

Overall Goals and Outcomes

In 2008 the Snohomish School District started the project of replacing two elementary schools, Machias and Riverview, through a concurrent planning and design effort. The schools were to be developed at the same time. There were several factors that made the whole process very unusual. The uniqueness of this process can best be summarized as:

- + One client with one program
- + One planning committee
- + One set of progressive goals – two interpretations
- + Two unique sites
- + Two unique schools

The submittal will specifically illustrate each of these key components in greater detail, demonstrating their importance and effect on the planning/design process and the final architectural results.

One client with one program

The scope of work was the same for both schools. Both are replacement elementary schools on their original site. They have the same program — only the special education areas differ. They both serve 600 students, with gross square footage near 70,000 SF. The same educational specification was to be developed for both projects, with the same educational intent. However, the architectural interpretation was supposed to be completely different as these are two distinct schools.

The two schools had equivalent budgets. The project cost for each school was approximately \$27 million and the construction cost for each school was \$21-22 million. The site difference and special educational requirements triggered different individual project requirements, creating some variation in construction cost.

Snohomish Elementaries

Project Data

Machias:

+ Area:	70,370 SF
+ Students:	600
+ Teaching Stations:	24
+ Date Occupied:	January 2011
+ Construction Budget:	\$24.3 Million
+ Construction Cost (Final):	\$21.3 Million

Riverview:

+ Area:	73,196 SF
+ Students:	600
+ Teaching Stations:	24
+ Date Occupied:	January 2011
+ Construction Budget:	\$24.4 Million
+ Construction Cost (Final):	\$22.4 Million

The area of Riverview reflects the increased special education program.



Community Engagement Process

The Educational Specification identified the importance of connecting with the community both during the process and in the final design. The Ed Specs expressed this goal in a succinct and poetic way:

“It should foster a sense of community within the school, in which students, parents and staff members feel they are part of a large and caring family.”

As an illustration of the integral bond between the school district and their communities, the Superintendent’s philosophy in the school replacement process was that:

“through building schools we build community.”

Machias site with original school



Riverview bells: history and continuity



Name challenges

The process and the two schools each had their own challenges.

The challenge for the Educational Specification and Design Committee was to be impartial to “their own” project, and ensure both projects achieve lofty goals. The committee members did an admirable job in doing just that. Each school site presented their own challenges.

- Machias:**
- + The vastness of the context presented a question: “How to create a contemporary school that is rooted in its rural context and stimulates 21st Century Learning?”
 - + How can we maximize salvaged materials from the existing school?

- Riverview:**
- + Presence of wetland on the site imposed a series of restrictions
 - + Size of the wetland significantly reduced the allowable building area
 - + How can the potentially restrictive site features become an amenity?

In addition to the physical site challenges, the mandate from the school board presented a very interesting design challenge.

One set of progressive goals – two interpretations

The Educational Specification Committee crafted a document reflecting joint vision for transformed education in the new schools. It was a challenge to find two unique interpretations of the goals while achieving a desired level of parity between the two schools. Satisfying diverse constituents through creating two unique interpretations of a singular program motivated both the design team and the Design Committee to be creative, resourceful and responsive.

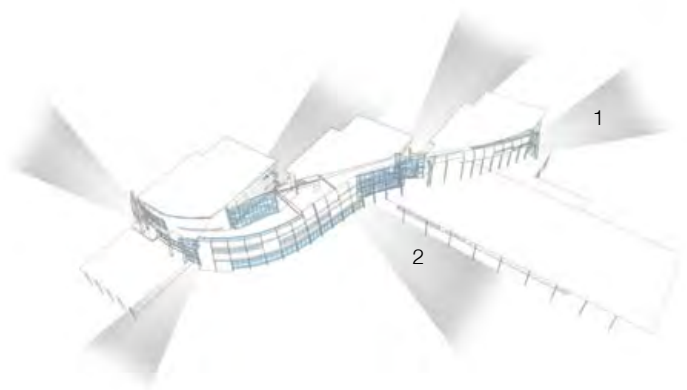
Two unique sites – two interpretations



Machias



Riverview



Machias: Connection to the Land

Contemporary design in the realm of the rural still means a strong connection to the land. It means an indoor-outdoor relationship that enhances the feeling of connectivity to the site. Through the design that connectivity is strengthened.

1

2





Riverview: Embrace the Wetland

Describe available assets

The two schools each had their own assets.

The chemistry and the positive aspirations of the Educational Specification and Design Committee presented an opportunity to “dream big” for both projects. The visioning included community, educational, architectural character, and experiential goals all aimed at defining the appropriate 21st Century learning environment for the Snohomish community.

Each of the individual school sites had assets that brought a richness to the planning and design process.

Machias:

- + Powerful physical setting in a valley with a forested hill in the background
- + Views of the valley
- + Salvaged materials from the original building

Riverview:

- + Presence of wetland on the site, an opportunity for a unique indoor / outdoor learning environment
- + Territorial views
- + Salvaged materials from the original building

Riverview wetland



Salvaged glu-lam beams



Machias hill in background



Value of process and project to community at large

In May 2008, the citizens of the Snohomish School District approved a bond measure that included the replacement of two older elementary schools judged by the 2007 Citizens Facilities Advisory Committee to be physically and educationally inadequate and irremediable: Machias and Riverview.

In an effort to expedite the design process to make these facilities available to students and families sooner—and to attenuate the impact of construction escalation—the district impaneled an Elementary Educational Specifications Committee in March 2008. **Its members represented the Machias and Riverview school communities in almost equal numbers and in each case included parents as well as staff members.**

One planning committee

The committee's charge was to review and update the Elementary School Educational Specifications that preceded the design of the district's newest elementary school, Little Cedars.

The committee met 13 times between March 4 and September 30. In addition, committee members visited 8 recently completed elementary schools.

Building Tours:

The fact that the committee was composed almost equally of educators and community members allowed a very meaningful discussion about 21st Century learning and the relationship of the schools to their respective communities. Visiting other schools provided excellent grounds for deeper discussions both about educational and community aspects of facility design.

These conversations enhanced the bond between the school and larger community. The discussion helped to bring to reality the Superintendent's vision that "through building schools we build community."



Value of process and project to community at large

The philosophy of “building communities through building schools” deeply resonated with the Snohomish community. Both the Machias and Riverview communities have their own individual identity and their own attachment to the previous schools and their sites. Through public meetings it was very clear that each community has an emotional stake in the success of the new projects. The new schools would be almost twice as large as the original ones. Two story buildings would replace the lower scale one story buildings. **It was critical that the process itself brought value** so that each community can fully embrace the new schools as their own.

Some of the key goals were quickly identified:

- + Connection to the past and history of the original buildings
- + Expression of being rural
- + Connection to the site and the land

One planning committee — two schools

As they worked, **the committee sought to balance the interests of their respective school communities with those of the district as a whole.** They also tried to think ahead to the nature of elementary education in the future, both to create replacement schools at Machias and Riverview that will stand the test of time and to provide a sound platform for the work of the district’s next elementary educational specifications committee.

Sustainable strategy for storm water management tie the projects to their sites and clearly express the values of design goals through the process to community at large.



Machias



Riverview

Value of process and project to community at large

After they had identified the words and phrases they felt should describe their new schools, the committee agreed upon a set of design values that should guide the overall planning process. They then proceeded with defining the design goals, program areas, design considerations and design relationships of specific spaces. In addition, they identified a variety of school-wide considerations, including such topics as school character, school organization, safety and security, sustainability and planning for the future.

One set of progressive goals — two interpretations

“The committee established a goals framework to guide design, identifying these critical traits for an elementary school:

- + contributing to a sense of community and being a source of community pride;
- + providing an environment in which students, parents and staff members feel part of a large and caring family;
- + modeling stewardship of the environment;

An example of these statements, drawn from the school character subsection, is: **the building should evoke a sense of connection to place; it should reflect both the natural environment and the surrounding community.**”



Machias



Riverview

Value of process and project to community at large

Design is an iterative process. The designers and the Planning Committee embraced this back and forth process through adopting a **philosophy of continual feedback**. At every step of the way, the team sought feedback from the Committee members, the District, and the larger community. The “larger community” was expanded through a blog that posted design updates and was available to anyone with an internet connection to review and comment on the current project status.

Continual Feedback

Design ideas were explored, critiqued, revised, and explored again. This interactive and engaging design process that occurred over 8 or 10 sessions allowed the Planning Committee and the design team to be **co-authors in the final design**. Consensus was reached because all involved shared a commitment to the key goals and were able to agree that the designs met those goals in unique ways.

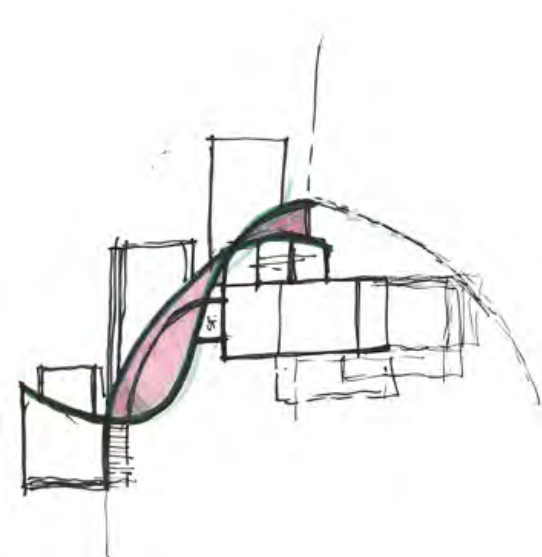
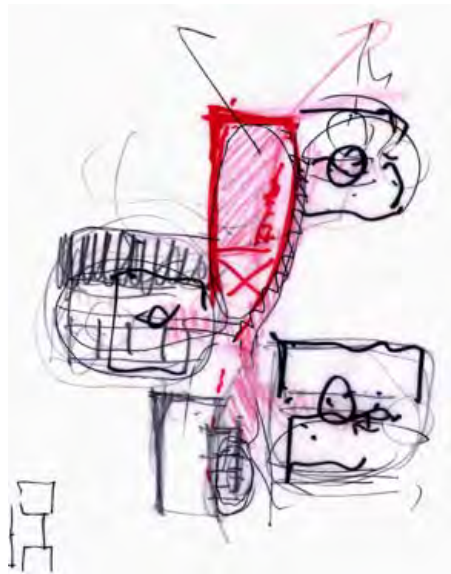


Snapshot from the blog site.

One client

One program

One committee



Educational Environment

A substantial part of the Ed Spec and design process was discussion about how learning will happen in the future. Through the reflection of the tours, the committee was able to better craft a vision for its own learning environment. Here are a few succinct goals from the Ed Spec:

“It should be flexible in the sense of supporting a wide range of learning and teaching styles and a rich variety of instructional activities.

It should be flexible in the sense of being adaptable to future changes in the way instructional services are delivered.

It should model stewardship of the environment by being sustainable in its design and operations.”

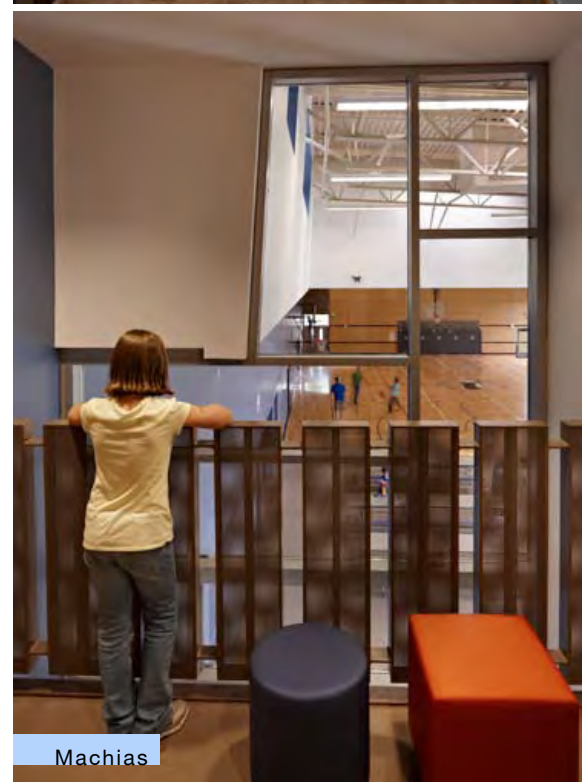
One set of progressive goals – two interpretations

“We spent a lot of time figuring out what we wanted learning to look like, not attempting to replicate what we had. We looked at how we could ensure that curiosity was a central part of learning. We didn’t see learning having to happen at a desk, in a chair. ...A lot of people say a building doesn’t matter. It matters.”

— Riverview Principal



Riverview



Machias

The environment supports the curriculum

A strong focus was given to a visible expression of sustainable design strategies and stewardship to the environment. The planning process identified such notions as critical elements of responsible learning. The design team saw this as an opportunity to create a specific sense of place at both schools. Here are a couple of goals from the Ed Spec that speak directly about sustainability and education:

“The school should be a teaching building. In addition to teaching about the environment and sustainability and about the building and its systems, it should incorporate elements that pique students’ interest in a wide variety of subjects. Elements of the grounds can also be teaching resources, whether natural (e.g., wetlands) or built (e.g., a bioswale).

Sustainable schools enable the district to round out its educational mission by practicing and teaching environmental stewardship; and an increasing body of research suggests high-performing schools contribute to student achievement, to the health of both students and adults and to lower life-cycle costs.

The school and its grounds should be designed to teach students about the natural environment and ways to preserve, protect and restore it by revealing and explaining sustainable construction and systems.

The school grounds should incorporate opportunities for outdoor learning.”



Machias



Riverview

Rain garden at Machias (above) is visible through the main hallway circulation. Touch screen monitor in the entry at Riverview (below) reflects energy consumption in different pods and encourages users to engage in energy saving strategies.

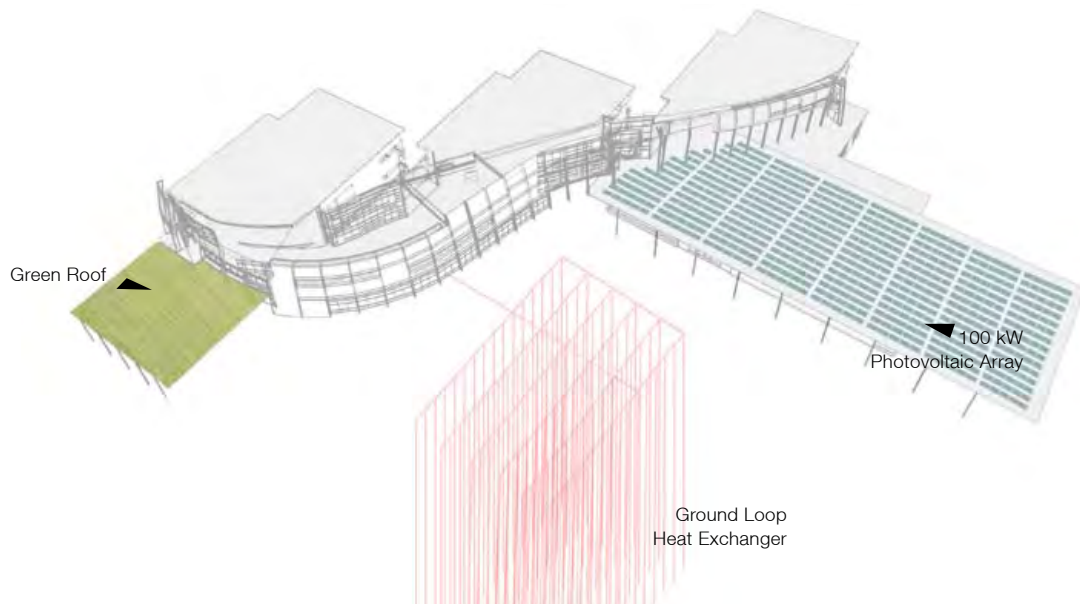


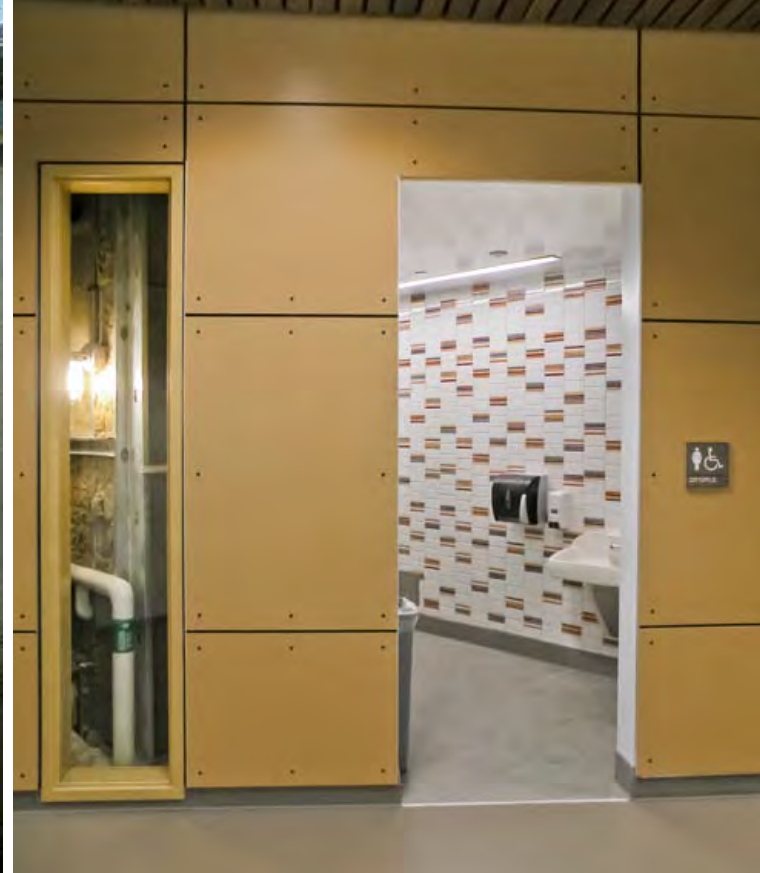
Machias:

Sustainability as a Cultural Paradigm:

Self-Sustenance as a Guiding Design Principle

A highly efficient envelope of spray-foam insulation and triple-pane glazing is coupled with daylight harvesting and a ground source heat exchanger that provides conditioning through displacement ventilation. A 100 kW photovoltaic array generates 17% of required annual energy. An EUI of 18 kBTU/SF/year contributes toward self-sufficiency.

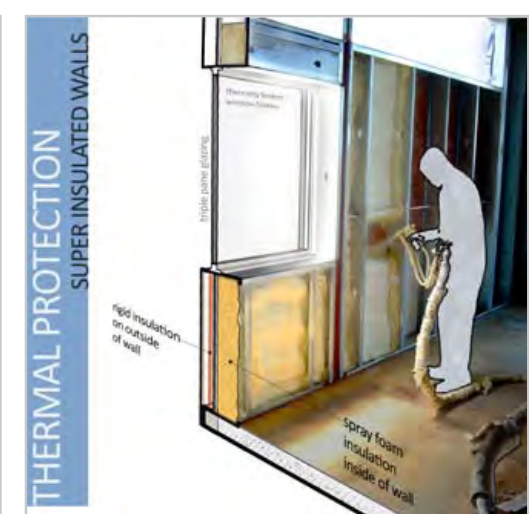
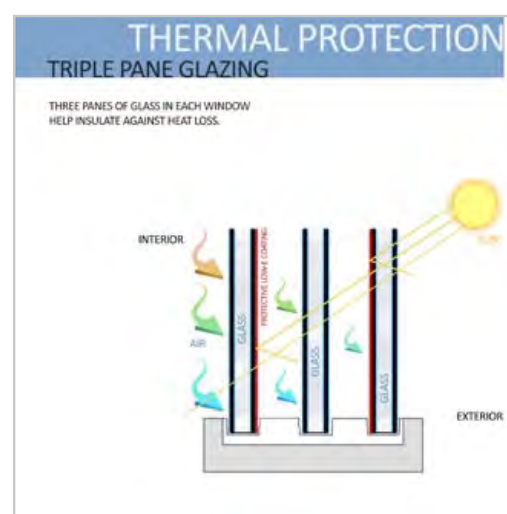
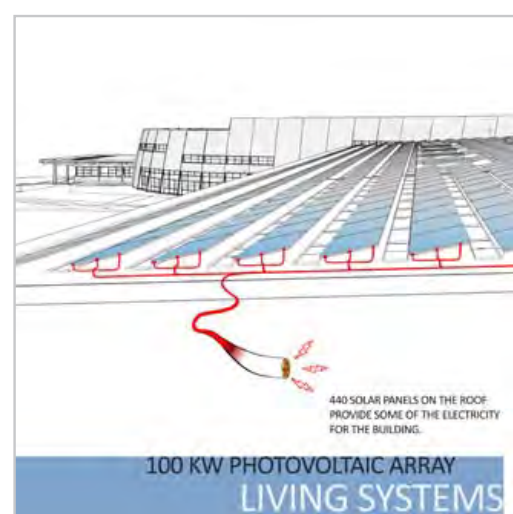




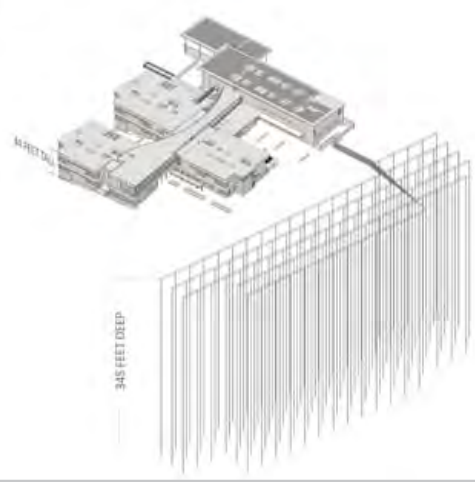
"Truth" wall: Building systems are exposed from the main hallway. The path of light through sunshading elements educates occupants about time and seasons.

Machias: Building as a Teaching Tool

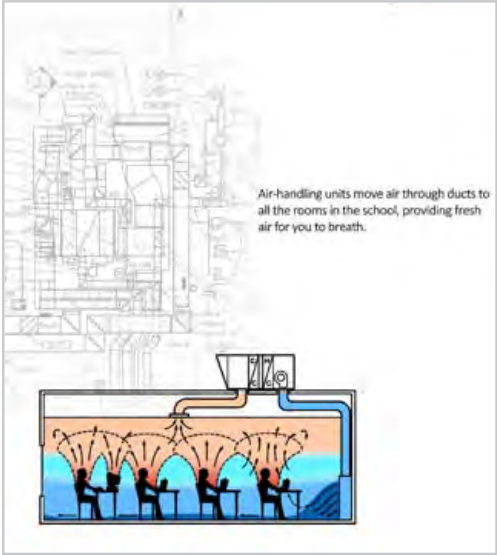
Signage throughout the building teaches students and community members about sustainable strategies in the building.



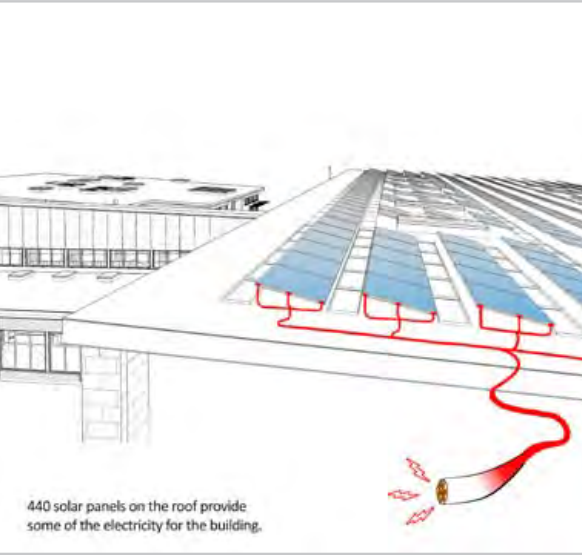
The geothermal system draws heat from deep underground through 94 wells.



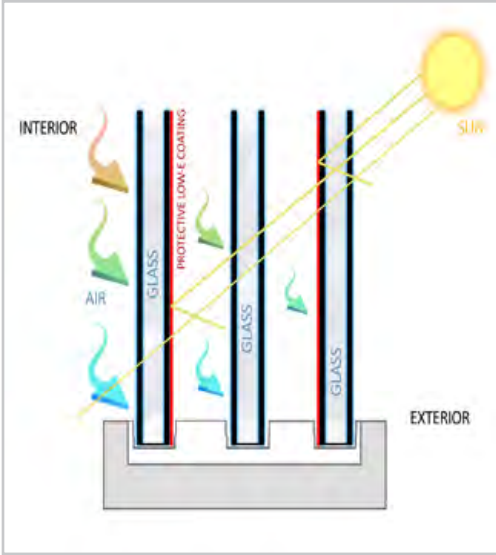
Geothermal



Displacement Ventilation



100 kW Solar Panel Array



Triple-pane Insulated Glass

Riverview

Learning about sustainability is interspersed across the site and the building. The signage tells about design strategies throughout the project.



The environment supports a variety of learning & teaching styles.

One set of progressive goals – two interpretations

The basic desire from the educators and the community members was to organize schools into small learning centers. Each center was comprised of close relationships and visual connection between the classrooms and the shared learning space. The Design Committee was very succinct in expressing these goals as quoted below.

“It should be flexible in the sense of supporting a wide range of learning and teaching styles and a rich variety of instructional activities.

It should be flexible in the sense of being adaptable to future changes in the way instructional services are delivered.”



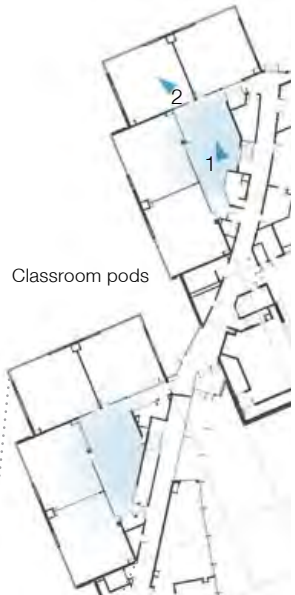
Each school is designed with (6) small learning communities that each have (4) classrooms surrounding a central, flexible shared learning area.



Machias

Collaborative Learning

The indoor/outdoor transparency allows the shared learning spaces to be used throughout the day for all sizes of groups and types of activities creating a collaborative and experiential learning environment.





Shared Spaces

Flexibility of shared spaces, its design and furnishings, allows for individualized spaces for personalized learning or smaller group activities. Integration of space planning, interior design and furnishings brings to reality the educational ambition expressed in the Ed Spec goals below. Interior and exterior vistas provide experiential richness to the multi-use educational environment.

“It should **foster the development of strong relationships between adults and children** by organizing the school into smaller units that give teachers an opportunity to get to know children from several classes and give students a sense of belonging.

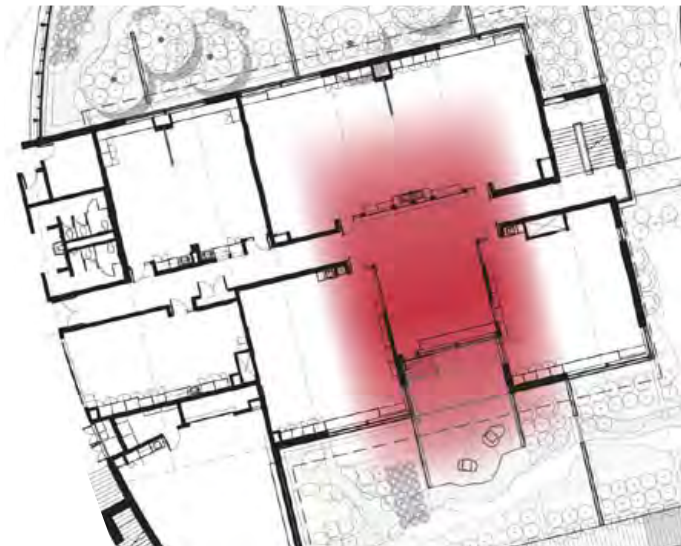
It should contribute to professional growth by providing a variety of learning spaces that encourage innovation and collaboration and by **providing the transparency that allows teachers to learn from each other.**”

Riverview Learning Pods

Transparency in the learning pods supports collaboration, connection to nature, and enhances the quality of daylight in the learning environment.



Operable walls between classrooms allow team teaching and student collaboration.



Riverview Learning Pods



The physical attributes of the environment

One set of progressive goals – two interpretations

“The building should evoke a sense of connection to place; it should reflect both the natural environment and the surrounding community.

Each elementary school in the district should have a unique facade and entry: its own signature.

The design should help to create a sense of community within the school as a whole through abundant connectivity and transparency.

The design of the school should preserve as much of the site as possible, to be enjoyed in its natural state as well as to support outdoor learning and recreational activities.

The design of the school should be sensitive to the surrounding environment.

The design of the school should maximize daylighting as much as possible, especially in classrooms, and it should incorporate systems for capturing and redirecting natural light to interior areas.”

Machias



Riverview



The facility fits within the larger context of the community

The two sites have a distinctly different physical character that informs the cultural character of the immediate community. The physical and cultural context work together to create a distinct sense of place. The architecture reinforces and deepens the unique connection to environment at each school.

Machias

- + sense of rural valley
- + vastness of open space
- + context of the community is embraced through connection to the land

Riverview

- + a feel of a school in the park
- + engaging the wetlands

Two unique sites

Two unique schools

Machias



Riverview

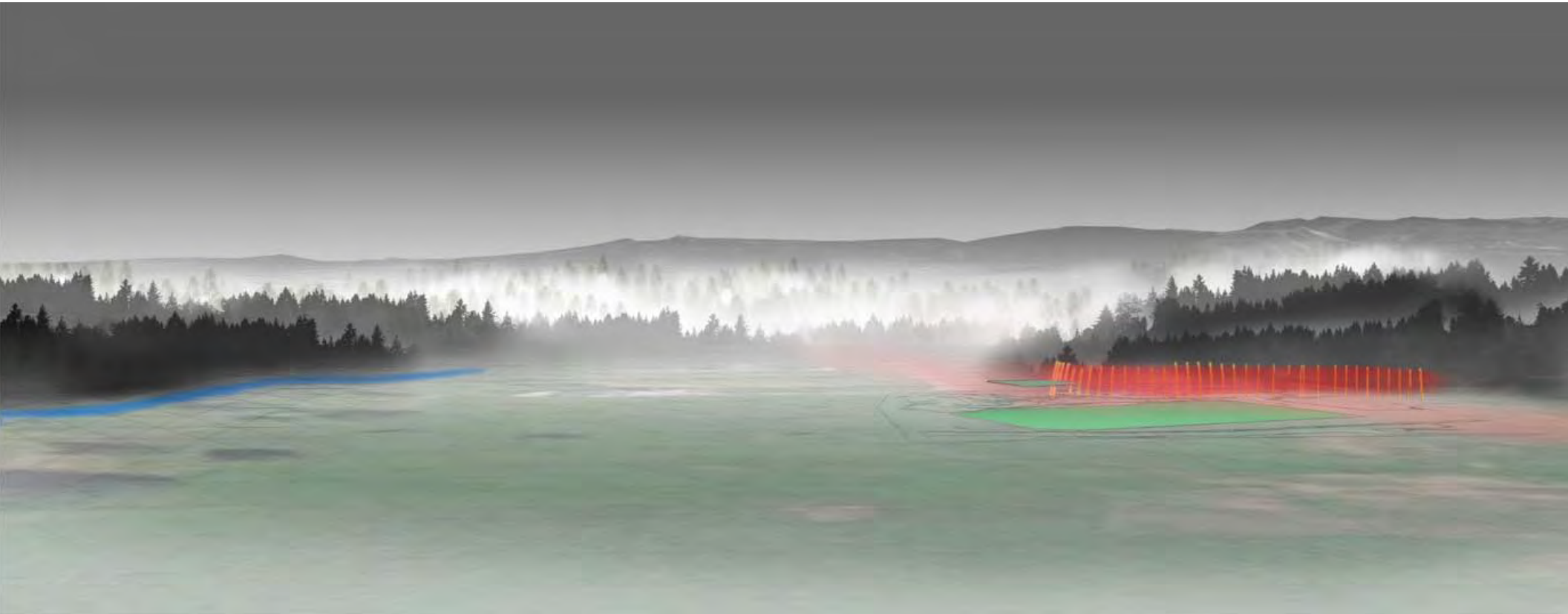




Rural Sustenance in Machias Valley

Located in a river valley with ranches, barns and farmhouses, the physical and cultural context of Machias has a distinct rural quality. The school site is a plateau slightly above the valley floor with a significant forested hill as a natural boundary to the east.

So how can a contemporary public school create an authentic sense of place that connects the people to the rural cultural and physical context?





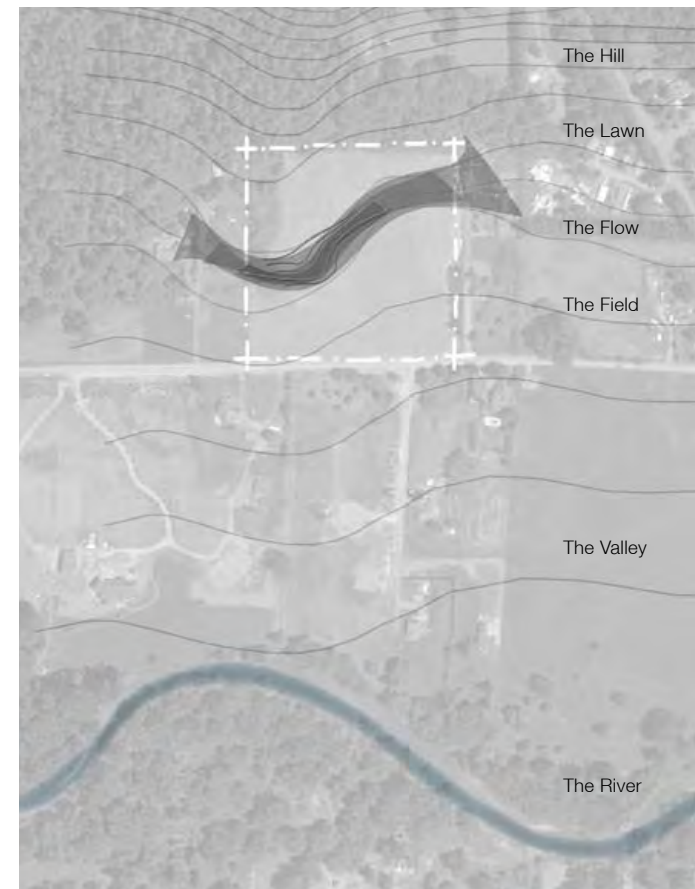
Machias Elementary School

Respect for the site

Building a new school in Machias context should mean a respect for the site. It means working with it, sitting lightly on it, working with nature, not being a scar. It means locating the building between the hill and the valley in a way that creates engaging relationships between the building and the open space.

The field mitigates between the valley and the building.

The building mitigates between the open space and the hill.

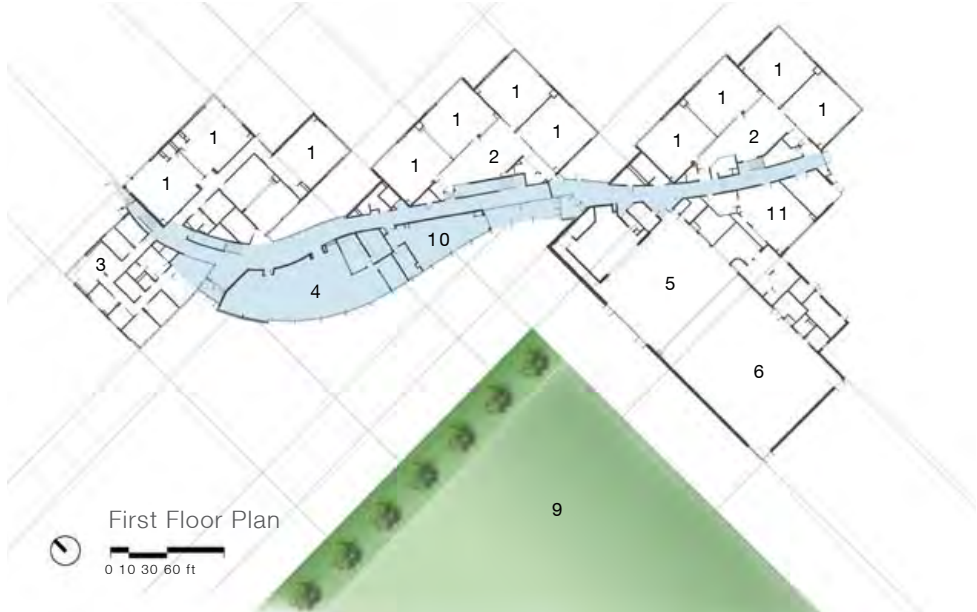




Machias

Legend

- 1. Classroom
- 2. Shared Learning Space
- 3. Administration Suite
- 4. Library
- 5. Commons
- 6. Gymnasium
- 7. Green Roof
- 8. 100 kW Photovoltaic Array
- 9. Ground Source Heat Exchanger under Field
- 10. Idea Lab (art/science)
- 11. Music Room





Machias



Machias



The Site



Buildable Area

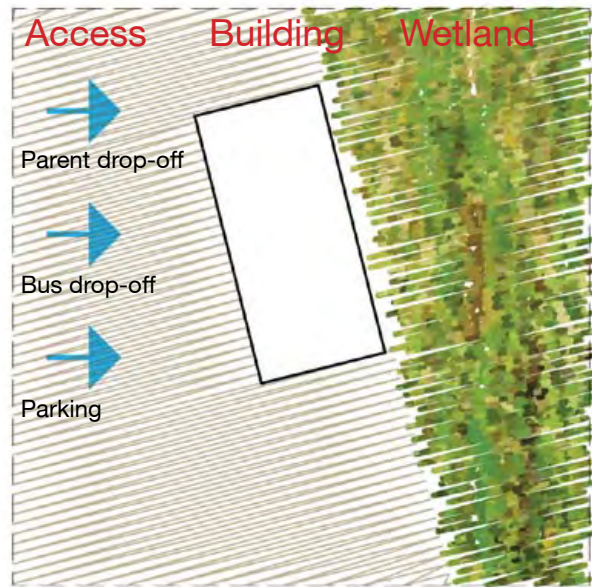


Site Engagement



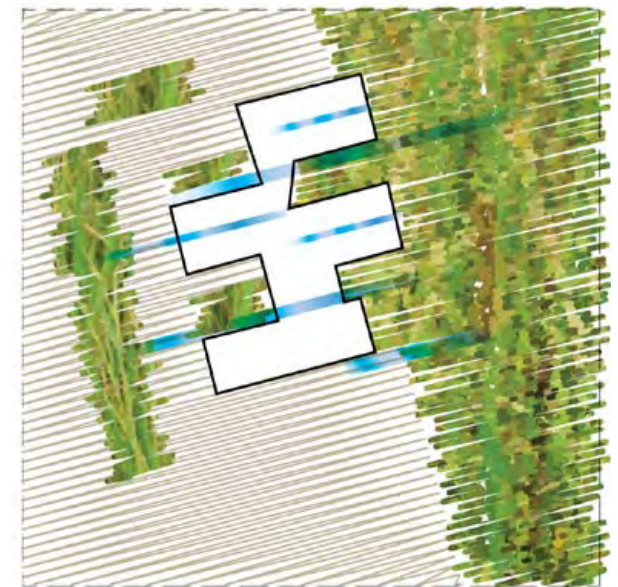
Challenge:

Wetland reduces available area for site development.



Opportunity:

Integration with wetland can provide for an immersive learning environment across the whole site.



Solution:

Building reaches to the wetlands, wetlands translate into the built site, paths extend across the site to weave experience together.



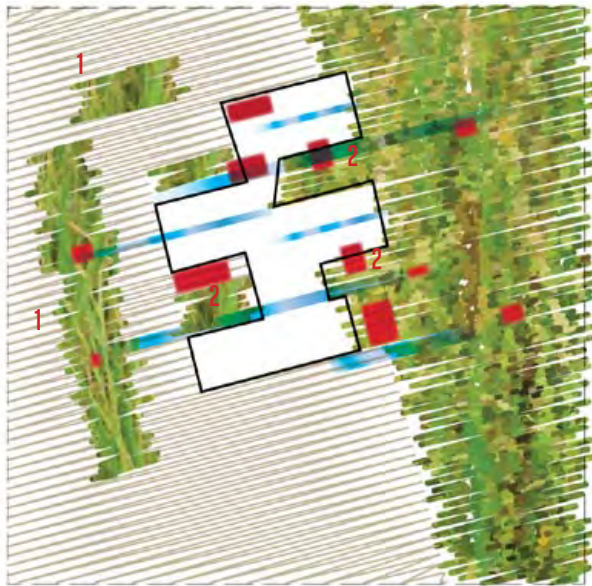
Site Engagement



Social Connector



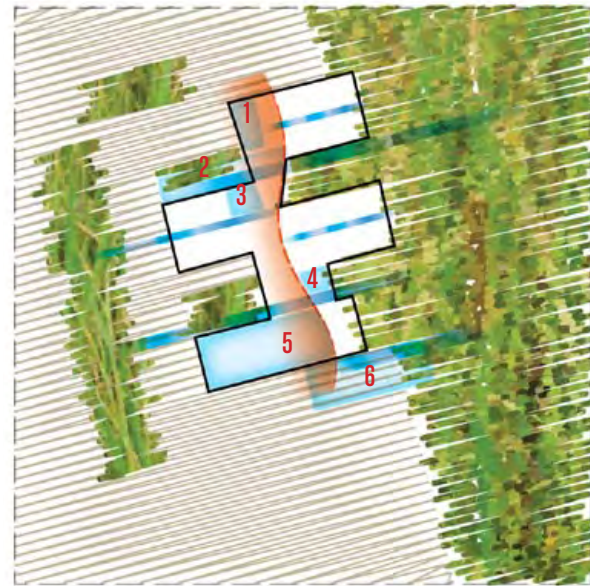
Terrain of Learning



Connection to site

By extending the landscape across the site, it provides ample opportunity for exciting outdoor learning.

- 1. Raingardens
- 2. Courtyards
- Outdoor Learning



Weave experience together

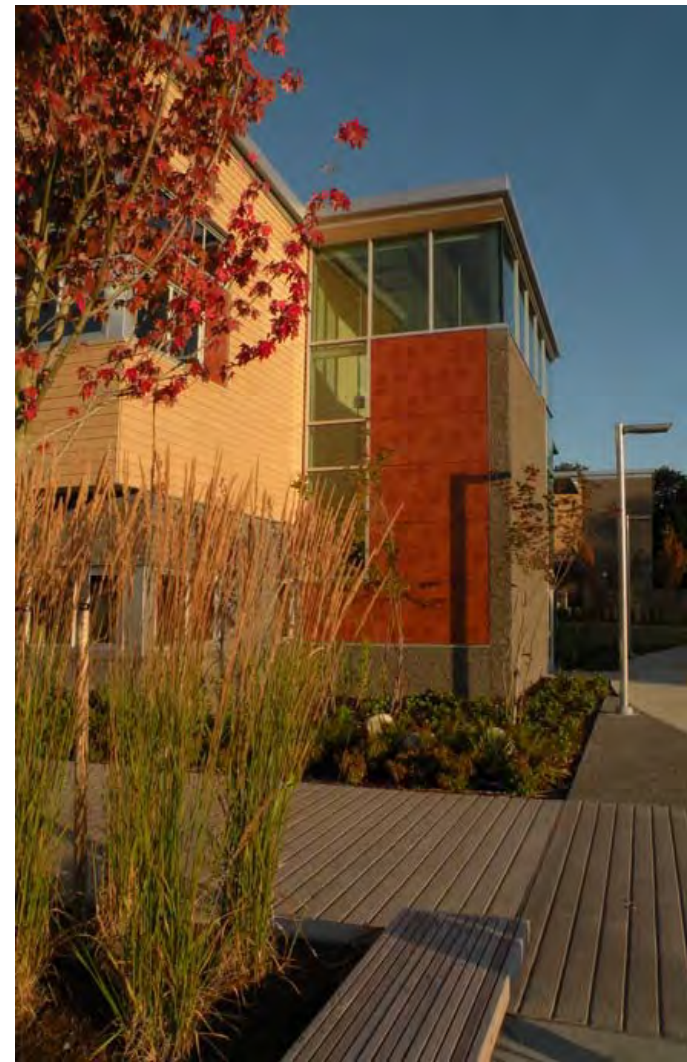
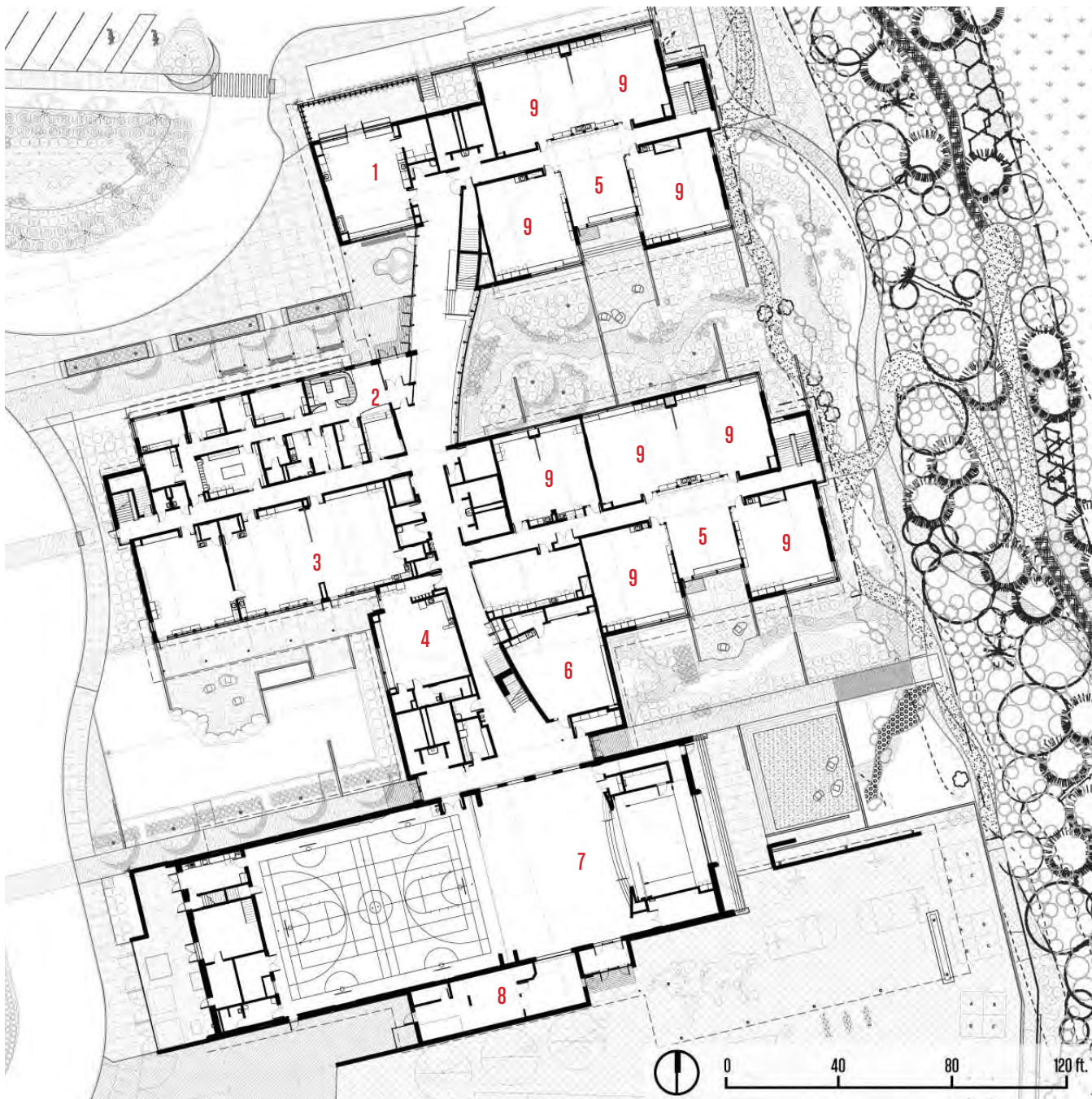
- 1. Idea lab/ Library above
- 2. Entrance/front porch
- 3. Administration
- 4. Music room
- 5. Multi-purpose room, and gymnasium
- 6. Outdoor covered play and field
- Social connector
- Public spaces



Weave education together

Learning happens across the whole site:

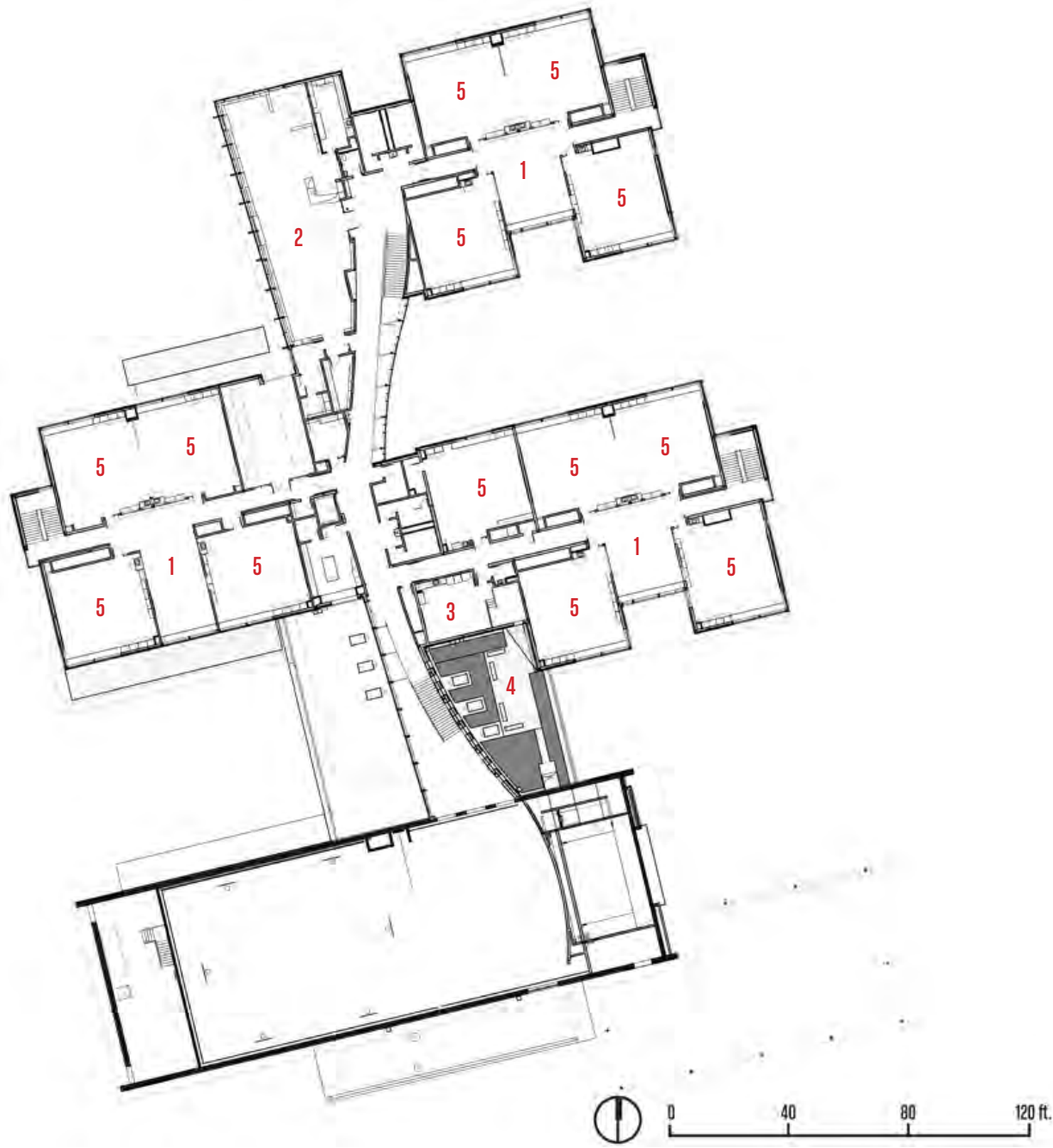
- In the wetland and rain gardens
- On the lookout
- In the learning pods
- At the energy kiosks and sustainable signage



Riverview

Main Floor Plan

- | | |
|-------------------------------------|--------------------|
| 1. Idea Lab (art/science/community) | 5. Shared Learning |
| 2. Administration | 6. Music |
| 3. Kindergarten | 7. Cafeteria/Stage |
| 4. Special Education | 8. Kitchen |
| | 9. Classrooms |

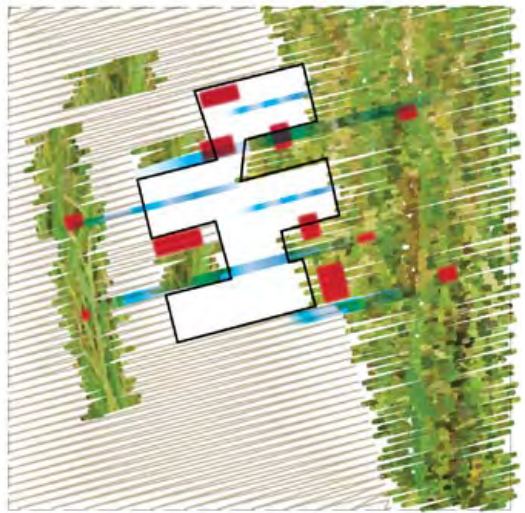


Upper Floor Plan

1. Shared Learning
2. Library
3. Staff Lounge
4. Terrace
5. Classrooms



Riverview



Outdoor learning



Riverview: Engaging the Wetland





Riverview

The path extends as an overlook to the wetland providing conditions similar to those in national parks. The raingarden separates the outdoor learning area from the outlook. Learning can happen anywhere.

The project inspires and motivates

Art of inspiration is an essential element of the learning and growing environment. Designs of both schools interpret multiple design strategies to enrich the human experience. Daylighting pervades the buildings, seamlessly expressed through frequent indoor-outdoor relationships. Nature, while being physically outside, feels like it is only fingertips away. Interior and exterior vistas further visual interest and relief, critical for sustaining high levels of concentration.

Special focus during goal setting and design was given to creating an inspiring atmosphere from the child's perspective. Holistic child development benefits from a spatial experience of multiple scales, from larger more public spaces like library and cafeteria, to small nooks and "cave" spaces providing a sense of refuge. The design provides a variety of prospect and refuge quality throughout the buildings.

"It should help to create a nurturing, student-centered learning environment by creating spaces that are designed from a child's perspective."

Personalization of the larger curtain wall by colorful inserts provides individual openings at the child's eye level, while giving a larger sense of connection to nature at the same time.



Machias

Inspire: Connect to the Past



The salvaged structural elements are a significant presence in the communal learning spaces of the school – making a strong connection to the school's roots. **Sustainability then is more than material salvage, it is a way of sustaining the memory of the original school.**



Inspire:
Connect
to the
Environment

Riverview Library

Inspiration through the space design comes in different forms and characters. From the small intimate spaces for individual use to the more expansive visual connection to the broader environment, interior design provides psychological inspiration for learning.

“The design of the school should incorporate views in as many spaces as possible. The space where a view would be most valued is the library.”



Achieving educational goals and objectives

“We spent a lot of time figuring out what we wanted learning to look like, not attempting to replicate what we had. We looked at how we could ensure that curiosity was a central part of learning. We didn’t see learning having to happen at a desk, in a chair. ...A lot of people say a building doesn’t matter. It matters.”

— Riverview Principal

Learning happens everywhere.

“The design of these schools has transformed the way education is happening.”

— Superintendent





Riverview

“The use of the new library has increased by 69% comparing to the last year in the original building as measured by the number of checked out volumes.”

— Riverview Principal

The project achieves school district goals

“For students, the interior of the school should be welcoming, colorful, warm, nurturing—and stimulating. It should say: this is your place. It should also say: this is a place for growing and learning and exploring.”

District Goal: “We are building community through building schools.”

- + open process
- + spaces for community use
- + big picture and detailed concerns

One client, One program

District goals include big picture planning and community building aspirations as well as very specific maintenance oriented requests. District goals of an open process were achieved through the inclusive and engaging design process. Community spaces are accommodated in multiple ways. The gymnasium was enlarged to facilitate use by community groups. Other communal spaces in the school such as the library and IDEA lab are located so that they can be used for community gatherings during non-school hours.

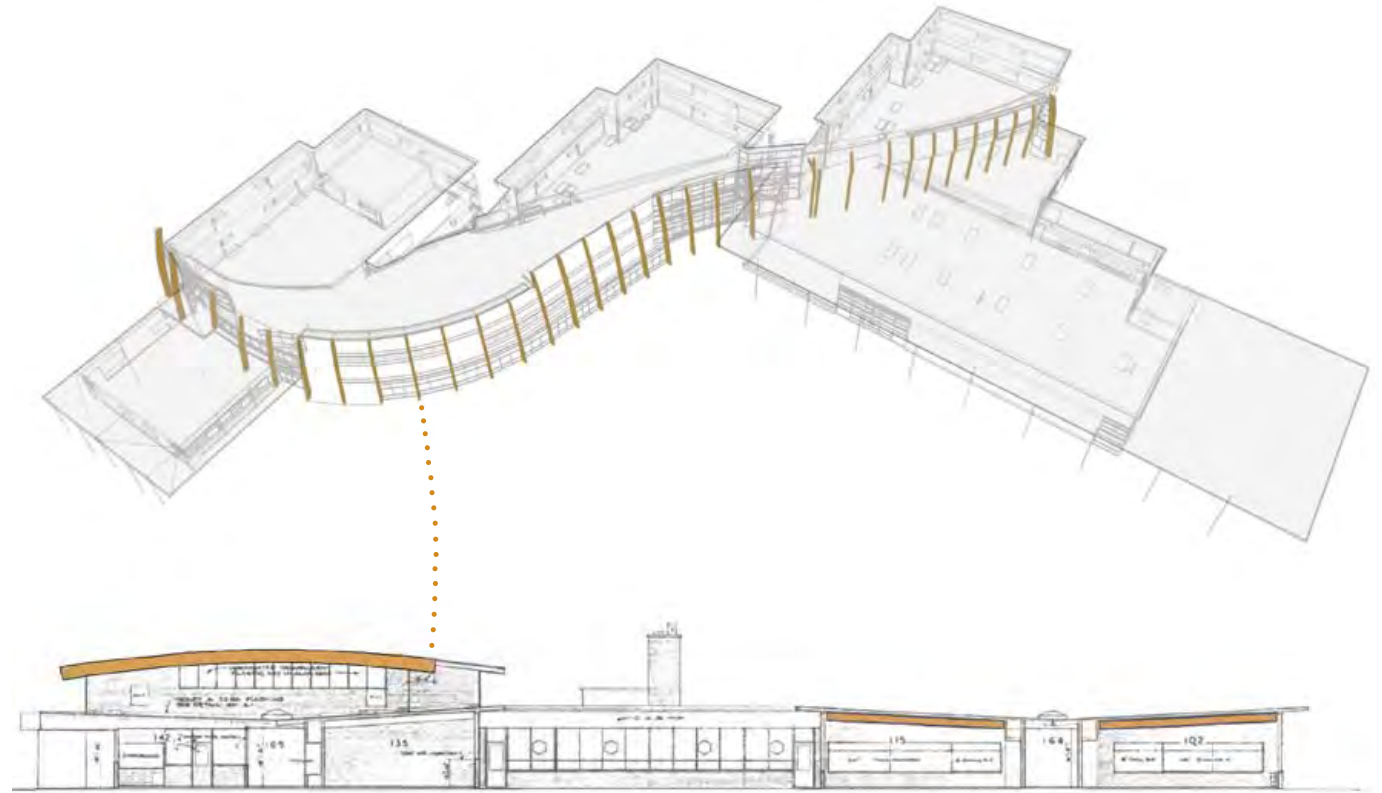
Big picture vision, detail fulfilled pride of ownership

But, sometimes, the most important things are the little details that demonstrate that the community requests were heard and that make a facility really feel like a part of the community. For example, at Machias during one of the first design meetings, the principal mentioned that the school should have a boot brush since they are in a wet, rural area and could benefit from being able to clean off your boots before entering the school. In the adjacent photo, you can see the principal with her foot in the boot brush, happy that she had been heard and those important but small details were not forgotten.



District Goal:

- + Environmental stewardship
- + Creative use of existing assets



Salvaged structural elements from original school



Material Reuse: Form Regeneration

Repurposed beams generate the building form. The curving roof beams from the original building become arching columns along the perimeter while salvaged straight beams provide horizontal support.

Machias

Connection to the Past:
Form Regeneration

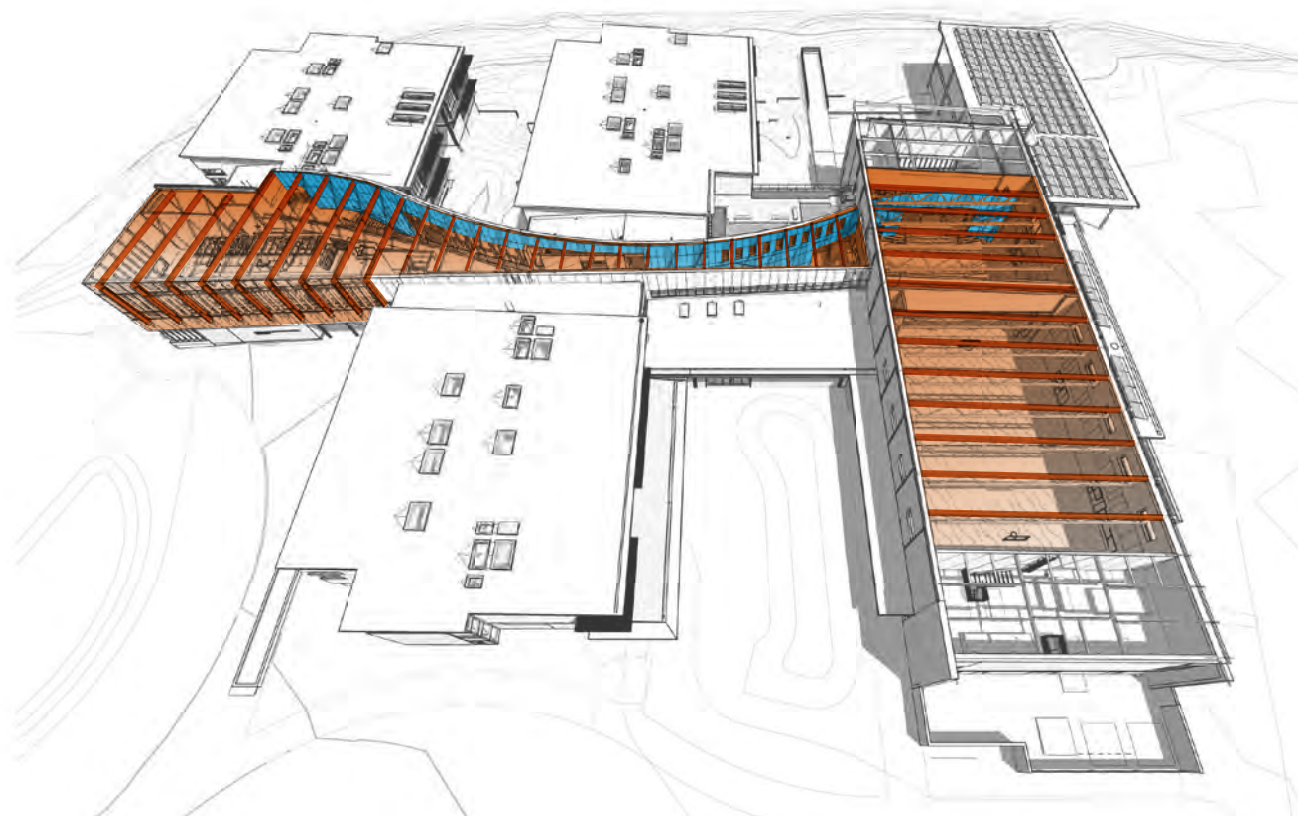




Riverview: Social Connector

Community inclusion was a key district goal, both in the terms of participation in the planning process and for the design results in the new buildings. The concept for both schools locates the main community functions along the public side, convenient for daily school functions and after hours community use.

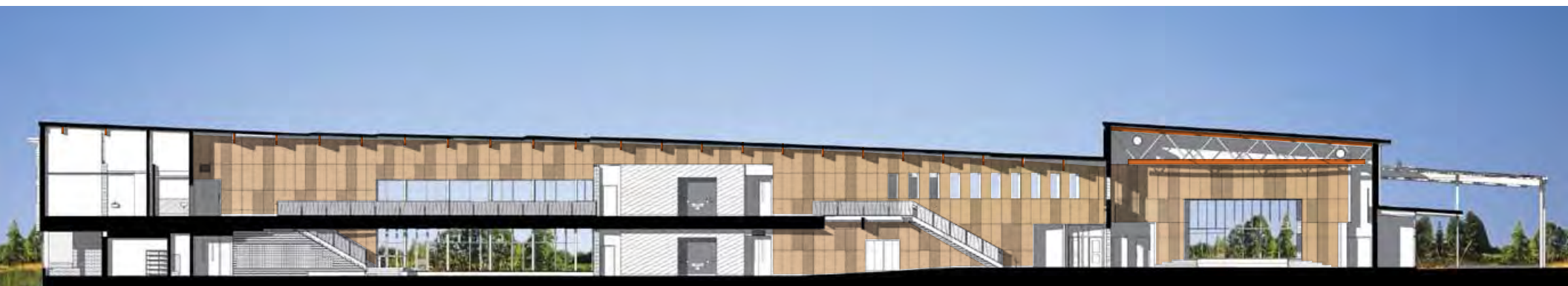
Both projects are organized so that a sense of community and welcome pervades the site and the building. The “Social connector” links all school and community spaces, while establishing points of visual connection with the outdoors. The Idea Lab, located at the entry porch, displays student art and science projects for all to see.





Riverview: Social Connector

“The design of the school should foster relationships among adults and between adults and students by creating paths of travel in which people encounter each other during the day, corridors wide enough to accommodate casual conversation and occasional seating.”





Machias

The bell from the original building is prominently located at the main plaza in front of the new school.

Machias



The school district's desire to embrace the community resulted in public spaces located for easy and convenient community use after hours. Community is greeted by big welcoming porch adjacent to common space.

Particular attention in the planning process was given to identification of spaces that can serve multiple educational and civic functions. The vision incorporates the Idea Lab spaces in both schools in a zone that is easily accessible by the community. They have plumbing, sinks, and kilns to serve arts and science projects, done both by the students and the larger community.



“Design Goal: The school entry should welcome students, families and community members. It should communicate clearly that this is a place for children and families—a place to enjoy learning and a place to gather together.”



Riverview – Welcoming Entry Porch



One set of progressive goals – Two interpretations – Two unique sites – Two unique schools

