wing

- The 7-12 wing is a two story portion of the building separated from the K-6 wing while being connected through the center core of the building. The general classrooms are designed in such a way that each grade level can be grouped together to allow for further separation between the younger kids and the older students. The special instruction rooms are placed near stairways to also help maintain separation between the younger and older students.
- The corridors are open with areas for students to gather. The stairways are located at both ends of the corridor and are left open to allow for natural daylight and security. The upper corridor has clerestory windows maximizing the natural daylight throughout the building. Directly out of the 7-12 wing is a covered walk to the sports complex, allowing students and staff to navigate between the buildings quickly and comfortably.



- Special instructional areas are provided throughout the 7-12 wing, along with computer labs, that are located on the main level and the upper level. There are two dedicated chemistry / physics labs with adjacent general classrooms. This maximizes the usage of the labs throughout the day while minimizing disruption of the classes.
- The Home Economics and Art Classrooms are located on the lower level and near an entry point to allow for ease of access of materials and supplies. The 7-12 classroom wing is zoned such that it can be secured from the other parts of the building during the school day or after hours allowing the other portions of the building to be utilized.



Educational Environment Lake Roosevelt School



The sum of the incremental improvements has been shown to result in an improvement of 35% - 40% in student test scores in several research projects replicated at several universities and governmental agencies.

Core Areas

- **Administration**

- The office administration areas are placed in-between the K-6 classroom wing and the 7-12 classroom wing. This allows the administration to service each wing and combine services as it makes sense. Providing the opportunity for the administration to service the entire student body is the largest cost savings to the district in the K-12 school model.
- The core administration area also includes a conference room that can be divided in half to provide additional conference space. The nurse's office is set within the core area as well. The nurse area also includes a room for the K-6 kids and a separate room for the 7-12 kids. The nurse's office separates these two rooms to allow the nurse to attend to the entire student body in one central location.



- **Cafeteria / Commons**

- There are separate cafeteria / commons spaces for the K-6 students and 7-12 students. The 7-12 cafeterias are utilized as a commons area before, during and after school. This space is used as an overflow or large meeting area for student learning and student gathering.
- The K-6 cafeteria is used during the school day for certain grant funded classes unique to the Grand Coulee Dam School District. This space is also used after school for the title VII Indian Education Programs.
- The cafeteria / commons serves as a community event entry and is easily separated from the remainder of the building with door access controls throughout the building allowing for after hours use.



- **Libraries**

- There is both a K-6 library and a 7-12 library centrally located between the two classroom wings and directly above the administration area. The location of the libraries helps with the physical barrier separating the two classroom wings from each other while keeping the library centrally located for easy access for the students to use and for community use after hours. The district holds evening meetings in the libraries on a regular basis.
- Each library is designed such that a classroom teaching area has enough space for an entire class of students to be within it to receive instruction as though they were in a standard classroom. The classroom spaces are equipped with smart projectors that match all the other teaching stations. This allows the instructor to utilize the most up-to-date technology for instruction.



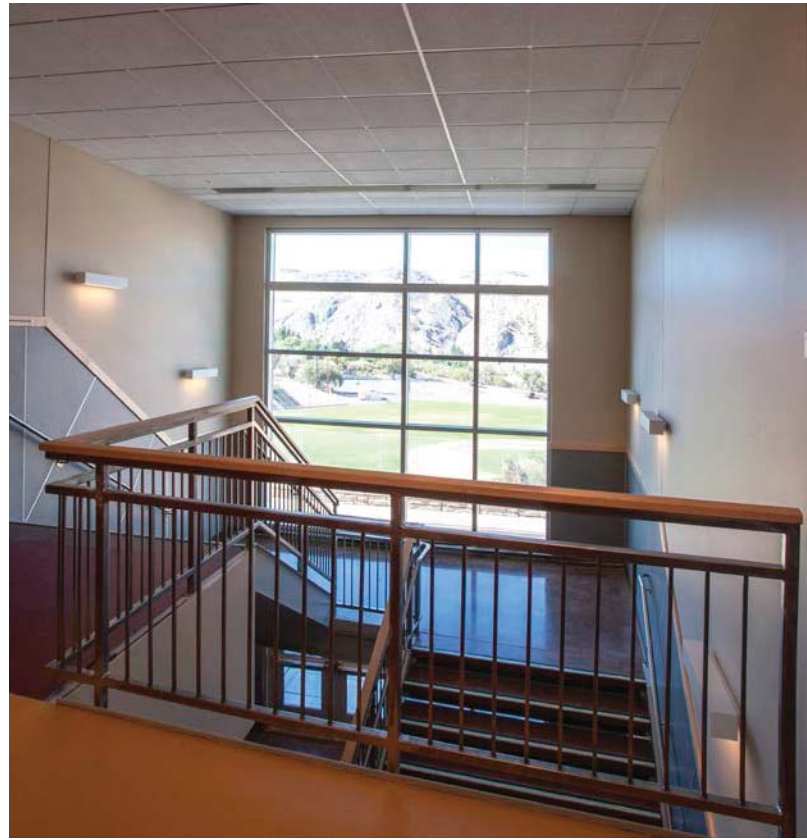
Classroom Areas

- **K-6 Classroom Wing**
 - The K-6 classroom wing has 17 general classrooms, 2 title classrooms, a special education classroom and a computer classroom. The classrooms are laid out with a door between the standard classrooms to allow for team teaching. The specialized classrooms are dispersed throughout to allow for convenient access throughout the day. There are also convenient exterior doors to the playground and easy access to the gymnasium. The K-12 program allows for the K-6 students to utilize the special use areas in the 7-12 classroom wing. Providing access to specialized educational opportunities is one of the big advantages that the K-12 education model provides.



- **7-12 Classroom Wing**

- The 7-12 classroom wing has 12 general classrooms, 3 science classrooms, a home economics classroom with a lab, an art classroom, 2 special education classrooms and 5 additional special use classrooms.
- The 7-12 classroom wing, like the K-6 classroom wing provides both enclosed and open breakout areas where 2-6 students can work in a group or alone for specialized instruction or study. The classrooms are laid out such that the younger grades are on the lower floor and the upper grades are located on the upper floor. This allows for separation while all the grades utilize the specialized classrooms that are located adjacent to the stairways at either end of the classroom wing. The art classroom is located on the northwest corner allowing for ample natural daylight and easy access to move the instruction to the exterior.



Physical Environment Lake Roosevelt School

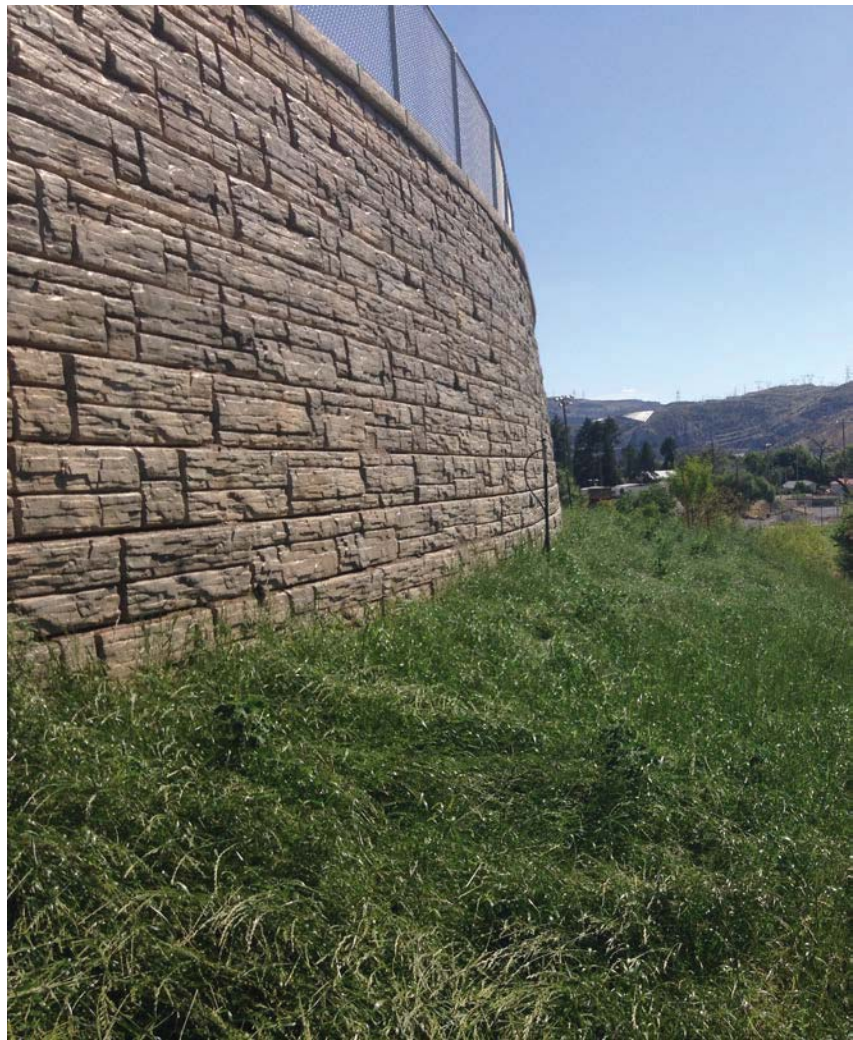


The design team worked with the district to build community support for the selected site. Since the selected site was located within the boundaries of the Colville Indian Reservation, all elements of the Colville Tribe's Tribal Employment Rights Ordinance (TERO) applied, including Tribal employment preferences and nearly \$1,000,000 of impact/training fees.



Site Attributes

- A segmental concrete wall was constructed to provide a large enough area for the school building and associated amenities. The segmental concrete wall was designed to blend into the surrounding coulee type rocks and the sand pit tailings that were left over from construction of the dam. The segmental concrete retaining wall is up to 30' tall and reaches a length of approximately 1,200'.
- The landscape surrounding the building was designed to be low maintenance, providing protection from the prevailing winds, while providing an inviting environment. It guides the user throughout the site and into the building.



Physical Environment

- The exterior play areas were specifically developed for the K-12 school program. The playground that is located between the two wings of the building is primarily designed for the kindergarten through third grade students. The playfield and connected playground area, including the bus lane, is primarily used for the fourth through sixth grade students. A basketball court and a play piece were added to the 7-12 court yard to provide outdoor recreation for the older students as well. This allows the school program to keep the ages separated while giving them the opportunity to use all the spaces depending on the schedule of the students throughout the day.



Physical Environment

- The outdoor courtyard provides a space for the 7-12 students to use throughout the day. The numerous seat walls throughout the space allow for exterior lectures. Wifi and power were built-in to cover this area to provide support for lectures and other activities. The south side of the plaza area will link into the future planned gymnasium.
- The outdoor areas utilize the natural sloping environment of the site to protect the users from the prevailing winds while maintaining an inviting environment. Permeable pavers are utilized throughout the space to allow for additional flat areas and to keep the area feeling warm and inviting. The extensive storm water system keeps the storm water draining away from the building.



- The site is designed to allow the bus drop off and pick up to occur on the backside of the school. Leaner rails are installed to guide the students into lines waiting for the bus. The bus lane is also used for recess hardscape areas. This keeps the bus traffic separated from the parent drop off and pick up area. With the tight site constraints and topography of the site the large segmental concrete retaining wall allowed for the fire lane / bus lane to be separated from the parent traffic.
- In addition, there is separate staff parking area and student parking area. The staff parking lot utilizes permeable paver sections for the storm drainage system. The tight site did not allow for standard storm drainage systems to be in place. The design team was able solve the storm drainage system utilizing specially design storm drainage systems.



Outcome of the Process & Project Lake Roosevelt School



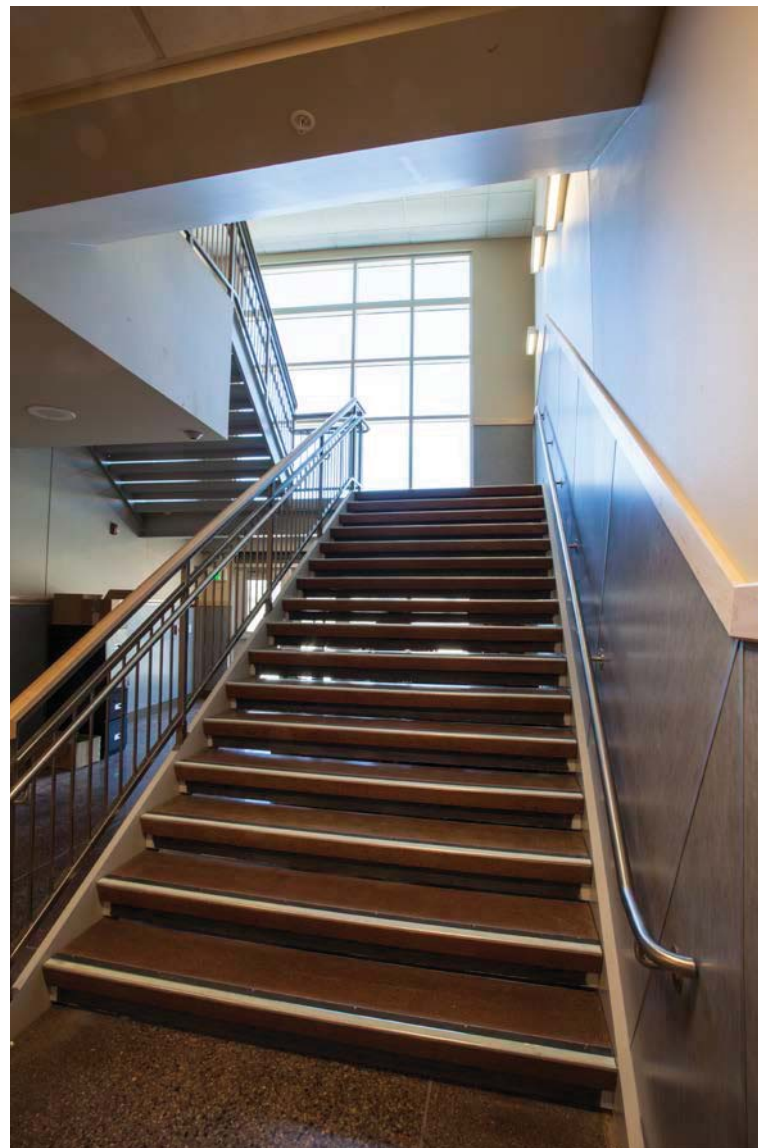
Due to the forward thinking of the design team, the completion of the site selection process, the conceptual design that reflected the wishes of the district's patrons and the waiving of the Colville Tribe's TERO impact fee, the project was quickly identified as "shovel ready" and cost projections were developed for consideration by the legislature.



Education Goals, District Goals & Objectives Achieved

The district was able to show that students would exhibit:

- Increased performance due to exposure to daylight rather than traditional lighting sources.
- Increased performance and reduced absenteeism that can be attributed to improved indoor air quality as the result of reducing the number of asthma related attacks, consistent room temperature, reduction of accumulated CO₂, optimal relative humidity, and the reduction of building related molds.
- Increased performance through the selection of the proper colors to be used within the classrooms.
- Increased performance when distracting exterior sounds are minimized and classroom sound systems are utilized by teachers to enhance the effectiveness of teacher delivered instruction.



- Improved attitude and self-worth when enrolled in modern, clean, well-maintained buildings.
- Decreased absenteeism of both students and teaching/support staff.
- The sum of the incremental improvements has been shown to result in an improvement of 35% - 40% in student test scores in several research projects replicated at several universities and governmental agencies.
- The building layout achieved the separation the community and district desired, while allowing all the pieces and parts to work in one cohesive growing and learning K-12 student body and staff.
- The core area simplified the administration, which significantly reduced the operating costs to the already financially strapped school district, while still allowing specialized staff, because they can now serve the entire student body.
- The community goals are achieved through the separation of the students with clear traffic flow that keeps the staff, parents and bussing within their own area. The building and site allow for community after hour use due to the site layout and the security zones within the building.





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