

“ It doesn't matter where  
you're from – we're in this  
together. Everyone has their  
individual talents. We're  
Pathways and we're really  
proud of this school. ”

Pathways Student

Casper, Wyoming

# PATHWAYS INNOVATION CENTER

## + ROOSEVELT HIGH SCHOOL

“ Education is designed to prepare children for a distant and unbelievable future. Our strategy is to create learning environments that encourage creativity, engaging activities and insightful dialogue. These spaces would allow for the advanced technology necessary to prepare children for success in a world we cannot yet imagine. To change. To morph. To innovate. To lead by design. To pioneer. To modernize. To TRANSFORM. ”

*Charter for Natrona County High Schools, which came out of a visioning process with community members, students, parents and district administrators.*



FABRICATION HALL

## A Community Vision

# Executive Summary

“ This building has kept us on our toes regarding how we interact with each other and that is something we asked the architects to do. If the design started to look too close to a school, then they would have gotten it wrong. Many of the kids who come here haven’t had a good school experience. We want them to enter these doors and say, ‘Are you kidding me? I get to come here?’ ”

Shawna Trujillo, Roosevelt Principal

When Natrona County high school students entered their academy labs at Pathways Innovation Center in August 2016, they were welcomed with stacks of unopened boxes filled with new state-of-the-art equipment. Their first assignment? Set up the equipment and their labs so they could start exploring, creating and collaborating on projects that sparked their interests.

The assignment set the stage for what district leaders, teachers, students and the community envisioned for the school: a place for innovation and student empowerment. Programming was born out of years of planning to create an environment where students pursue their passions, earn credits toward graduation, prepare for life after high school – whether college or a trade career – and have a say in their educational experience.

Open to 11<sup>th</sup> and 12<sup>th</sup> graders attending the district’s three high schools – Kelly Walsh, Natrona and Roosevelt – Pathways connects academics with real-world experiences in a wide range of fields, including engineering, arts and media, health science, agriculture and business. Students spend half their day at their home high school and the other half at Pathways working on academy-based projects.

The academies feature innovation labs, designed to reflect professional work settings and contain industry standard equipment to provide practical learning and experience, as well as the opportunity to earn certifications in specialized fields. Students oversee every aspect of the projects – from ideation to prototyping to execution – under the guidance of caring and motivating teachers, whom they call coaches and mentors.

In addition to setting up the labs, students help design curriculum based on their interests, research and obtain the appropriate city and state licenses needed to operate

them. Students in the Creative Arts, Communications and Design Academy (CACD), for example, are managing the photo and media labs.

“They have ownership and are showing us how to do things,” said Molly Voris, an art teacher and Academy coach in the CACD Academy. “Everyone has their own specialty within each academy and they are showing their growing confidence.”

The centerpiece of Pathways is a two-story, 5,000-square-foot fabrication hall which was inspired by private sector facilities, including aerospace giant Boeing Airlines, where engineering, design and fabrication teams work together under one roof. The open, glass-lined industrial space, which features an overhead crane, is designed to inspire collaboration across academy disciplines.

Pathways shares the 38-acre campus with Roosevelt High School. The district’s alternative high school, Roosevelt provides a rigorous, highly personalized learning experience, where students are held accountable and staff tirelessly work to ensure they don’t fall through the cracks. Located on the east side of the campus, Roosevelt follows a holistic, wellness-focused, brain-based academic intervention model. Students and staff break during every class period for five minutes of exercise and a “brain break,” which provides focus and supports classroom engagement.

## TRANSFORMATIONAL DESIGN

During the planning and design process, stakeholders reinforced a desire for a design that would challenge the community’s perception of a traditional high school. The facility’s architecture makes a striking appearance in Casper, which has a distinctly western feel. It sets a different precedent for design, elevating the stature of education and inspiring students to achieve. It also creates a high level of curiosity from the community about the creativity that’s happening inside its walls.



38

TOTAL ACRES

126,075

TOTAL SQUARE FEET, NEW CONSTRUCTION

500

STUDENT CAPACITY:  
PATHWAYS INNOVATION  
CENTER

220

STUDENT CAPACITY:  
ROOSEVELT HIGH SCHOOLJUNE  
102016  
COMPLETION

\$42.5

MILLION:  
TOTAL PROJECT  
COST

\$38.5

MILLION:  
CONSTRUCTION  
COST

## Scope of Work and Budget

The new Natrona County School District campus includes two high schools under one roof. Pathways Innovation Center and Roosevelt High School strive to engage students and provide innovative, personalized educational opportunities that will prepare them for success beyond graduation, whether it's moving on to college or highly-skilled trade careers. To achieve this mission, the district and community challenged the architecture team to design a facility that didn't resemble a traditional high school. They envisioned a place that would be an innovative model for learning and inspire students to think and act differently so they are equipped to adapt to a changing world.

"The building itself looks like an opportunity," Voris said. "It doesn't look like a high school, a college or a business."

The design of the facility needed to accomplish the following:

- Support the idea of transformation, engage and connect learners with their future.
- Be an environment where transformation is encouraged and new ideas are incubated, not thwarted.
- Encourage creativity and engagement with others.
- Allow students to change, morph, innovate, lead, pioneer, modernize and transform.

The building's design is intended to reflect the teaching methods utilized at each school. As one moves west from Roosevelt into Pathways, spaces open up and the interior infrastructure becomes visible to stimulate creativity, design and encourage students to think differently.

Every space in Pathways was designed to be flexible and encourage learning, teaching and collaboration. The architecture's clean lines and industrial aesthetic inspire creativity and serve as a teaching tool. The building is deliberately oriented so that the long dimensions of the building face north and south. Large glass curtain walls are designed throughout, providing beautiful and inspiring views of the surrounding foothills of the Casper Mountains.

Floor-to-ceiling glass garages in the central fabrication hall encourage students to stretch their imaginations and think flexibly. The space, which is large enough to build homes and solar-powered airplanes, is designed to encourage teams from all academies to collaborate and interact through glass-walled academy labs. The "floating blue box" overlooking the hall is intended for informal learning and its cool, crisp color encourages exploration and fabrication.

### SITE PLAN



PROJECT HIGHLIGHTS

- 5,000-square-foot industrial fabrication hall in Pathways is at the center of the academy labs and intended to foster innovation and collaboration across academies.
  - Academy labs feature advanced technology and equipment to encourage students to create innovative design and fabrication projects.
  - Industrial, open infrastructure is visible and intended to stimulate creativity, design and inspire students to think differently.
- Inventive learning settings, including glass-enclosed academy labs at Pathways, stimulate engagement, collaboration and excitement for student projects.

Ubiquitous and flexible technology is a significant component of the campus' design. Academy labs feature:

  - CNC lathe machines, plasma cutters, industrial prototypers, 3D printers and high-tech automotive trainers.
  - Live video streaming takes place in each lab and is broadcast to various locations throughout the school.
- In the blue "think tank" overlooking the fabrication hall, advanced technology allows students to virtually connect with industry experts around the world.
  - Art and communications students have access to 2D and 3D technology, and Hollywood-standard film and TV labs.
  - Students have access to Adobe Suite, AutoCAD, Revit and other technical software used to design video games, websites, apps and computer programs.

“ This place allows you to take risks. And taking risks in education is rare. ”

Micade Brack, Social Studies Teacher

PROJECT SCHEDULE





“ This building demands that you do something different. ”

Patti Kimble,  
Science Teacher & Academy Coach

## School and Community Engagement

Located in the foothills of west-central Wyoming, Casper has 65,000 residents and is the state’s second largest city. Nicknamed “Oil City,” it has a rich western heritage and relatively stable economy that is supported mainly by the oil and gas industries.

In 2008, as Natrona County School District leaders began the planning process to rebuild its three overcrowded and aging high schools, the opportunity arose that the district would receive funding from the state of Wyoming to rebuild or remodel all of its high schools due to its growth.

“The superintendent said that we were at the perfect storm,” said Voris, who was part of the planning process from the beginning. “Throughout the process, we were thinking about how education needs to change and how we must prepare kids for a future we don’t know about. Even though Common Core classes like English and math are important, there’s a part that’s missing. They

go to these classes and only focus on that individual content, but there’s no connection to how English might relate to math.”

The team spoke to people in the community and business leaders who said they needed future employees who are not only educated, but are also well rounded, are good communicators and have other essential skills, such as creativity, curiosity, collaboration and citizenship. “We saw an opportunity to find a way to better prepare these kids for the future,” Voris said.

During the process, educational experts challenged stakeholders, which included students, parents, teachers, school administration, community members and representatives from the state of Wyoming, to envision what a 21<sup>st</sup> Century learning environment should look like, and what they thought needed to happen to make Natrona County’s schools relevant,

engaging and successful. Participants considered the graduate profile as they looked at the future of learning and how best to accomplish that vision. This profile drove the design and programming of the learning environments for all of the district’s high schools.

The result was Path to 2025, an ambitious plan driven by the profile of a 2025 graduate to reinvent the high school experience for all of its students and position future generations for success in life.

“We did a lot of work to determine what we wanted to see from an education standpoint,” Voris said. “We really defined how we saw students moving and working together.”

### Profile of a 2025 Graduate

- Independent lifelong learning
- Digital age literacy
- Inventive thinking
- Effective communications
- High productivity
- Healthy living
- Stewardship

“ We spent a lot of time designing the flexibility of the spaces in this building so they could change as industry standards change across the nation. ”

Molly Voris, Art Teacher & Academy Coach

## Creating a Shared Vision

Following the creation of the Path to 2025, the architecture team held two, three-day comprehensive design charrettes to provide solid program direction. Stakeholders included students, parents, teachers, school administration and community members. They addressed specific needs and broader goals of the community as well as more ambitious visions for the project. This process resulted in one overall shared vision and four guiding principles for Pathways.

Students were actively engaged in the planning process of the Pathway academies as well as design details. For example, they were instrumental in designing a coffee bar, which introduced them to the hands-on work they would be doing in the academy programs.

After the charrette process was completed, the design team held a community open house to showcase renderings, physical and animated modeling, and presented an engaging video that allowed viewers to experience a ‘day-in-the-life’ at the campus.

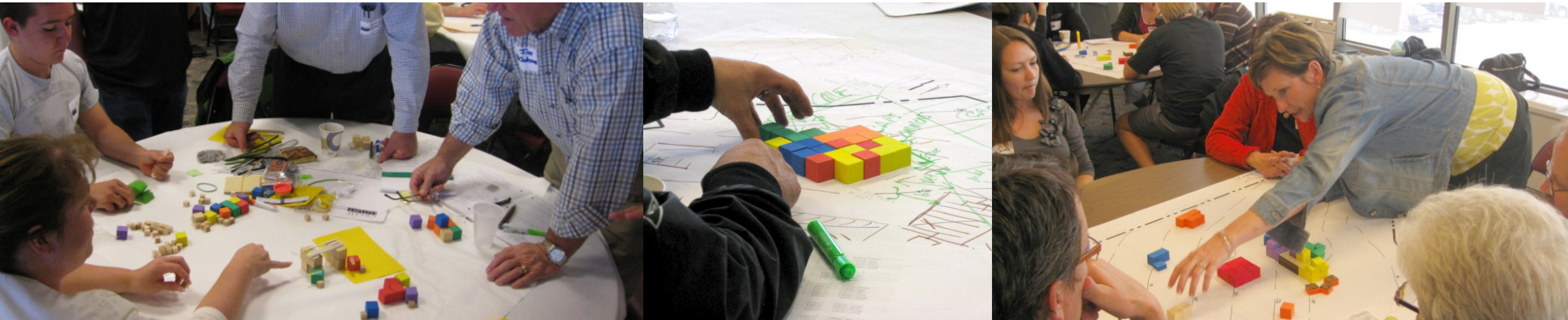
### COMMUNITY PARTNERS

Casper-area businesses and organizations have been strong supporters and instrumental partners of Pathways. A business round table was held early in the visioning process to capture the community’s input on the future of business not only in Wyoming, but also nationally and internationally.

Several members of the business community then met with the visioning committee to discuss opportunities for collaboration between the school system and community.

In addition to serving as mentors in the academies, they also commissioned student projects. This resulted in meaningful partnerships and allowed students to build skills and experience in presenting and collaborating across disciplines.

"The students exhibited their art work at a local gallery and the owner said he couldn't believe the depth of content," Voris said. "The academy work with the YMCA on its donor board was unbelievable. Also, the community understood the program and saw a future workforce."



### STAKEHOLDERS



# Four Guiding Principles

“ To strengthen our community and our economy we must instill a creative, innovative and even entrepreneurial spirit in our youth. ”

Project beliefs in Natrona County Schools' Path to 2025

Four guiding principles resulted from the charrette process and served as a roadmap for the design and programming:

**1. A Culture of Empowerment**

- Shared ownership of learning settings
- Personalized learning settings
- Services distributed to serve students
- Celebration of student achievement
- Safe and nurturing environments

**2. Inventive Learning Settings**

- Flexibility to support differentiated learning and teaching; spark curiosity
- Variety of settings to serve diverse needs; more “learning by doing”
- Furnishings that are adaptable and agile
- Ubiquitous and flexible technology

**3. Meaningful Community Partnerships**

- Welcoming and appropriate space for mentorships
- Lifelong learning opportunities
- Stewardship of our planet and its resources
- Service to our community

**4. Collaborative Learning Communities**

- Professional work settings
- Relationship-based learning settings
- Global connections
- Transparency

“Reducing the building size turned into a win...  
It has created a better way to work together.”

Patti Kimble, Science Teacher & Academy Coach

## Turning Challenges Into Opportunities

After the second year of operation, the architects conducted an on-site Post-Occupancy survey with teachers, administration and students. What follows are some of the key lessons learned.

### PHYSICAL

Due to budget restraints, the original footprint of the campus needed to be reduced. The design team maximized the building's efficiency by designing one main entry and combining student common spaces. It resulted in a more inclusive and engaging campus.

“Reducing the building size turned into a win,” said Patti Kimble, a science teacher and academy coach. “It would have been hard to see each other if we were spread out in different buildings. Sharing a computer lab, presentation stairs, fabrication hall, and blue rooms, has been a good thing. These spaces aren't just for certain groups of kids, they're for anyone who needs to use them. It has created a better way to work together.”

### CLASSROOM LEARNING

While the design of the school is intended to provide a new opportunity for teaching and learning, for some teachers who have only taught in traditional classroom settings, change was difficult.

“This building has so much potential and we needed to learn how to use it as an education tool,” Kimble said.

Teachers created a "pitch process," where they pitch students a topic and driving question. Students then pitch the teachers an idea for a project, research it, and teachers ensure that it is meaningful and meets state educational standards.

"It was transformational," said Micabe Brack, a social studies teacher. "The curriculum and building came together."

### CULTURAL

During the initial stages of the visioning process, parents voiced concern that students from Natrona's three high schools wouldn't be able to come together and learn at Pathways due to tense rivalries. Student representatives disagreed and endorsed Pathways, expressing excitement for the opportunity to learn and collaborate with students from different schools.

“At the beginning of last year, we had no idea what was going to happen,” said Micha J., who graduated in May after two years at Pathways. "But having to do projects together allowed us to break down barriers.”

Emerson K, who just finished her first year at Pathways, agreed: “Most of the people who are in my academy are my crowd.”

### CURRICULUM & SCHEDULING

Students attending their home schools – Natrona County and Kelly Walsh – aren't always swayed to leave and travel to Pathways for the half-day program because they haven't yet established connections to teachers.

There was also some duplication of programs at the home schools and Pathways, such as art and culinary. "Nursing, construction and auto programs are completely full because students can't get those programs and certifications anywhere else in the district," Voris said.

Overall, the programs Pathways offers are more robust, and the district is engaging with students and publicizing the school's opportunities while they are 9<sup>th</sup> and 10<sup>th</sup> graders.



# Vision and Goals

## PATHWAYS INNOVATION CENTER: VISION

Career exploration is at the core of Pathways, and each of the four academies feature an innovation lab with state-of-the-art industrial equipment and technology.

Labs are designed to reflect professional work settings, providing hands-on experience with the latest technology. Through the academies, students are introduced to a variety of career paths to spark their curiosity. Mentors guide them in developing a passion in a specific field.

Community experts work closely with academy teams by mentoring students and assisting them on projects. In many of the academies, students can earn college credit or industry-standard accreditations and certifications in professions such as welding, automotive technology, culinary arts and nursing.

## GOALS

- Increased graduation rates
- Increased student academic performance and achievement
- Close academic achievement gaps across the district
- Improved 21<sup>st</sup> Century focus and readiness
- Successful smaller learning communities within large high schools
- Increased career-focused counseling
- Expanded connections with business and industry partners



# Pathways Academies

Pathways' four academies are designed around student interests and career fields. Programs meet graduation requirements and were designed with the help from local community members and industries, Casper College and the University of Wyoming.

## CREATIVE ARTS, COMMUNICATION & DESIGN (CACD):

Students are empowered to explore different art mediums and digital platforms in open studio spaces and digital and video production labs. Students showcased their work at a local art gallery and held several "gallery walks" on campus throughout the year, inviting the community.



Production Arts  
Visual Arts  
Digital Media Arts  
Color Theory & Design  
Photography  
Sculpture

Computer-Aided Arts  
Web Design  
Graphic Design  
Film/TV Production  
Graphic Technology  
Special Effects Makeup

## HEALTH SCIENCES & HUMAN SERVICES (HSHS):

The academy features hospital-standard equipment and provides students the opportunity to become Certified Nursing Assistants (CNA). They gain experience working at a long-term care facility. They also take field trips to destinations based on student interest such as the University of Wyoming's genetic lab.



Caregiving  
Early Childhood Development  
Nursing  
Pharmacology  
Sports Medicine  
Pre-Occupational Therapy

Pre-Physical Therapy  
Fire Science  
English/Language Arts  
Psychology  
Sociology

CERTIFICATION OPPORTUNITIES  
Certified Nursing Assistant  
Phlebotomy  
CPR/First Aid  
Basic Life Saving



# Pathways Academies

## ARCHITECTURE, CONSTRUCTION, MANUFACTURING & ENGINEERING (ACME):

Students receive hands-on training on science and engineering projects. They also gain experience on community projects, including constructing a cabin and small homes, welding smokers and auto mechanic repairing.



Woodworking  
Welding  
Engineering  
Robotics  
Auto Service

Cabinetry  
Robotics Engineering  
Electronics/Electricity  
Biotechnology

CERTIFICATION OPPORTUNITIES  
AWS Welding  
ASE Auto Student  
OSHA 10-Hour

## BUSINESS, AGRICULTURE & NATURAL RESOURCES (BANR):

BANR students set up and manage their labs, including agriculture, horticulture and culinary arts. Agriculture students supply produce to the culinary team.



Business  
Marketing  
Sports & Entertainment  
Nutrition  
Food Service  
Culinary Arts

Agriculture  
Natural Resources  
Veterinary Science  
Horticulture  
Food Science

CERTIFICATION OPPORTUNITIES  
ProStart (Culinary Arts)  
ServSafe



# Roosevelt High School

## EMPOWERING ALTERNATIVE LEARNERS

Pathways shares the same building with Roosevelt High School, the district's alternative learning program. By sharing a common building and having the same opportunities to learn hands-on, career-focused skills as the other district students attending Pathways, student confidence builds and learning success is more likely to happen.

“ It means opportunity and the best chance to learn in the best setting. ”

Shawna Trujillo,  
Roosevelt Principal

## HEALTHY MIND, HEALTHY BODY

Roosevelt High School's curriculum is based on a “healthy mind, healthy body” model, which combines exercise with focused instruction to improve student achievement. The school has a full-size gymnasium and large exercise facility featuring the latest equipment and a span of windows facing the surrounding landscape.

Building relationships between staff and students is also an integral piece of Roosevelt’s program. In 2006, the school initiated a breakfast program where students and teachers gather at the start of each day for breakfast and small group discussions. The program, which was previously held at the local Boys and Girls Club, is able to continue in Roosevelt’s new amphitheater-style student commons.



Physical activity is a vital component of Roosevelt's curriculum.



Students work on academy projects in flexible learning spaces.



Students and staff meet each morning for breakfast and small group discussions.



Instead of individual classrooms, teachers have collaborative spaces, where they work together daily.



## ROOSEVELT HIGH SCHOOL 2020 GOALS

95%  
GRADUATION  
RATE

100%  
ELIGIBILITY FOR  
HATHAWAY  
SCHOLARSHIP\*\*

HIGHEST  
PERFORMING  
ALTERNATIVE SCHOOL  
IN WYOMING

100%  
OF STUDENTS  
HAVE A POST-HIGH  
SCHOOL PLAN

95%  
ATTENDANCE  
RATE

- NON-NEGOTIABLES:
- UNRELENTING FOCUS ON HIGH SCHOOL GRADUATION AND FUTURE GOALS
  - POSITIVE BEHAVIOR
  - PERSONAL WELLNESS
  - POSITIVE, HEALTHY RELATIONSHIPS
  - ACADEMIC EXCELLENCE

\*\* WYOMING'S HATHAWAY SCHOLARSHIP: Every Wyoming middle and high school student is automatically eligible for the Hathaway Scholarship. By maintaining a certain GPA, test scores and class requirements throughout high school, they can use the scholarship to pay for tuition at the University of Wyoming or a Wyoming community college.

“ Roosevelt kids can walk over this bridge and pour themselves into Pathways, where hopefully they can find their passion. ”

Shawna Trujillo, Roosevelt Principal

## A Bridge to the Community

Pathways and Roosevelt are connected by the Media Bridge, a collaboration space that is also intended to symbolize the building's educational approach. "The bridge is really important because it helps identify that this is a campus," said Shawna Trujillo, Roosevelt Principal.

The Bridge is also intended to provide a connection to the community. It is a flexible space for students to collaborate on projects and presentations and meet with mentors in person or virtually. Pathway's Creative Arts, Communications and Design Academy (CACD) holds Art Walks in the space, and invite the community to see student artwork, hear presentations and experience their excitement firsthand.

# Collaborative Learning Environments



→ In addition to working in their academy labs, students work on projects in collaborative spaces throughout the school, from conference rooms to hallways to common areas.



→ Cutting-edge software and technology allow students to virtually connect with industry leaders around the world.



→ Students work together on large-scale projects across academies in the fabrication hall. More than 100 students worked on the construction of a cabin that was auctioned at a community open house.

Collaborative learning communities are at the core of Pathway's mission and are incorporated throughout the design.

Students are encouraged to team up on projects with peers in their own academy as well as across academies. Projects transition out of the labs and into the adjacent fabrication hall, a massive open commons space that is designed to create a conversation among academic disciplines, including construction, woodworking, metals, welding, robotics, arts and furniture making.

In addition to the academy labs, informal meeting spaces and lounges are threaded throughout the building. Banquettes and areas with flexible furniture that can be rearranged provide spaces for students to meet with team members and mentors as they build presentations.

Conference rooms are equipped with the latest technology, allowing students to give digital presentations to peers, mentors and community partners.

Collaborative teaching space is also critical. Instead of classrooms and offices, teachers spend time with colleagues each morning planning curriculum.

"As a teacher who is a core discipline, being able to collaborate with other professionals and teachers with a common goal of letting students find their voices and passions is amazing," said Marcy Odell, an English teacher. "The design of the building has made us rethink our curriculum, but it has been a collaborative effort with the students."

“ Kids feel respected here. They are given tools and they feel like adults. It's very inspiring. ”

Marcy Odell,  
English Teacher

“ Our mentors are amazing. They support, encourage and push us every day. They have helped us become comfortable in our environment. We want to do this. We want to succeed. ”

Pathways Student

# Real World Experience

## PROFESSIONAL WORK SETTINGS

Pathways' academy labs are designed to reflect professional work settings, introducing students to a variety of fields that are intended to spark their curiosity or guide them in developing a passion.

From setting up equipment and managing labs to creating, leading and presenting projects, the academies are student-driven environments.

“Students manage every aspect of the labs, know all of

the equipment, and have had to get the proper licenses to operate the labs,” Voris said. “They are getting the hands-on experience, skills and confidence they need to move forward.”

Culinary arts students, for example, create a lunch menu for students and staff each day and cater school events and community gatherings. They also obtained food handling and safety licenses necessary to run a restaurant facility.

## INVENTIVE ENVIRONMENTS FOR SPECIALIZED LEARNING

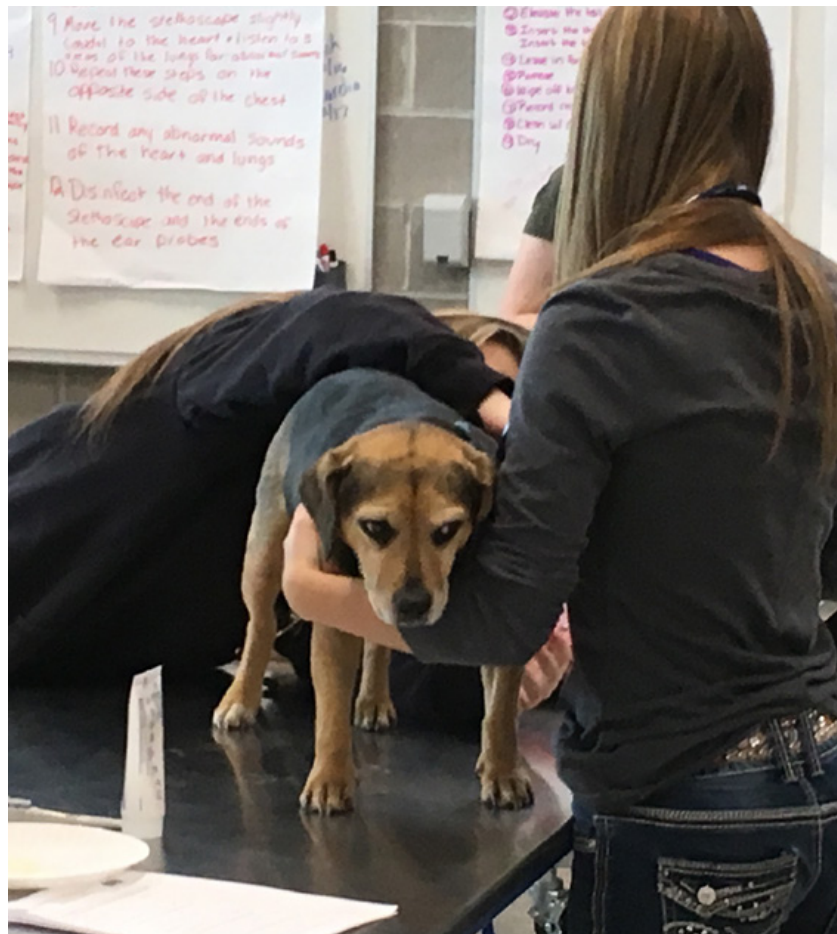
Academy labs are designed to be innovation spaces, providing hands-on, applied learning experiences. Surrounding the fabrication hall, they house advanced technology and manufacturing equipment that allow students to work on projects.

"The building and equipment are amazing," said Allie M., an art student who has discovered a passion for special-effects makeup artistry and photography. "We have tons of materials and are encouraged to experiment."

Students in the science labs conduct hands-on biology experiments alongside culinary students who are making cheese.

Other examples of hands-on experiences include:

- Hospital-standard equipment so students can become certified nursing assistants
- Modern kilns, open studio spaces and digital and video production labs
- Latest software and technology related to careers in architecture, robotics, auto-service, welding and carpentry
- State-of-the-art culinary kitchens, information technology, bio-technology, wildlife biology and accounting



# Fabrication Hall

## A SPACE FOR CELEBRATION

Located at the center of the labs, the 5,000-square-foot fabrication hall was designed to inspire creativity, innovation and collaboration. The industrial space is large enough for students to construct projects ranging from a pre-fabricated house to a solar-powered airplane.

The space has been used for a variety of large-scale projects, from construction and welding projects to paintings. Members of the community have been invited to see some of the amazing projects students have been working on.

In April, the school held a community open house, where they hosted a car show and auctioned off the student-built cabin. Culinary students catered the event with BBQ that was made in smokers built by the welding students.

"It was a huge endeavor but it was a great opportunity to showcase what the kids have been working on," Trujillo said.



“ I love the openness and being able to walk around and see other people working. It's loud, but it's a group effort to inspire. It makes me work hard on what I'm doing. ”

Pathways Student

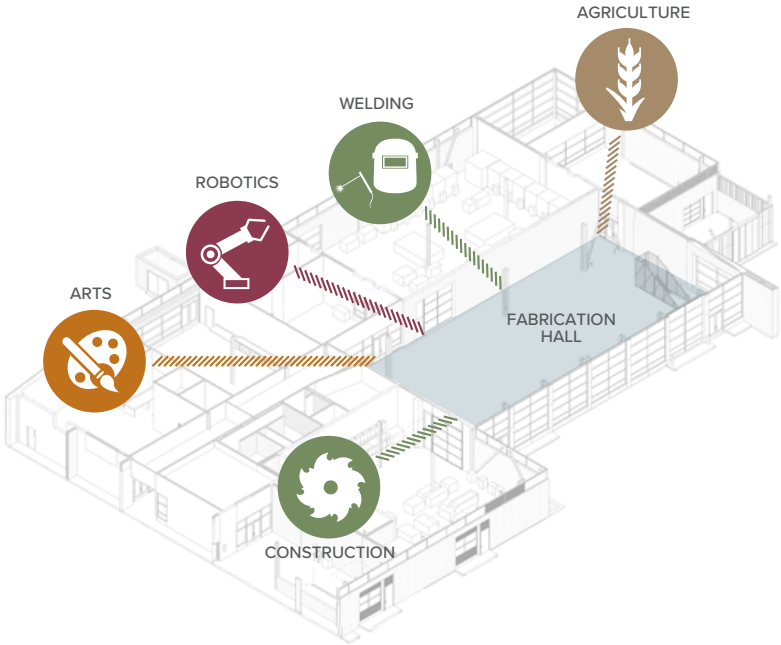
During the August 2017 solar eclipse, NASA and San Francisco's Exploratorium turned Pathways into an observatory with the help of students and the building's impressive infrastructure.

“We had reporters broadcasting across the world in real time as this rare event took place,” Trujillo said. “Our students, staff and community had the opportunity to take part as participants, scientists and reporters. This was an unforgettable and transformational experience.”



# Fabrication Hall

“ The fabrication hall is one of the most exciting places in Pathways. ”  
Molly Voris, Art Teacher & Academy Coach



Massive glass walls in the Fabrication Hall produce a visually stunning space, flooded with natural daylight. Inside, views to the surrounding soft prairie landscape provide a juxtaposition to the interior's hard surfaces. Viewed from the exterior, the fabrication hall beautifully illuminates at dusk, showcasing to the community the space and the stimulating work taking place inside.

The space, which features a large overhead crane, is inspired by Boeing's aerospace facility in Redmond, Washington, where engineering, design and fabrication teams collaborate under one roof. Similar to Boeing, where aircrafts are built in large hangars with overlooking offices and meeting spaces, Pathway's academy labs, learning studios and group spaces overlook the hall and are intended to promote collaboration through proximity and visibility.



The hall features 16-foot-high, custom fabricated glass garage doors that lift up to allow raw materials to be delivered into the space and then leave as transformed projects. The large doors encourage students to stretch their imaginations to create advanced design and fabrication projects while also extending the learning beyond the footprint of the building.



A blue glass-enclosed “think tank,” overlooks the fabrication hall and provides a striking design focal point in the space. It is being used for informal learning opportunities, meetings with mentors and distance learning. Research has shown that the color blue boosts creativity.

“ We started working on the donor wall at the YMCA the first week we were here, and during that time it hit me that this place is different. It’s a place for me. It opened up my eyes to doing bigger projects. ”

Pathways Student

# A Community-Focused School

Local businesses and organizations commission student work, allowing them to gain valuable community engagement skills and experience.

On the first day that Pathways opened, leaders from the YMCA pitched students on designing a donor board that would be prominently displayed in the newly-built YMCA facility. For many students, this project was transformational and exemplified the projects they would work on at Pathways.

“We started working on the donor wall the first week we were there,” said student Austin M., who was heavily involved in the project. “During that time it hit me that this

place is different. It’s a place for me. A donor wall sounds boring, but the YMCA is about family and fun, and we were doing something for Casper that will be there for a long time.”

The community projects have been empowering experiences and have built a sense of pride.

“The YMCA recognized that we actually have good ideas and we’re also learning, which was great,” said Micah J., who also worked on the donor wall. “As high school students who sometime feel like no one listens to us, that was really cool.”



The Pathways student design team presented three options for a donor board to YMCA's leadership. Designed and fabricated by CACD and ACME Academy students, it is prominently displayed at Casper's new YMCA facility.



Thanks to a grant from a local organization for supplies, students from different academies came together to build a cabin that was sold at a community auction.



Food for Thought, a local child-hunger organization, brought in a bus, which students helped renovate into a mobile food market.



Welding students turned gas tanks into smokers, which culinary arts students have used to cater school and community events.

“ Because there is so much glass, everything is exposed. There’s a lot of activity and it’s exciting to see what other people are working on. ”

Pathways Student

# Flexible Educational Environments

All learning environments open up to allow for small and large-group teaching and engagement. Tables, chairs and whiteboards are on wheels for rearrangement, and tables can be flipped up for efficient storage. Staff and students use the commons area each morning for breakfast gatherings, and also hold small group and one-on-one meetings with mentors and students. The Black Box Theater is used for presentations and performances and can be opened to the outdoors with arena-style seating.

"Every space is a teaching space," said Micade Brack, a social studies teacher. "I never thought I'd be able to teach in a hallway or could take kids from the fabrication hall to a nursing lab to an art studio or greenhouse in one day. It's such an interactive learning environment."

An abundance of glass walls and windows throughout are intended to be written on, allowing students and mentors to brainstorm projects and prepare for presentations. Commons areas and the bridge connecting Roosevelt and Pathways allow students to exhibit their completed projects and have been used several times for community open houses.

Presentation stairs are located in both buildings, allowing mentors, students and community members to hold large presentations or performances. A genius bar is located at the top of the stairs, providing space for students to work on laptops.

## TRANSPARENT LEARNING

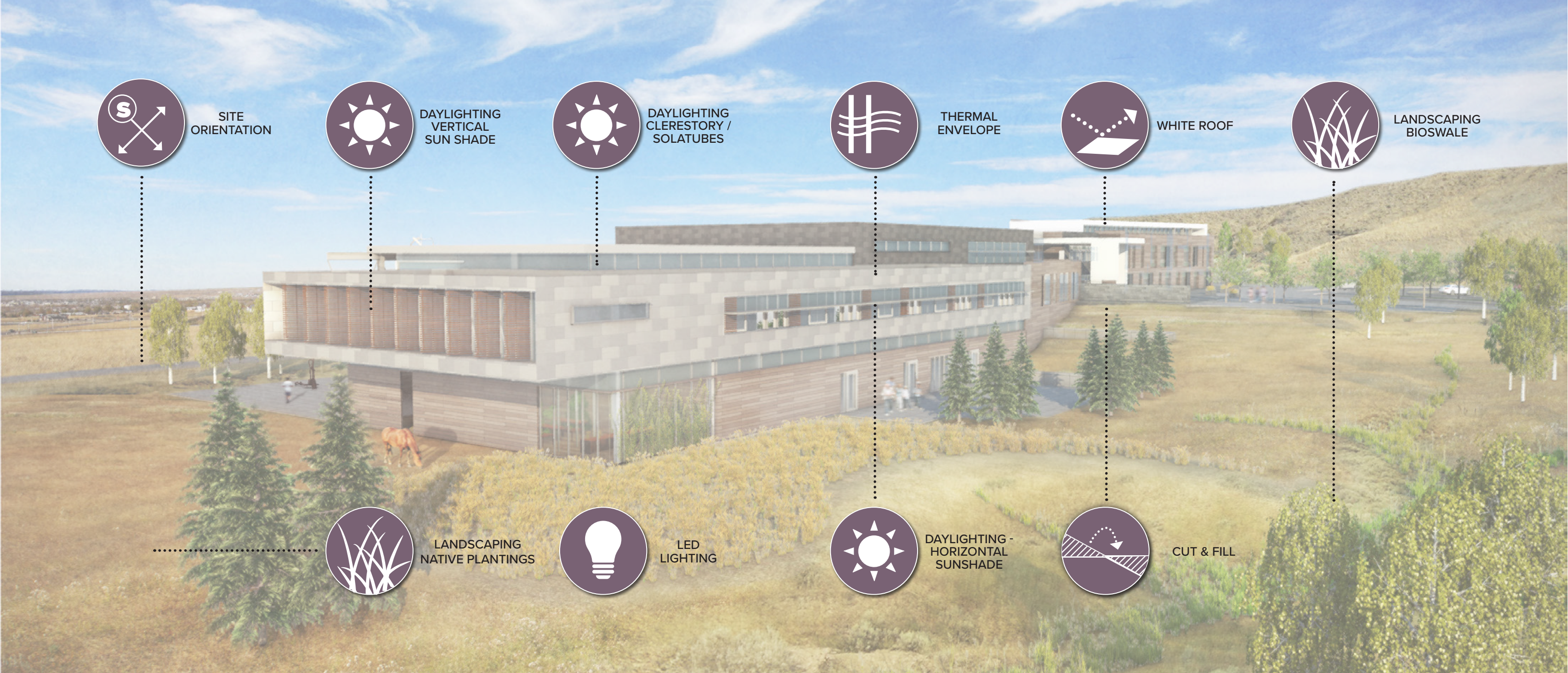
All Pathways academy labs and conference rooms are glass enclosed, providing barrier-free environments to encourage innovation and allowing students to visually interact. "The glass is one of my favorite things about the school," student Emerson K. said. "I love seeing what's going on and what other students are working on."

Natural light floods into the labs through expansive windows and the adjacent fabrication hall, and is intended to improve productivity and inspire students with the views of the surrounding vast landscape.

Conference rooms are also glass enclosed and include a blue "think tank," which overlooks the hall and provides a striking design focal point in the space. It has been used for informal learning opportunities, meetings with mentors and distance learning.

"I love the openness and being able to walk around and see other people working," student Austin M. said. "It's loud, but it's a group effort to inspire. It makes me work hard on what I'm doing."





Sustainability was an integral part of the project's design. To support the diverse hands-on curriculum, many of the sustainable strategies implemented were designed to allow students to engage the architecture in a more intense way. From the various approaches to daylighting to a sustainable landscape that embraces an experimental pedagogy, the building is an open invitation for student inquiry.

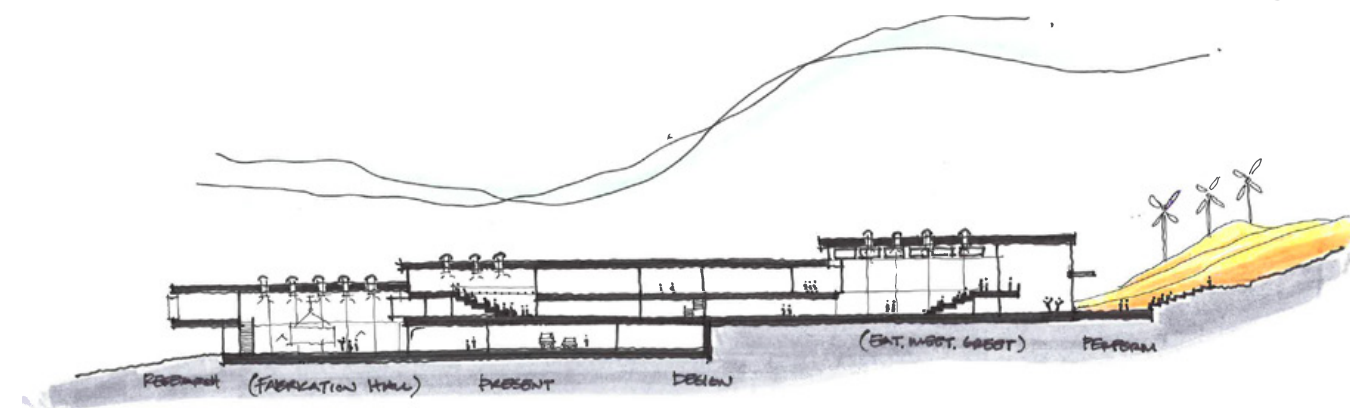
The design team utilized advanced benchmarking and target setting for energy use intensity. Strategies investigated and/or implemented were:

- All LED lighting with controls
- De-stratification fans in all workshops
- Plug load reduction
- Exterior vertical window shades at west facing glazing
- Decreased building wall infiltration
- High performance glazing, tuned for each elevation

Special attention was given to daylighting in the building, with interior shading being the last option for unwanted glare. Extensive computer studies were conducted to model various sun conditions during the course of a day and year.

The building is intentionally oriented so that its long dimensions face north and south. Horizontal and vertical sun shading devices were designed and engineered to reduce unwanted low-angle glare. In addition, special daylighting glass and light-diffusing glazing were used to direct natural light deep into the space.

## Sustainability



# Beyond the School's Footprint

## OUTDOOR LEARNING ENVIRONMENTS

Student-focused learning experiences move beyond the walls of the building to the outdoors.

Features include:

- Roosevelt students continue their wellness and educational instruction on a half-mile path that winds through the foothills of an adjacent mountain and features learning and exercise stations.

- A black box theater features a large garage door that opens to an outdoor amphitheater, allowing students to hold theater, performances and other indoor and outdoor events.
- Students in the agriculture academy work with farm animals, including chickens and horses, in the school's outdoor coop and paddock.

The 16-foot glass garage doors in the fabrication hall open to outdoor work spaces, allowing students to bring large-scale projects outside to work on or showcase to the community.

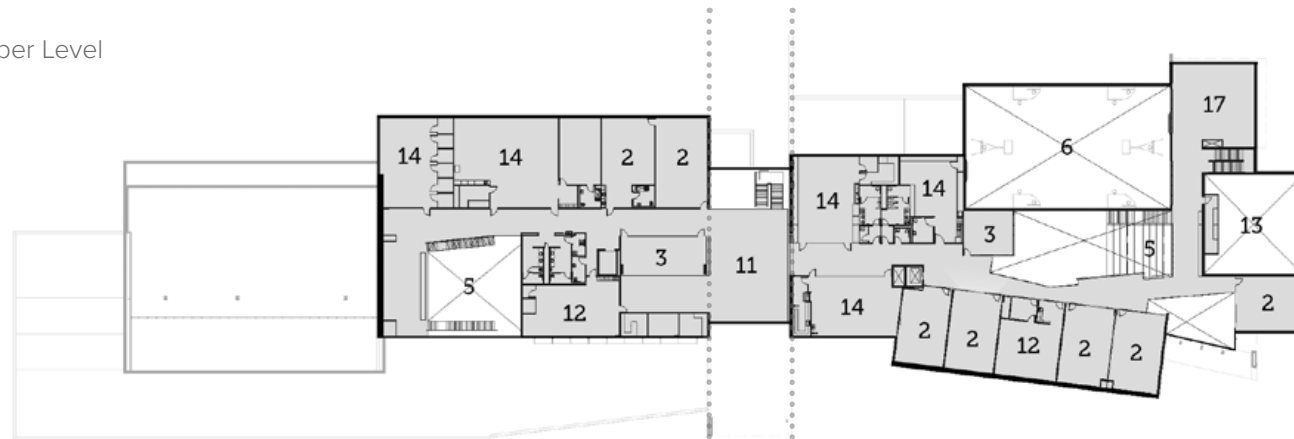
Students in the agriculture academy are growing demonstration and experimental gardens in large steel containers. The food is then supplied to the culinary arts students.



## PATHWAYS

## ROOSEVELT

Upper Level



Entry Level

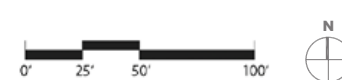


Lower Level



Floor Plan Key:

- |   |                   |    |                     |    |             |
|---|-------------------|----|---------------------|----|-------------|
| 1 | Entry             | 7  | Locker Rooms        | 13 | Black Box   |
| 2 | Flexible Learning | 8  | Eat Meet & Greet    | 14 | Lab/Studio  |
| 3 | Think Tank        | 9  | Administration      | 15 | Art Patio   |
| 4 | Cafe              | 10 | Fabrication Hall    | 16 | Green House |
| 5 | Learning Stair    | 11 | Resource Center     | 17 | Fitness     |
| 6 | Gymnasium         | 12 | Staff Collaboration |    |             |



“ This has been seen as a huge opportunity for the community. Community members have come in and seen what the kids are doing here and can’t believe this is a high school. ”

Molly Voris, Art Teacher & Academy Coach



# Results of the Process & Project

## ACHIEVING COMMUNITY GOALS

Students have opportunities throughout the school year to showcase their work to the community. Members of the community have been impressed by the student projects and positive energy felt throughout all of the academies.

"We had a group of professionals visit and they were blown away by what they saw," Trujillo said.

Culinary students provided them lunch and they witnessed the student work that is being generated throughout the building.

"Whenever someone comes in here, we always hear, 'I can't believe this is a high school,' Trujillo said. 'I never get sick of hearing that.'"



Students were actively involved in the design phase and instrumental in designing The Hive, a space at Pathways for coffee and engagement. They envisioned the cafe as a bustling and active commons space. Designing The Hive also introduced them to some of the hands-on work they would be doing as students at Pathways.

The Hive has become a favorite place for many students at Pathways and Roosevelt. "It's a place where we can meet up with our friends before classes," said student Austin M. "You can also look down and see what kids in the construction academy are working on, which has inspired me to work hard on my own projects."

## COMMUNITY PARTNERS



# Student Empowerment

The biggest achievement has been the ownership the students have felt in the facility and pride they have shown for their work. All academy programs and projects are driven by students with mentors providing guidance, but no lectures. This has had a dramatic impact on raising student confidence.

“Mentors support, encourage and push us every day,” said student Allie M. “They have helped us become comfortable in our environment. We want to do this. We want to succeed.”

Each morning at 7 a.m., student Katherine S. in the BANR Academy arrived to open the school coffee shop, The Hive, which she managed through the program and put together work schedules and training.

She also managed the culinary arts lab, where she and her classmates researched and applied for the proper licenses necessary to run a professional culinary kitchen. “I felt empowered because I was trusted to do it,” Katherine said.

Veterinary science students also needed to learn the rules and regulations necessary for keeping farm animals and horses in the school’s paddocks.

“They are empowered by what they are doing here and showing their growing confidence,” Voris said.

If students imagine a project, they are given permission to explore it after it's vetted through the "pitch" process. This gives students ownership of their own learning.



Students in the HSHS Academy have an opportunity to earn their Certified Nursing Assistant (CNA) certification.



In the CACD Academy, students are exposed to the latest film production equipment and Hollywood-standard special effects makeup artistry.



Construction and welding students have earned their Occupational Safety & Health Administration (OSHA) 10-hour Authorization Certificate.

## SUCCESSFUL COLLABORATION

Students have been enthusiastic about the opportunity to collaborate with students with similar interests and passions.

"I have friends here that I never would have had the opportunity to meet but I have so much in common with," Emerson K. said. "It doesn't matter where you're from, we're in it together and learning from each other."

Social studies, science and English teachers collaborate with the academies to meet state educational standards and make the subjects relevant to their academy work.

"If I'm teaching the kids about the Roman Empire, I need to work with my colleagues on finding ways to make it relevant to their academy while also meeting the learning standard," said Brack, the social studies teacher. "If I'm working with the culinary arts students, they'll learn about the Roman culture, religion and food."



“ I enjoy working in a studio – it’s like being a real artist and we have all the materials we need. The windows and the light are amazing, and the views out to the mountains are inspiring. ”

Pathways Student

# Elevation of Teaching and Learning



For many students attending Pathways, this is the first time they have been engaged with learning and eager to be at school. Students in the construction, welding and auto programs, for example, are taking math and understanding it for the first time.

"I went from being a failing student to getting A's and B's," said Garrett C., a student in the automotive program. "I'm getting experience in a job area that I want to be in."

Students are building their resumes with advanced projects and gaining not only applied skills, but also important critical thinking and leadership skills. In addition to feeling prepared for life post-graduation, confidence has grown and they're excited for their future.

"I learned how to put together an artist statement and portfolio," said Emerson K., a student in the CACD Academy. "This is something that I can present when I apply to college art programs. I never would have known how to do this if I wasn't here. Without this guidance, I would have been so unprepared."



We're building curriculums through real life projects that demand that the kids really learn. They aren't just given a plan – they are problem solving.

Patti Kimble, Science Teacher  
& Academy Coach

*The Executive Summary of the Educational Specifications, which includes the Educational Brief, follows this section. Below are excerpts from the project's Educational Specifications, which are intended to provide a sense of the spaces, their functions, sizes, and relationship to one another, and system descriptions. The Specifications were developed based on the district's Vision 2025. The space summary chart defines the allocation of net square feet (s.f.) per area. The full report is available upon request.*

# Educational Brief

Building on the work of Natrona County School District’s (NCSD) Vision 2025, and in support of the school district’s mission, the new campus should be designed to accommodate both the new Pathways Innovation Center (PIC), which will serve students from all three existing high schools in the district. The new facility should also incorporate the school district’s alternative high school of choice, Roosevelt High School, which is currently located in a former elementary school and scheduled for replacement.

The PIC facility on the new campus should be designed to serve 500 students at any given time in half-day programs in one of four academies:

- Architecture, Construction, Manufacturing, and Engineering (ACME)
- Business, Agriculture & Natural Resources (BANR)
- Creative Arts, Communication, and Design (CACD)
- Health Sciences and Human Services (HSHS)

Roosevelt will be designed to serve 220 full-time students in a highly personalized, non-traditional, project-based learning experience. The two facilities should share program elements in order to maximize efficiency of the overall project.

## BUILDING ON COMMON GROUND

Four guiding principles were identified during the community-based design charrette, and they are to guide the development of all three projects being planned for the NCSD. The four guiding principles are as follows and represent the common ground of what the NCSD and the community expect:

- **COLLABORATIVE LEARNING COMMUNITIES** which support professional work settings, relationship-based learning settings, global connections with other learning communities and transparent connections to the community.
- **INVENTIVE LEARNING SETTINGS** with the flexibility to support differentiated learning and teaching, spark curiosity, variety of settings to serve diverse needs, furnishings that are adaptable and agile and technology which is ubiquitous and flexible. (More learning by doing)
- **MEANINGFUL COMMUNITY PARTNERSHIPS** welcoming and appropriate space for mentorships, lifelong learning opportunities, stewardship of our planet and its resources and service to our community.
- **A CULTURE OF EMPOWERMENT** shared ownership of learning settings, personalized learning settings, services distributed to serve students, celebration of student achievement, safe and nurturing environments.

## VISION 2025

The vision for the new campus project, including PIC and Roosevelt, came from a process that started in 2009 when the school district launched its Vision 2025 process to transform secondary education.

Members developed a “graduate profile” to develop a goal for the outcome of education in Natrona County in the 21st Century. In-depth topics discussed included career and technical education; co-curricular activities; technology; stewardship and healthy lifestyles; best practices for sixth- and ninth-grade transition years; and ideal school size and environment.

The visioning committee concluded its work by producing a “Findings and Directions” document to outline its vision for future work in the school district. Also developed was an outline of the next step in high school construction and remodeling for the district to meet the visioning work.”

“The project convened a visioning committee of about 40 people, as well as focus groups, study groups and other teams dedicated to researching the best practices and community desires for what would become the future of middle and high schools in Natrona County.” -- NCSD website

“Our current high school program was designed more than 100 years ago to suit the industrial age need for factory workers, and to assimilate immigrants as productive citizens. The model simply does not fit all of the technological, social and economic realities of our time, much less the future. It is the mission of Natrona County School District to conceptualize a fundamentally different learning experience for 21st Century high school students, one that engages and inspires every learner to become a champion.” -- NCSD Vision 2025

### NEW CAMPUS PRELIMINARY PROGRAM Draft 6.23.11, as modified 8.3.11

| PIC ACADEMY SUMMARY  | #T.S | Approx Net Area |
|----------------------|------|-----------------|
| ACME ACADEMY         | 6.0  | 14,850          |
| BANR ACADEMY         | 4.0  | 6,300           |
| CACD ACADEMY         | 5.0  | 12,500          |
| HSHS ACADEMY         | 7.0  | 8,800           |
| SHARED PIC FUNCTIONS | 10.0 | 20,800          |
| Sub-Total            | 32.0 | 63,250          |
| Net to Gross Factor  | 33%  | 20,873          |
| Total Gross Area     |      | 84,123          |

| NEW CAMPUS SUMMARY    | Gross Area |
|-----------------------|------------|
| Roosevelt High School | 42,760     |
| PIC Academies         | 84,123     |
|                       | 126,883    |

| NEW CAMPUS CAPACITY ANALYSIS                 |     |
|----------------------------------------------|-----|
| Total Number of Teaching Stations            | 47  |
| Number of Stations if used at 85% efficiency | 40  |
| Capacity at 20 students per teaching station | 800 |
| Desired Capacity                             | 800 |



“ By design, the spaces in this building aren't imagined for traditional instruction and it forced us to think differently. ”  
Marcy Odell, English Teacher

“ It's about putting 21<sup>st</sup>  
Century kids in a 21<sup>st</sup>  
Century world. This  
building represents the  
best of all of that, from the  
teachers to the equipment  
to the ideas. It really is  
about answering the  
question: What do we want  
our kids to experience? ”

Shawna Trujillo, Roosevelt Principal