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# NATRONA COUNTY HIGH SCHOOL

CASPER, WYOMING

The Revitalization of a Historic School Inspires an  
Educational and Cultural Transformation

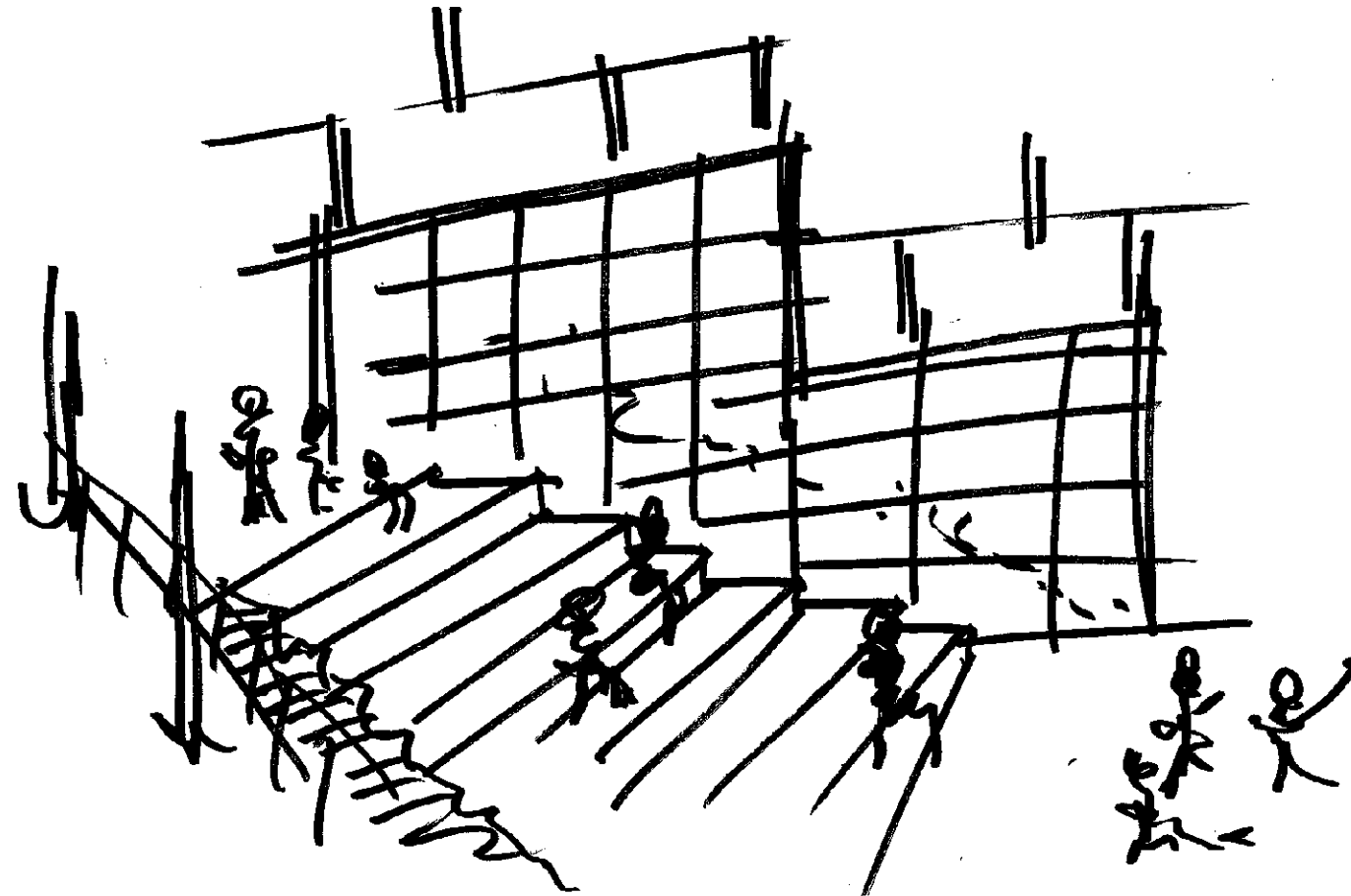




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## EXECUTIVE SUMMARY

Originally designed to house both Casper College and Natrona County High School (known on the campus as NC), this Collegiate Gothic building was the first center of education in Wyoming. Constructed between 1924 and 1927, the historic building is listed on the National Register of Historic Places. NC's ties to the tight-knit community run deep. Many teachers are alumni, and some are even third and fourth generation NC grads, as well as second generation teachers. If you talk to students, many of them aim to return to NC and teach someday. Even NC staff who didn't attend the school themselves, but grew up in Casper, have a deep sense of nostalgia for the school's iconic presence in the town. Although the need to revitalize and modernize the school was universally agreed upon, the community was adamant about also maintaining its historic elegance.



(Clockwise from top) Natrona County High School exterior, 1930; Natrona County High School Auditorium; Natrona County High School Pep Orchestra, 1931; stairs up to Auditorium Balcony.



“The Commons – we have dances here. I love it. We have art class here. Presentations in here. More memories just in this space!”

CAMERON COX  
NC SENIOR

The restoration of NC was conceived as part of a District-wide transformation effort to develop an environment of life-long learning, provide real-world relevance, and address persistent dropout and disengagement among students. The planning process encompassed two existing comprehensive secondary schools (NC and Kelly Walsh HS), along with two alternative programs (Roosevelt HS and Star Lane Center). The District-wide planning resulted in the restoration of NC, the replacement of Kelly Walsh, and the development of a new Pathways Innovation Center to support advanced career and technical education, advanced placement coursework, and alternative programs within the District.

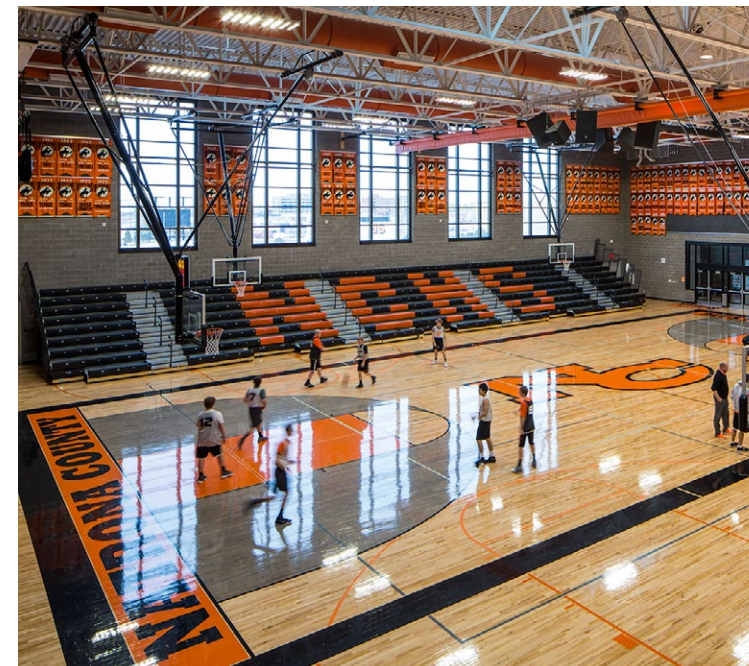
Overarching goals for all District projects emerged from a planning process involving a broad swath of the community including: school board members, superintendent’s staff, school administrative teams, teachers, students, community members, representatives from the state of Wyoming, educational planners, architects, and project managers. Five Guiding Principles ultimately shaped the design for each project:

- + A CULTURE OF EMPOWERMENT
- + INVENTIVE LEARNING SETTINGS
- + COLLABORATIVE LEARNING COMMUNITIES
- + MEANINGFUL COMMUNITY PARTNERSHIPS
- + A MEMORABLE CAMPUS

The outcome of the transformation planning resulted in a District-wide realignment of the secondary curriculum around career-based academies supported by a Freshman Academy. At Natrona County High School, the career academies included:

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

The revitalized school, both historic and new, is organized around the four career academies with shared facilities (historic theatre, student commons, library, and physical education) aligned through the center of the building. The restoration preserved the historic facades of the landmark structure to the south and created a major, contextually responsive addition to the north. The entire building was organized around a protected inner courtyard with new secure entries located at the gaskets between historic and new construction. The renovation and additions to NC transformed the landmark school into a vibrant 21st century learning environment serving the academic, physical, and social well-being of students and staff, while simultaneously enhancing the building’s presence within the community.



(Clockwise from top) The Central Commons and Courtyard; Wood Shop; Main Gym.



"I appreciate the fact that the history was maintained and the sections that we added to make it functional for kids today blend well with old to new. It's aesthetically pleasing. It's clearly a well-planned, thought-out design that kept the best and improved on everything that was here. I love it."

SHANNON HARRIS  
NC PRINCIPAL

Patined zinc cladding identifies a public entry at the gasket between old and new buildings.





## SCOPE OF WORK & BUDGET

The scope of work for the 1800-student school included:

Full restoration of the historic 1924 structure. This work began with a community dialog to identify the “defining characteristics” of the landmark structure that would be preserved and restored. Major exterior facades (south, east, and west) along with the historic theatre were identified as primary characteristics.

Following the demolition of additions to the north of the original structure, substantial alteration and full code improvements were designed to upgrade the landmark. The historic building was selectively demolished “back to structure” for structural and systems (mechanical, electrical, plumbing) upgrades along with new finishes. Selective historic finishes at the theatre and main entry lobby were preserved and restored.

A seamless addition designed to contextually reference the historic structure was built to accommodate the expanded program. The new addition north of the historic structure houses a new library, commons, gym, and two learning academies surrounding a courtyard that provides daylight for all of the adjacent interior spaces.

The budget for NC was \$94 million. The continuously occupied, phased construction project was built using a Construction Manager-at-Risk (CMAR) methodology. The CMAR contractor completed all five phases of the complex project and delivered the revitalized school six months early.



Mid-winter Phase I construction. The historic school is in the foreground and the field house and stadium are in the background.



## SCHOOL & COMMUNITY ENGAGEMENT

### COMMUNITY

Casper, the second largest city in the state, has 59,000 inhabitants and is located on the banks of the North Platte River in east-central Wyoming. Nicknamed “The Oil City,” Casper has a long history as an oil boomtown proud of its Western culture. The semi-arid climate provides hot summers, cold winters, and strong winds throughout the year. Demographically, Casper is 92% white and 7% Hispanic with very small percentages of African, Asian, and Native Americans. Oil, gas, coal, and uranium extraction and refinement support Casper’s role as a center for the energy industry.

Coupled with the systemic challenges of overcrowding and aging facilities, the impetus to rethink secondary education in Casper stemmed from conversations beginning in 2004. These discussions focused on the District’s challenge with hands-on learners who were choosing to drop out of high school to work in oil fields, rather than graduate. A gathering of stakeholders from the University of Wyoming, Casper College, the Chamber of Commerce, and Natrona County School District was convened to brainstorm ideas on how to solve the problem. Critical questions emerged: How do we bring real world experiences into our schools? How do we better integrate career and technical education coursework with core curricular areas? What does 21st century learning look like? National models were explored: The Buck Institute advocating for project-based learning, Applied Minds founded by ex-Disney Imagineers, and Academies of Nashville for their effective career pathways and business partnerships. Additionally, the District met with architects and educational planners at the American Architectural Foundation for a *Great Schools by Design* charrette in 2006 to help the group think creatively.

Out of the extensive research, brainstorming, and workshop exploration the Board of Trustees articulated a vision: to extend, enhance, and enrich the existing high school curriculum through four career academies coupled with advanced coursework and a new campus.

#### EXTEND

- + Leverage existing facility assets
- + Support continuous collaboration among staff

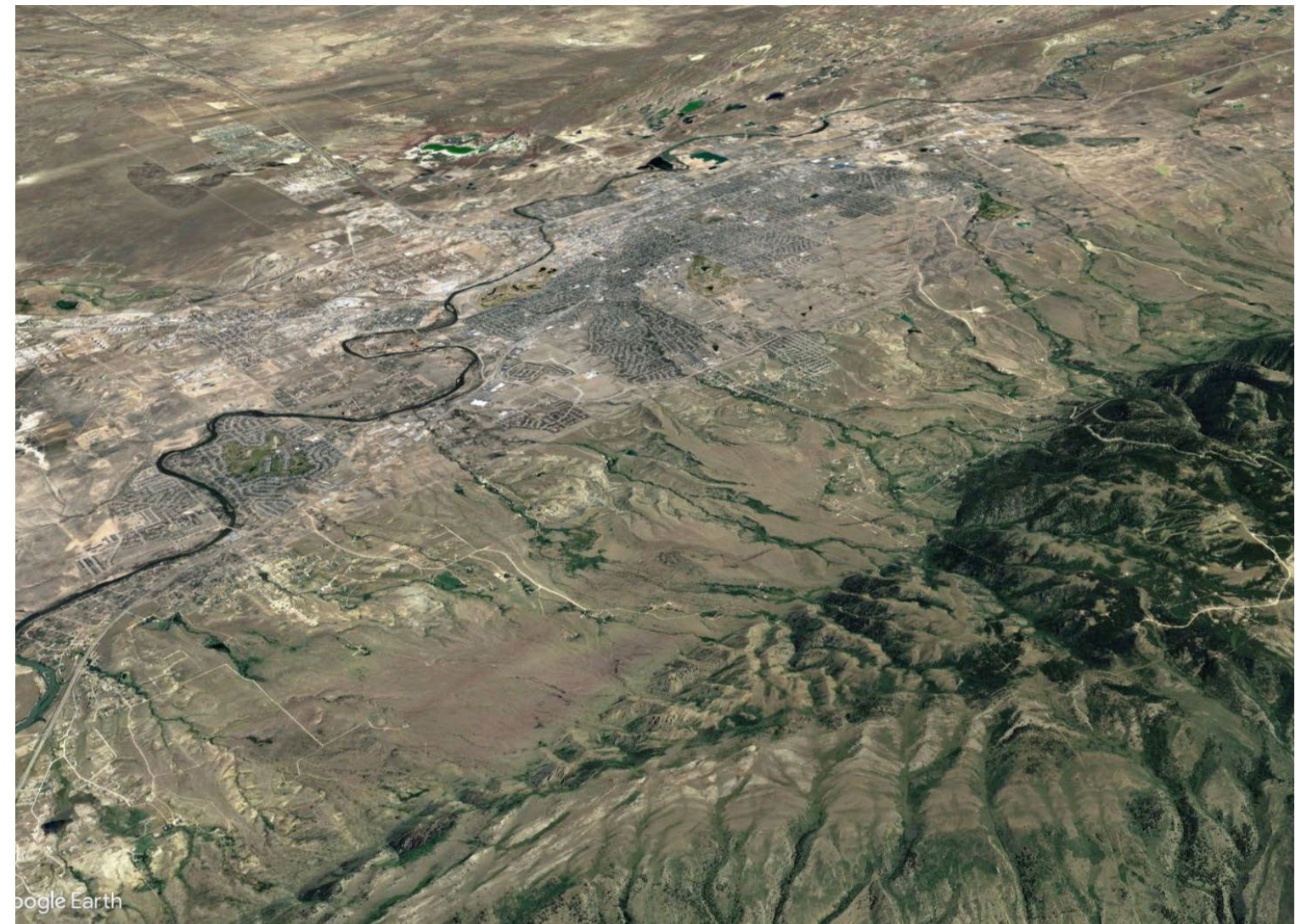
#### ENHANCE

- + Broaden program offerings to engage all students
- + Create agile learning environments capable of adapting to changing needs

#### ENRICH

- + Develop a personalized learning path for all students
- + Provide meaningful, relevant, lifelong learning

Broad community involvement was organized through a variety of charrettes and committees. The outreach was shaped to engage wide sectors of the community, identify critical issues, and assign responsibilities for input and decisions throughout the design process. Two three-day visioning, programming, and design charrettes initiated the planning process. Additionally, community open houses were held to showcase the ideas, renderings, and models generated during the charrette process.



Community charrettes; aerial view of Casper.



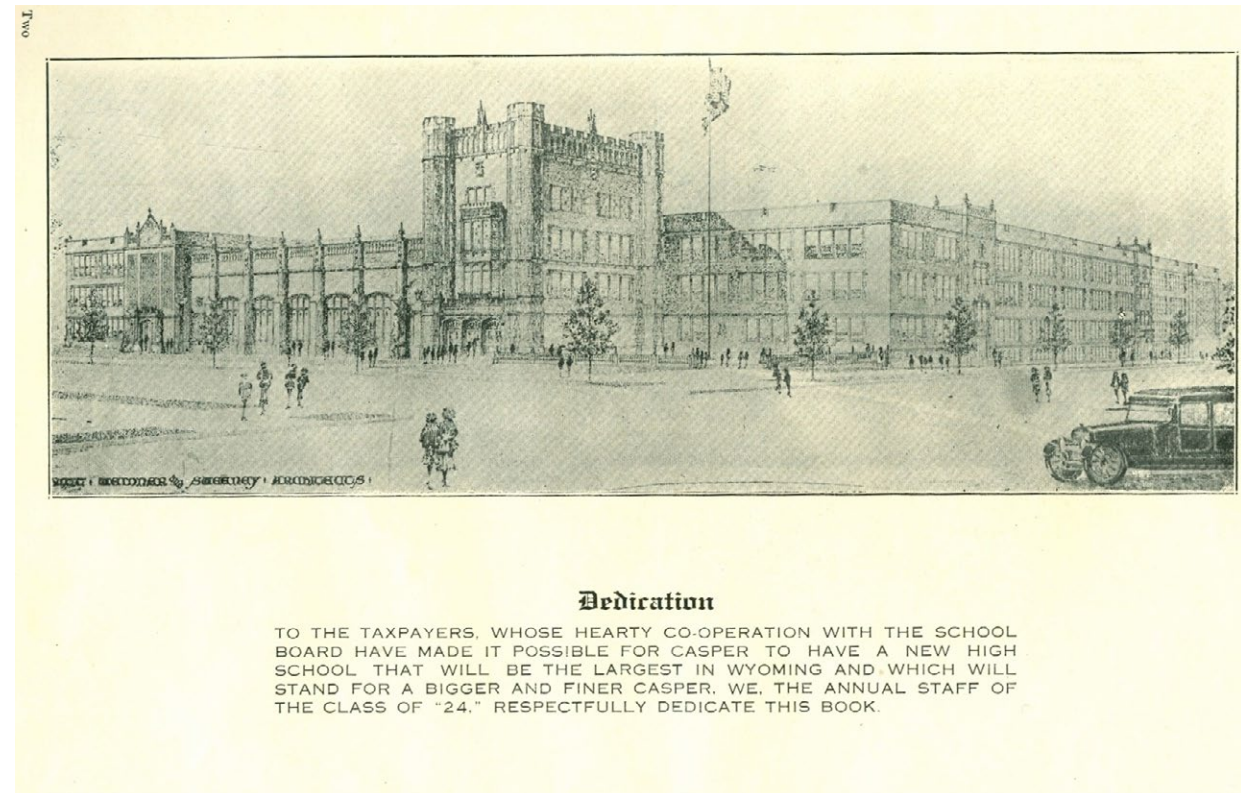
## ASSETS

Throughout the engagement and planning process, the enhancement of available District assets was critical. Assets at NC included:

An in-city campus with easy access, a football stadium, practice fields, parking lots, and room for structures to house students during the continuously occupied, multi-phased construction – all valuable commodities within the urban milieu.

A historic high school embodied in rich cultural history. Highlights included the first center for education in the state, famous graduate Dick Cheney – the 46th Vice President of the United States, numerous championship sports teams, and stellar performing arts productions in the historic auditorium.

A landmark Collegiate Gothic building held in high esteem by graduates and community members as a significant and nostalgic historic place.



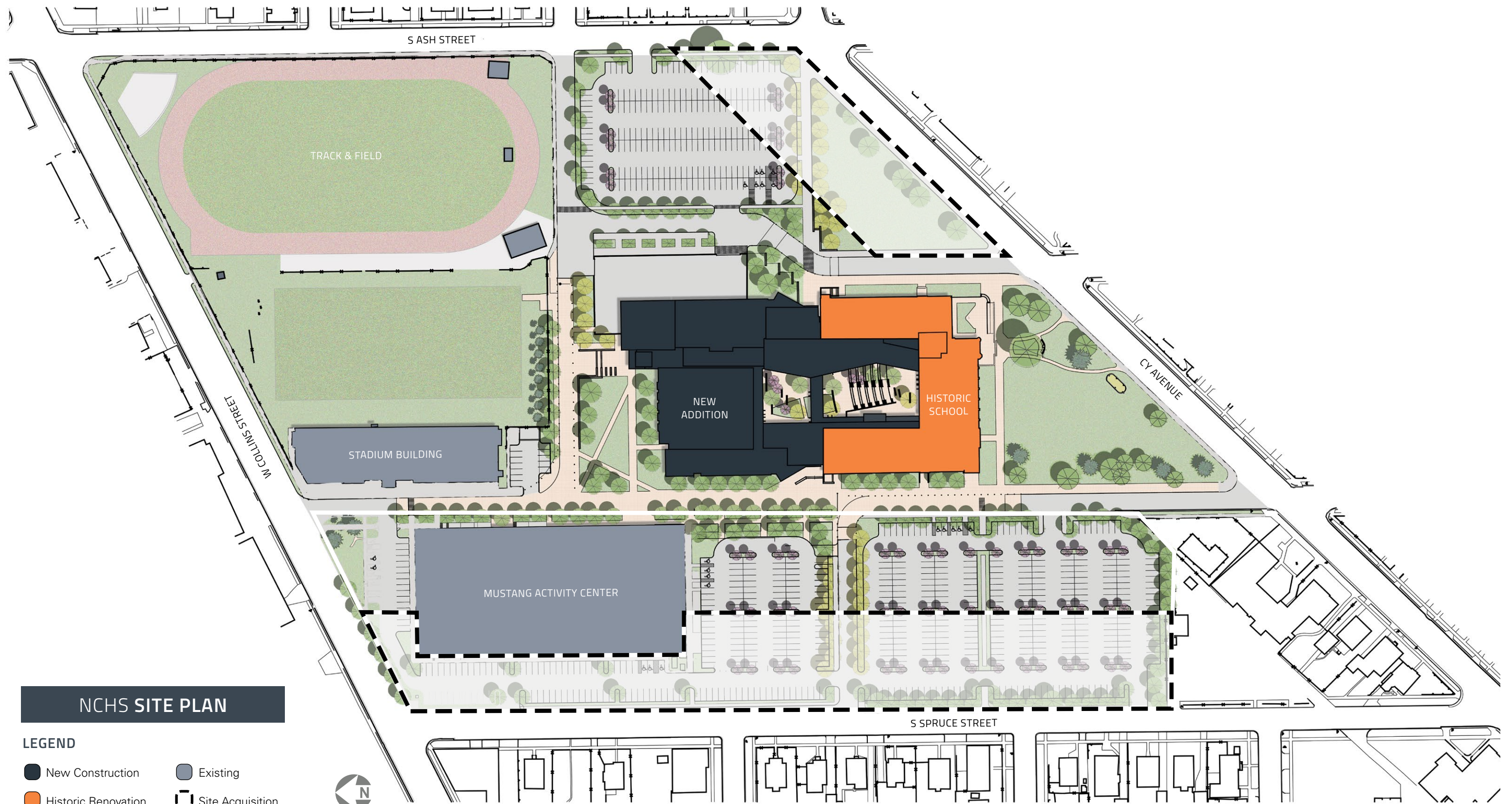
## COMMUNITY VALUE

Both the planning process and the restoration of NC represented tremendous value to the citizens of Casper. The public's voice played an essential role in shaping the design. The educational vision was directly based on deep community engagement to identify critical needs. Defining characteristics of the historic structure were identified in lively community meetings. Traffic patterns around the campus were realigned to support student safety and citywide traffic flow. Even the temporary housing of students in a multi-purpose fieldhouse during the phased reconstruction resulted in a long-term athletics facility that is accessible to other schools and the community. Graduation rates have risen 5% since the project began. The historic structure was fully updated to meet energy efficiency targets, ADA access demands, increased student safety parameters, higher spatial utilization rates, and improved air quality and daylighting standards. The restored landmark has boosted community pride and powerfully supported performing arts and physical education for both students and citizens, enabling the school to become proud hosts of numerous intermural and community events. Last, and most critically, personalized learning for all students has improved, career pathways have become more accessible, and faculty have areas designed to support deep collaboration within and across disciplines.



(Clockwise from top left) Student yearbook dedication from 1924, restored historic entry, the commons and courtyard are popular student gathering spaces throughout the day.





### NCHS SITE PLAN

- LEGEND**
- New Construction
  - Historic Renovation
  - Existing
  - Site Acquisition





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## EDUCATIONAL ENVIRONMENT

Expanding on the initial thematic goals of enrich, enhance, and extend the District continued to build toward a vision of reinventing the high school experience to position all students for success in life. Informed by the deep research that took place during the engagement process, the District developed a “Path to 2025” shaped by the goals for a 2025 graduate. The profile for future high school graduates encompassed: independent lifelong learning, digital age literacy, inventive thinking, effective communication, high productivity, healthful living, and stewardship of the environment.

Four guiding principles emerged from the 2025 graduate profile and District-wide charrettes. A fifth principle, focused on preserving and enhancing the historic school, was added at NC following school-wide charrettes. Collectively, these guiding principles outlined the vision and goals for the project and were used as a lens through which design iterations were critiqued.



Art flex lab overlooking the courtyard.



# NATRONA COUNTY SCHOOL DISTRICT GUIDING PRINCIPLES

*NCHS-specific goals are italicized*



## A CULTURE OF EMPOWERMENT

- + Shared ownership of learning settings
- + Personalized learning pathways
- + Services distributed to serve students
- + Celebration of student achievement
  - » Provide art wall including archival process that ensures viewing of past work
  - » Display sports trophies
  - » Display areas in Commons
  - » Bring Pathways student work into NC to support seamless transition
- + Safe and secure environments
  - » Secure primary entries at administration areas
  - » Limit need for secondary access points
  - » Entry of academies/professional learning communities (PLC's) to provide greeting and gatekeeping
  - » Consider lock-down security
  - » Adult "eyes" dispersed throughout school
- + Organize support services to best meet student needs

## INVENTIVE LEARNING SETTINGS

- + Flexibility to support differentiated learning and teaching
  - » Anticipate different learning and teaching styles
- + Variety of settings to serve diverse needs
  - » Variety within PLC's can come from themes – like CTE, art, etc.
  - » Integrate special needs into entire school
  - » Establish small, quiet areas for studying
  - » Variable sized areas throughout PLC's
- + Furnishings that are adaptable and agile
- + Ubiquitous and flexible technology
- + Adaptable building
  - » Anticipate change over time within 9th grade and PLC's
  - » Plan for multiple scenarios for learning: academies, departments, small learning communities
- + Schools of choice
- + General Studies Academies are imbedded and an attractive option within NC
- + Protected outdoor area

## COLLABORATIVE LEARNING ENVIRONMENTS

- + Professional work settings
- + Relationship-based learning settings
  - » Collaboration of departments and disciplines is enhanced through location within building
  - » Encourage student-to-student relationships
- + Global connections
- + Transparency
  - » Selectively use to: support student work and socializing, provide secure environments, encourage appropriate conduct

## MEANINGFUL COMMUNITY PARTNERSHIPS

- + Welcoming space for mentorships
- + Lifelong learning opportunities
  - » Zone building for after-hours community use
- + Stewardship of our planet and its resources
  - » Design is energy efficient
  - » Alternative energy sources are pursued
  - » Effective strategies for snow removal and storage and water management are incorporated
- + Service to our community

## A MEMORABLE CAMPUS

- + Preserve the historic building while enhancing the facility for 21st century programs
- + Make the campus and the entrances welcoming and accessible to all
  - » Maximize visibility
- + Commons at the heart of the school
  - » Social center
  - » Multi-story space
  - » Connect to outdoors
- + Design responds to local environmental conditions – wind, snow, temperature
- + Establish campus edges
  - » Provide additional green space around school
- + Strengthen connection to stadium
- + All sides of school need "front side" attention
- + Student parking location should encourage use of main door
- + Improve bus drop-off
- + Reduce amount of vehicle traffic through campus
- + Increase number of fields
- + Anticipate expansion

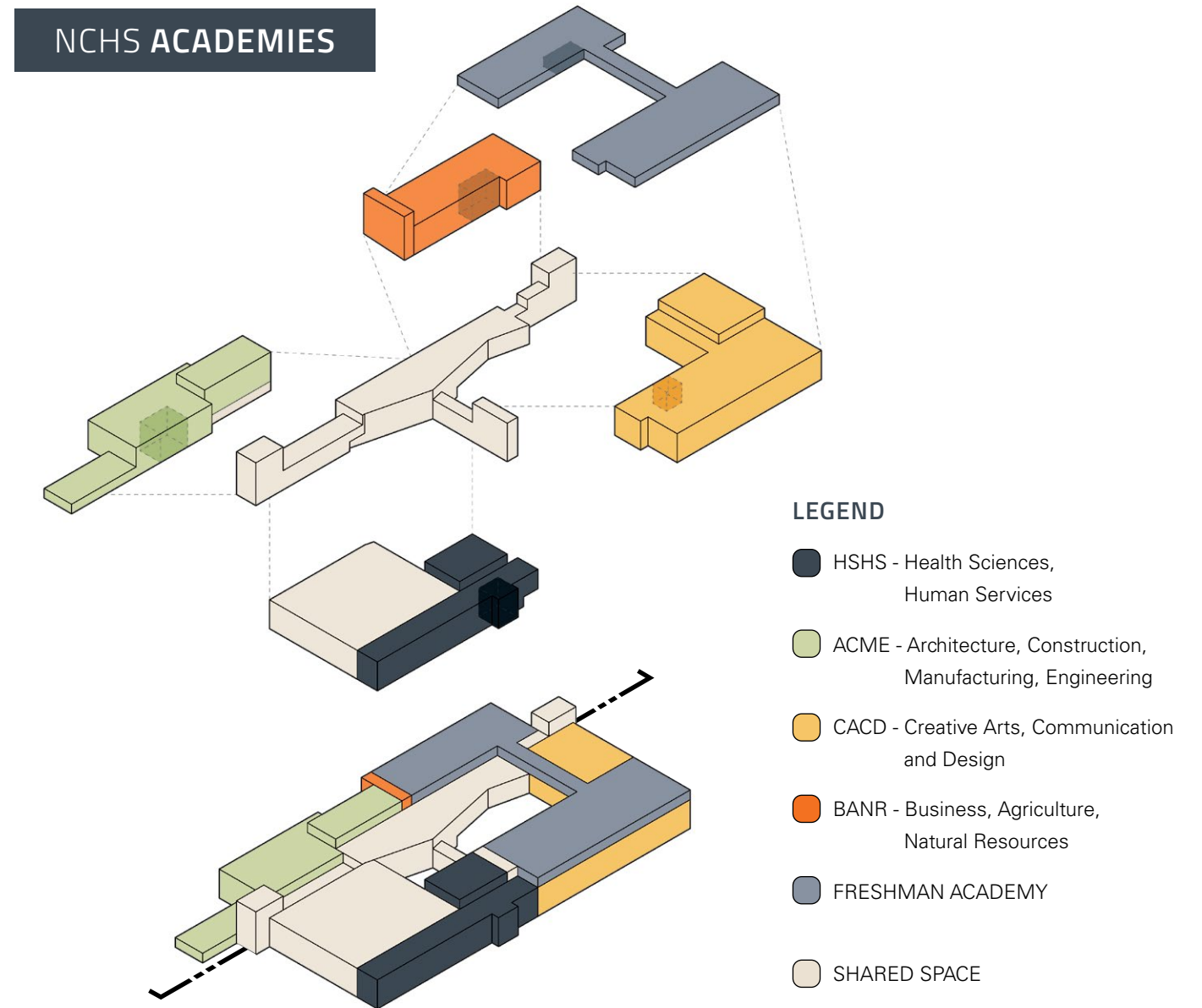


**CURRICULAR SUPPORT**

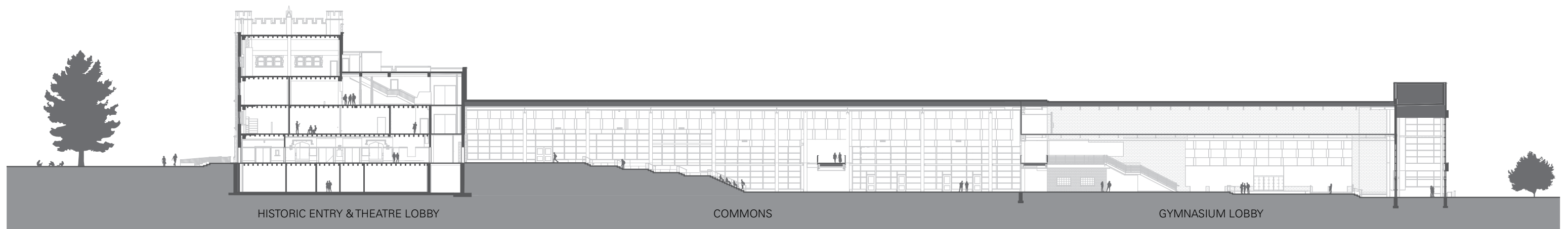
The revitalized school, both historic and new, is organized to support the curriculum shaped by the four career-based academies, along with the freshman academy. The general building layout includes the landmark school to the south and a new addition to the north. Shared program spaces, including the historic theatre, student commons, library, and new gymnasium are aligned through the center of the building. These spaces open to a central courtyard that brings the outside in and provides excellent daylight into learning and socializing spaces throughout the complex. New secure entries serve as gaskets between the new and historic building fabric.

The freshman academy is located on the third floor of the old building to provide the younger students with an integrated learning environment out of the flow of older students. Classrooms, science labs, flexible breakout spaces, and teacher planning areas are grouped to provide a collaborative learning community focused on building critical study skills and easing the transition of incoming

freshman into high school. The four career academies are organized in multi-floor learning communities in the four corners of the building. Because the historic theatre is located at the southwest corner of the complex, the CACD Academy, with its focus on arts and communication, is logically located adjacent to the old auditorium. In addition to the critical adjacency of the drama and music programs with the backstage, new art studios and flexible breakout learning areas are located to take advantage of the courtyard. The ACME Academy, with its numerous shops and labs supporting construction, engineering, and manufacturing is located adjacent to the service area of the school at the northeast corner of the complex. The HSHS Academy with its focus on health and human services is located near the gymnasium to the northeast and the BANR Academy occupies the southwest quadrant based on a key adjacency to the culinary arts in the commons and student store off the commons.



**NCHS BUILDING SECTION**





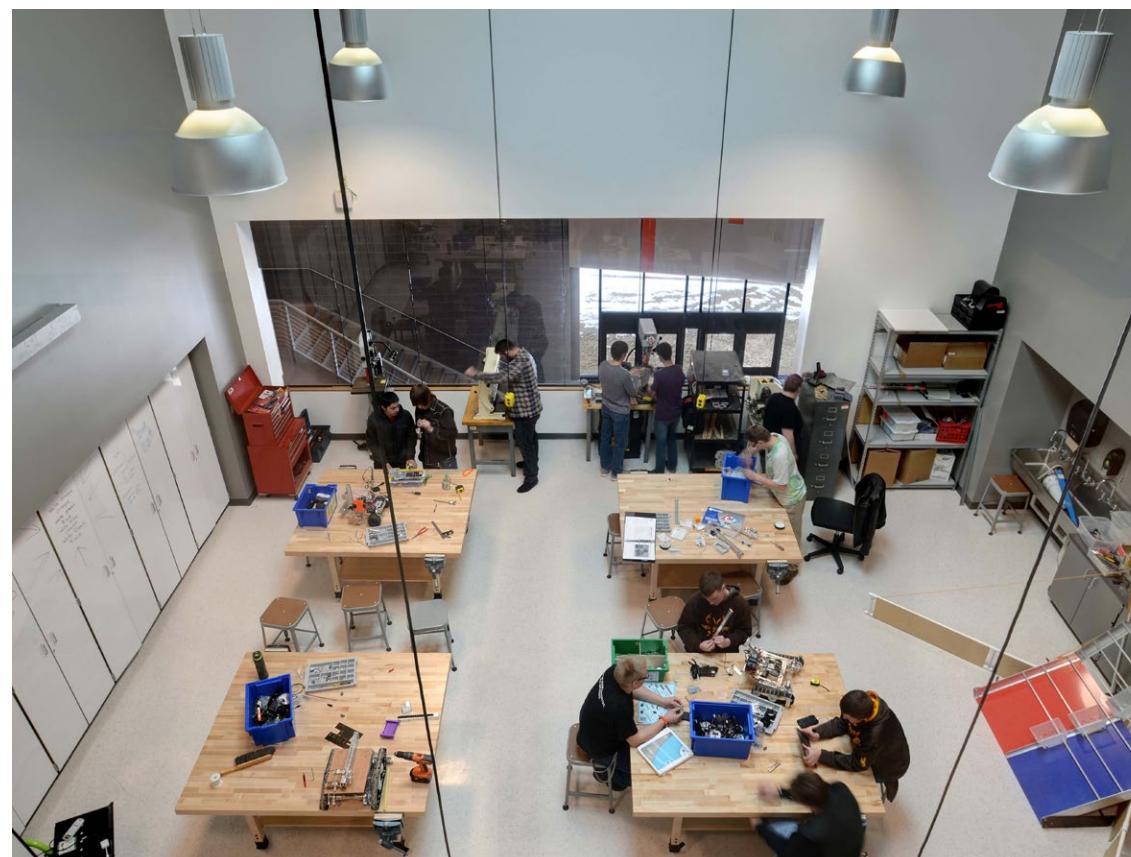
“The CTE spaces are amazing. The shop is large and everything works! The robotics space is beautiful. It is nice and open. Everyone can spread out all their stuff and not be in anyone’s way. We finally have enough space to work, which is extremely nice.”

TANNER EWALT  
NC SOPHMORE



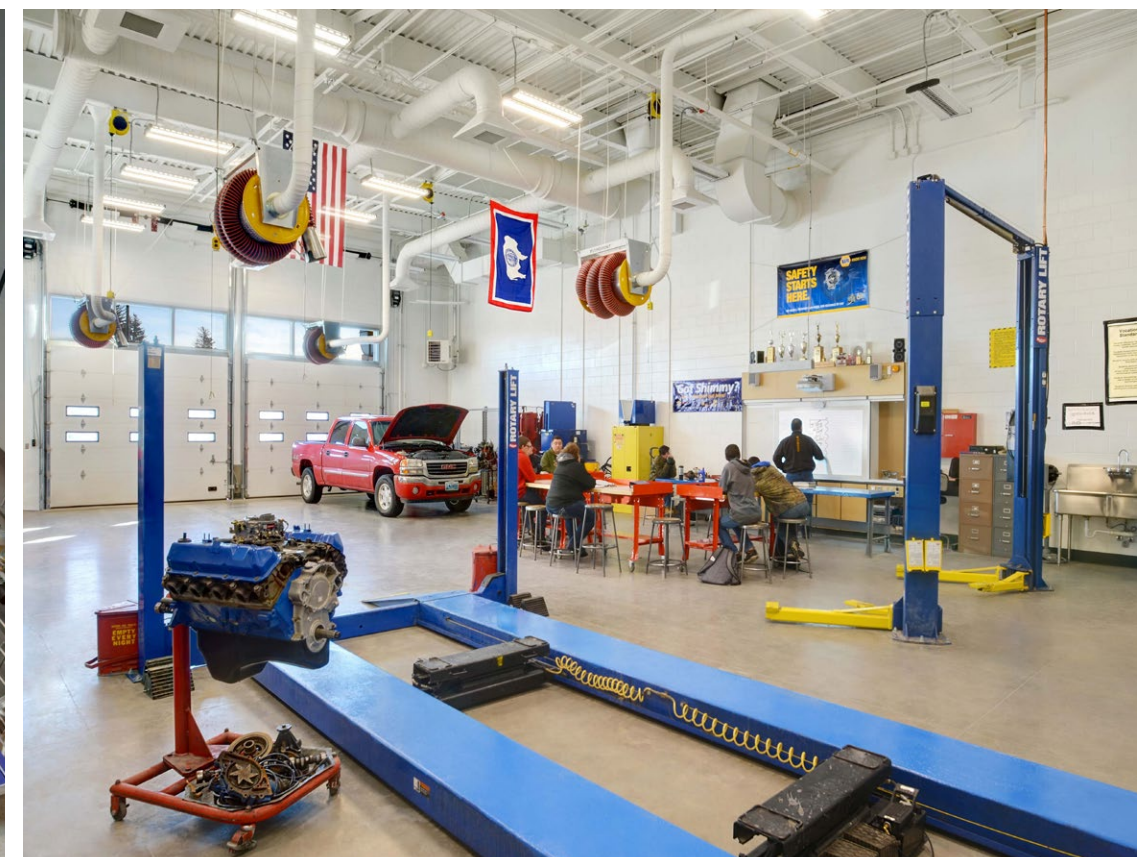
“The kids are proud of the different spaces for creative, hands-on projects. The Maker Labs all around the building open up our ability to do project-based work in a way that we weren’t able to in the last building.”

ZACH SCHNEIDER  
NC DRAMA DEPARTMENT CHAIR



### VARIABLE TEACHING AND LEARNING STYLES

The organization of the school into academies is designed to offer a wide variety of teaching and learning pathways within the various disciplines. Hands-on learners now have readily available shops and studios to pursue their preferred learning modes. Traditional learning modalities are supported with numerous flexible classrooms, able to support direct instruction or Socratic dialog. Project-based learning is accessible in highly transparent flex labs and science labs spread throughout the school. Collaboration is enhanced by the integrated academy layout and dispersed teacher planning areas. Formal and informal presentation spaces include the large theatre, black box, and tiered commons.



Labs, studios and shops support multiple teaching and learning styles. *Clockwise from upper left:* Interior design studio; broadcasting studio; auto shop; flex lab.



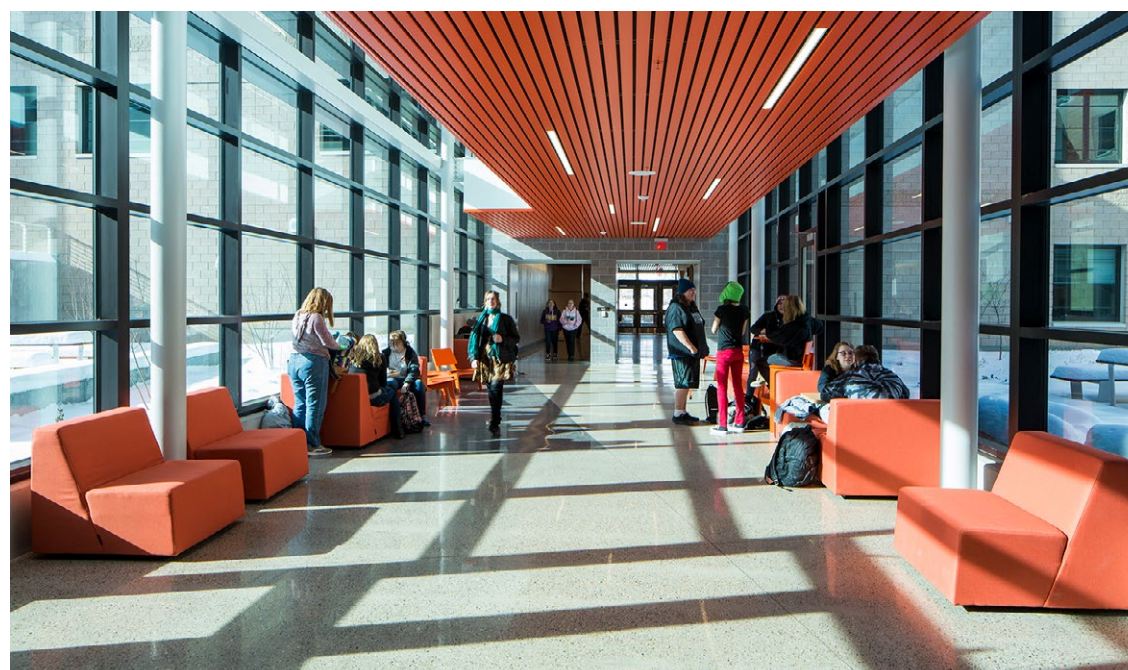
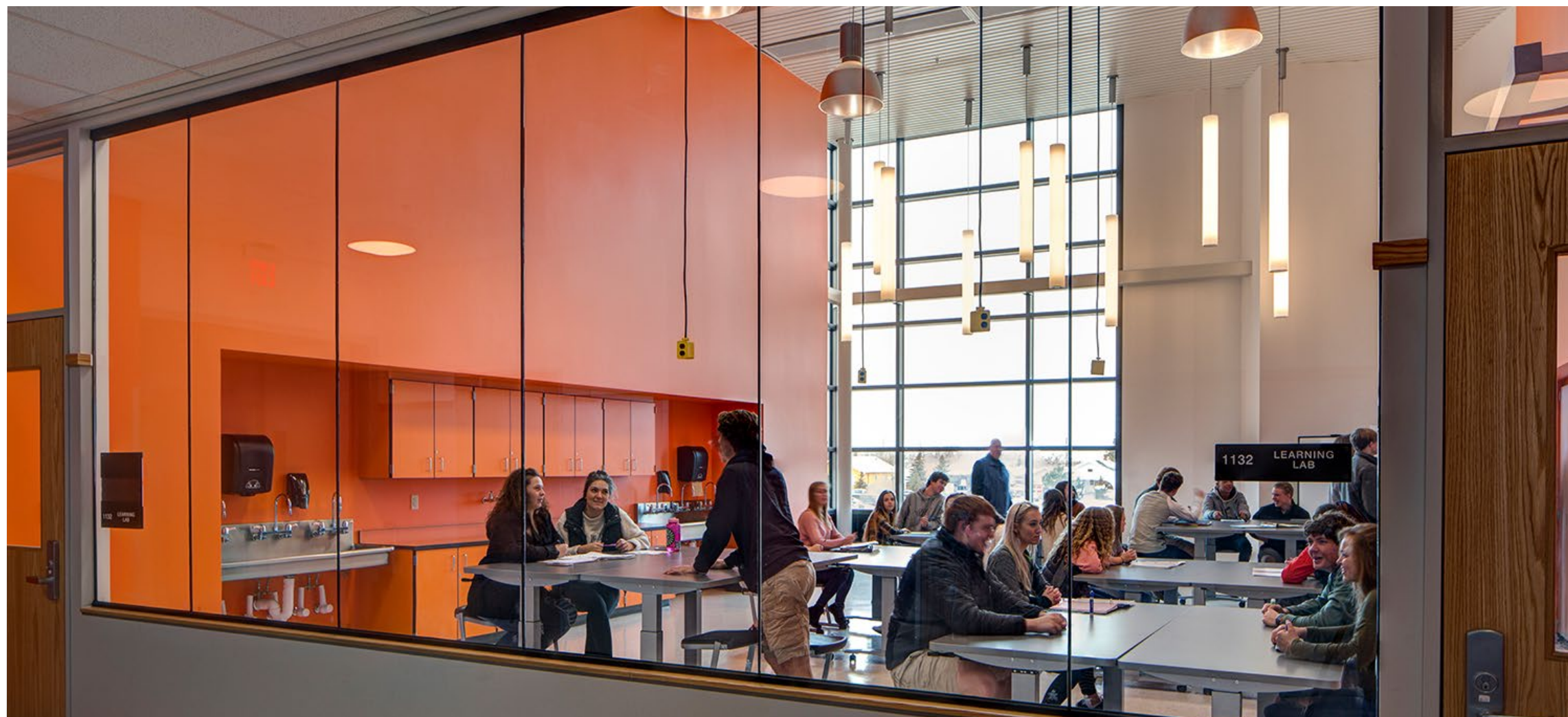
## ADAPTABILITY AND FLEXIBILITY

Each academy was organized with specialized spaces grouped on lower levels and more generalized classroom and lab space occupying upper levels. This arrangement offers maximum adaptability in light of potential changes to the curricular approach. Additionally, the dispersed science labs are strategically located to support numerous curricular scenarios, rather than a singular outcome. Similarly, dispersed teacher planning offices and flex spaces allow for critical staff and student collaboration skills to be supported throughout the school.

A wide variety of furniture solutions were selected to support a range of learning styles and social needs. Typical classrooms utilize detached triangular tables and chairs that are lightweight and stackable to maximize configurations within a minimal footprint. Swivel rolling chairs are used in labs and studios where agility is needed. Flex labs are outfitted with several furniture types to support activities ranging from casual gathering to project-based engagement. Similarly, the library showcases multiple learning settings with a variety of soft and hard seating options, multiple height work areas, and spaces designed for extroverted or introverted engagement. The commons is also supported by a variety of social settings, ranging from intimate nooks and small groupings for refuge to areas for large gathering, overlook, prospect, and performance.

Midway through the four-year phased construction schedule, the early focus on adaptability paid dividends. The academy organizational model was sputtering and District-wide buy-in was failing. The transformational vision was not trickling down to the staff level and test scores were dropping. Staff development for the new, integrated curriculum was falling short of helping teachers move beyond their departmental mindset. Therefore, the District reverted back to the departmental curricular mode they had employed throughout the history of NC. The good news, in the midst of the rocky change, was that the renovated facility was designed to support multiple curricular models and NC simply realigned their curriculum within a supportive building plan. Interestingly, both inter- and intra-departmental collaboration have continued to take advantage of the revitalized layout.

The CACD departments, in particular, are maximizing their proximity to each discipline within that academy. Zach Schneider, NC's Drama Department Chair, says that his theatre group runs over to the graphics classes to design posters and programs for their performances and to 3D arts for masks and set designs.



Labs, classrooms, and gathering spaces are furnished to support the variety of ways students learn and collaborate.



"In the last configuration of the building, we (the CACD departments) were all separated. We are now all in the same area and the geographic location has already started more integration of our disciplines. It has strengthened us. We've always been good individually, but that geographic location – being in the "Arts Wing" – allows for those interactions and communications. Google calls them 'chance meetings.' Those get creativity going. The renovation has given us the tools and ability to unleash our potential."

ZACH SCHNEIDER  
NC DRAMA DEPARTMENT CHAIR



Students rehearsing in the black box.





## PHYSICAL ENVIRONMENT

Over the years, the NC campus had become disjointed, with incremental additions randomly placed on the site without a cohesive master plan. These buildings included a pool (1929), gym (1931), upper story music room (1957), vocational technology (1974), another gym and cafeteria addition (1977), and a library (1995). As school programs grew, classes were added to the curriculum and located where room was available, with little regard to departmental adjacencies. This sprawl made wayfinding torturous, critical adjacencies challenging, supervision disconcerting, and interdepartmental collaboration nearly impossible. In addition, numerous classrooms lacked acceptable daylight, adequate storage, and the infrastructure to support current-day technology, let alone 21st century learning. CTE shops lacked proper ventilation, art students lacked sufficient lighting, science labs lacked safety equipment and, universally, teachers found themselves running out of electrical outlets for students to access.

"Before" images (clockwise from upper left): Classroom; gymnasium; entry; engineering/robotics classroom.



"My classroom before the renovation was small. We only had three sinks and no gas or safety equipment, like chemical showers or eyewash stations. We had to improvise a lot. Storage was very limited – we had one wall of cabinetry – not a lot of available storage space. Our furniture was mismatched. The windows were old and shabby. The climate control didn't work – we were either too hot or freezing. If I had more than 20 kids, it was crowded and too difficult to move around. We had very few power outlets. We tried to add power strips to certain tables and it didn't work if we needed to move around.

My room now is at least twice as big as the old one. We have more space to spread out. I have sinks on two walls (six total) plus a lab prep room with a sink. The storage is unbelievable. We have cabinets galore! We [the teachers] all love that. The power outlets that come down from the ceiling are well-used. It's much better than tripping over cords on the floor like we used to do.

I love the white board space in the front of the classroom. I do a lot of drawing and writing on the board and so I love that my new classroom has three boards that move and have storage behind them.

The technology works fantastically in our new rooms. I love the 'command station' where I can turn the lights on and off from my desk and I can control the projector so that if I'm giving notes or if I'm showing a quick video, I can do all of it from one spot. It's a little thing but we have the three upper cabinets with the white boards – those are wonderful to do sign-ups, or schedules. I'm loving those. It's the little things!"

**STEPHANIE JENSEN**  
NC LIFE SCIENCES TEACHER



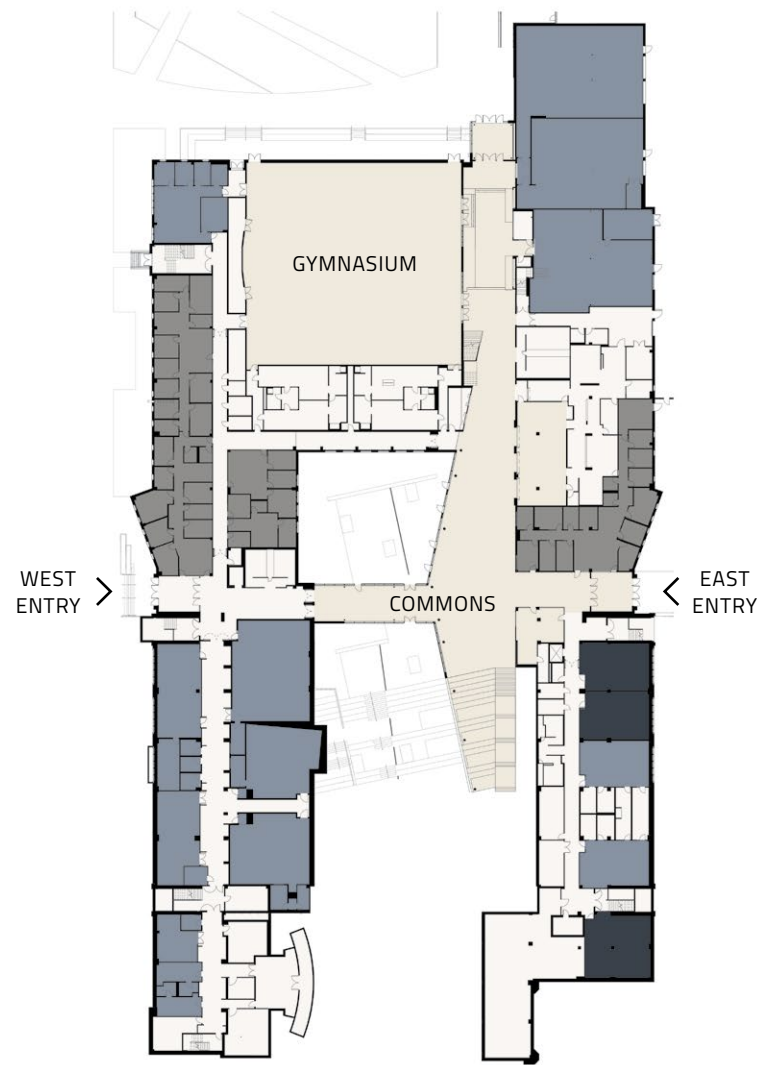
Adjustable height workstations in a science classroom.



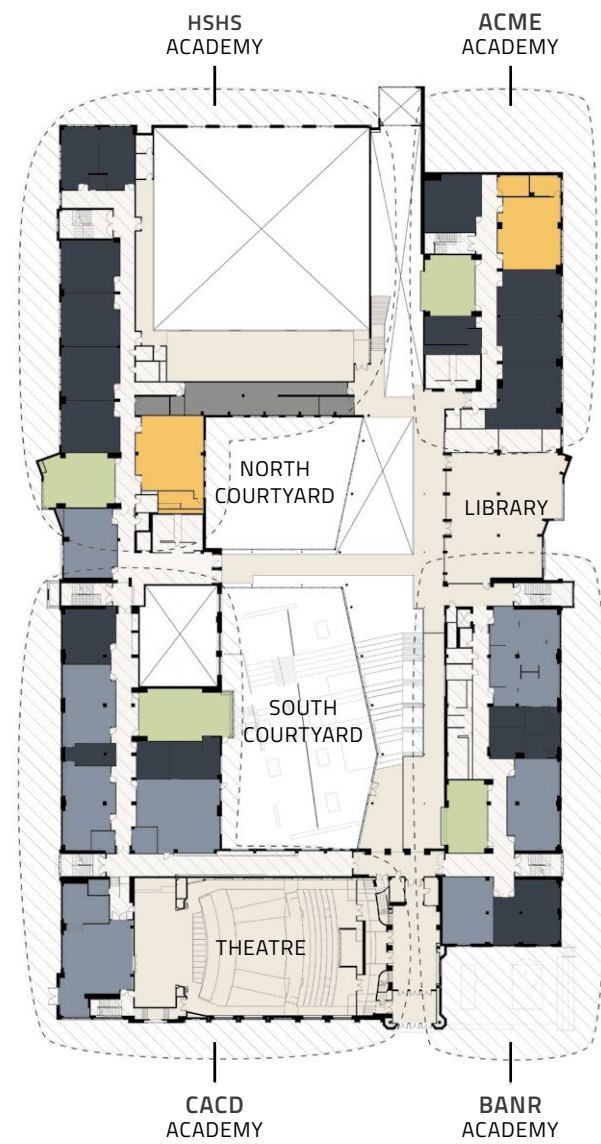
**PHYSICAL ATTRIBUTES**

The physical attributes of NC grow out of its basic and adaptable organization of learning spaces surrounding community spaces. The academies are organized in multi-level clusters around central shared spaces (flex labs, courtyard, commons, theatre, library, gym). The central spaces support vibrant, whole-school activities, while the academies enhance a variety of more personalized and

collaborative learning settings. Learning labs act as a central support space within each academy. Support services are distributed along the linear commons to maximize student access. Student achievement is celebrated throughout the school. Displays range from archival murals and trophies to present-day artwork and presentations.



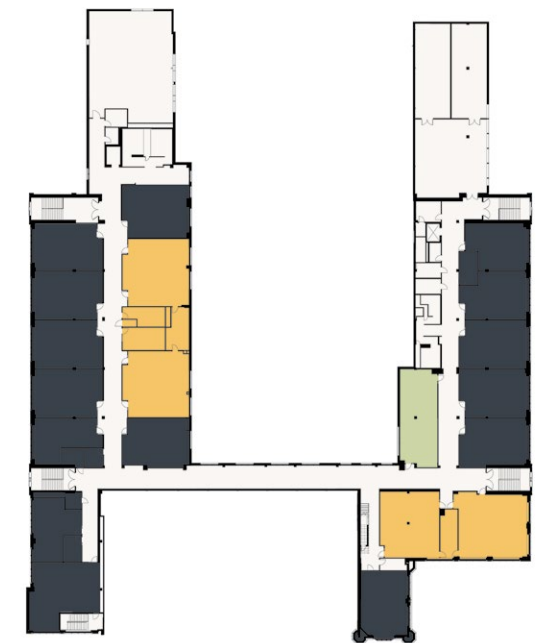
GROUND FLOOR



FIRST FLOOR



SECOND FLOOR



THIRD FLOOR

**NCHS FLOOR PLANS**

**LEGEND**

- CTE / STUDIOS
- FLEX LABS
- CLASSROOM
- LAB
- SHARED SPACE
- ADMIN





**SHARED SPACES**

A student commons and protected courtyards form the heart of the school, providing easy wayfinding and linking historic and new structures. These shared spaces support a wide variety of activities including:

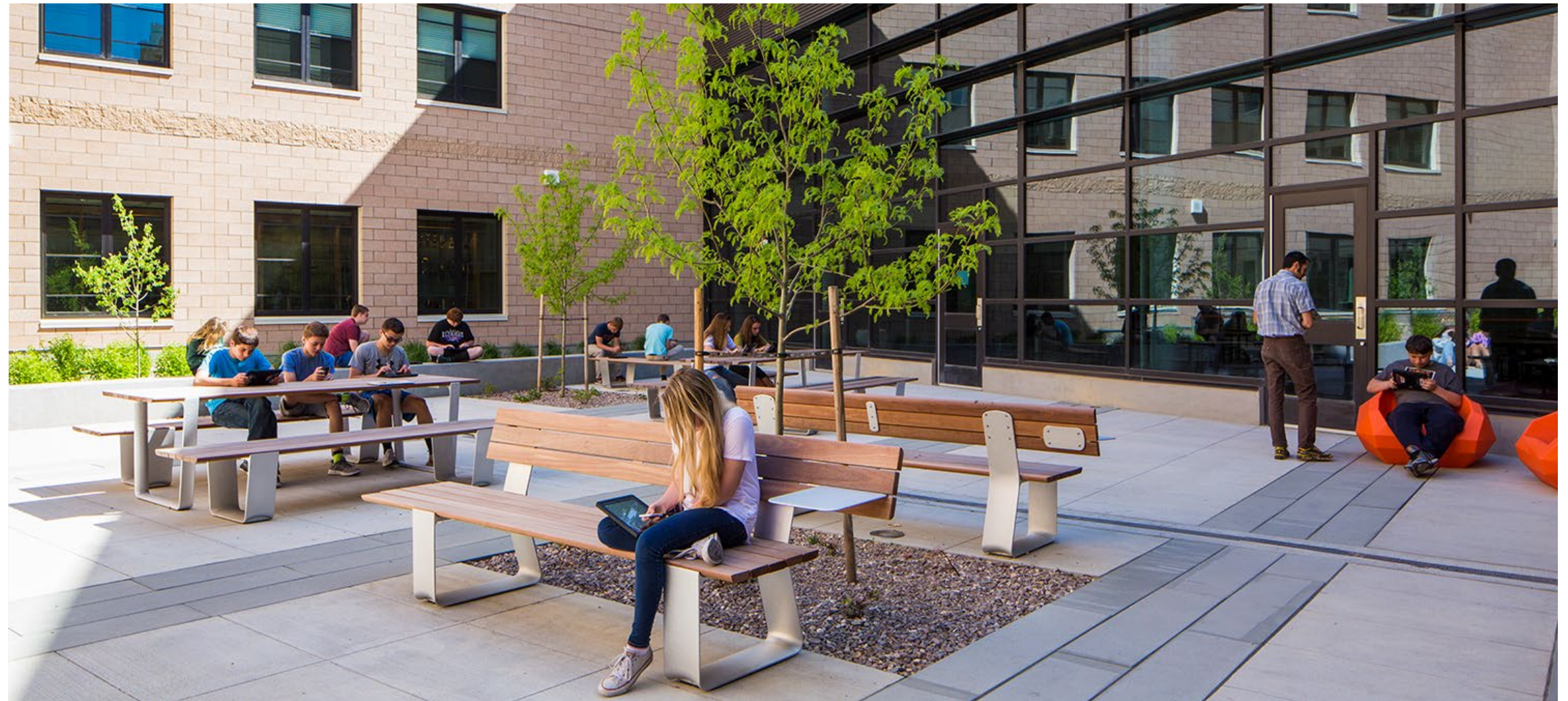
**EATING** - daily breakfast and lunch, award ceremonies, and intermission snacks.

**SOCIALIZING** - the multi-level indoor/outdoor social setting supports a broad array of small, medium, and large gatherings of friends, colleagues, classmates, mentors, and tutors.

**LEARNING** - classes meet in the courtyard in good weather, the library spills out into the commons, a wide variety of furniture settings support differentiated learning approaches from casual, individual study and small group activities to multi-class presentations.

**CELEBRATING** - student dances, pep rallies, community gatherings, and theatre, including plans for Shakespeare in the Courtyard.

**SUPPORTING** - the linear commons connects the historic theatre to the south and the new gym to the north. Entry, intermission, and half-time activities enliven the commons and courtyard.



(Clockwise from top) Teachers take advantage of holding classes in the courtyard during the warmer months, freshman lunch in the commons, the new athletics entry showcases trophies throughout Natrona's history and links with the commons.



Safety was a primary design theme. Academies are each zoned separately from the commons. Secure entry vestibules, adjacent to administration suites, are located centrally at the east and west edges of the commons. Secure doors provide centralized access control to specific areas of the building during after hours activities. Dispersed administration offices and teacher planning areas allow adult eyes to be located throughout the school. Transparency not only shows off student work, but further enhances security. Whole-school lockdown is supported by a single enclosed building and blackout shades at windows and relites. In addition to dispersed adult presence, clear sightlines throughout the facility enhance awareness.

A wide array of learning settings are organized into Academies/ Professional Learning Communities (PLC's) capable of supporting a variety of curricular organizational pathways. Scenario planning strategies were used to test the layout against a variety of curricular models. Recognizing the importance of supporting differentiated learning, the provision of classrooms, labs, studios, shops, seminar rooms, and flex labs were shaped to meet the learning needs of all students. Study areas range from large and open to small and quiet. Hands-on learners are supported with open learning labs, shops, and studios throughout the facility. Special needs students are thoroughly integrated across all disciplines. Access to robust technology is ubiquitous; available in learning, socializing, and gathering spaces. Global connections are supported through two distant learning studios wired for interactive communication. Small collaborative learning or mentoring settings are scattered throughout the learning communities. Undergirding the broad array of learning modalities, dispersed teacher planning areas support a professional work environment for staff.



High transparency in secure entry vestibule.

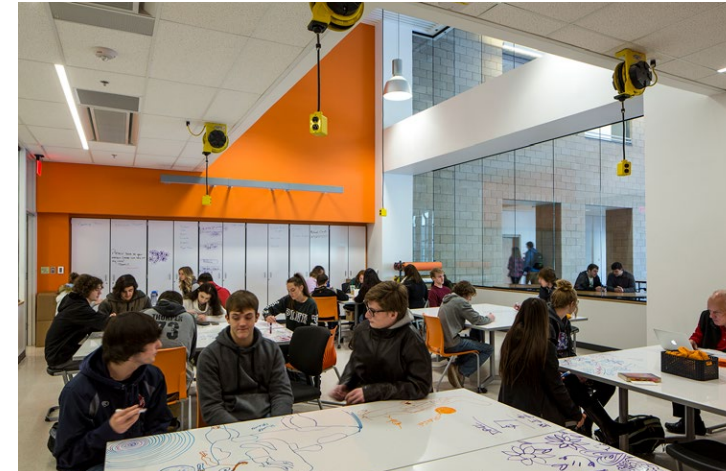


**SUSTAINABILITY**

The Wyoming School Facilities Commission School Design Guidelines, published in February 2010, require the consideration of energy efficiency, daylighting, indoor air quality, water conservation, and other sustainable features in the design of new and renovated school construction projects. Summarizing the results of three public input sessions held in 2011, the goals identified in the 2011 Design Charrette Report include “stewardship of our planet and its resources” and highlight energy efficiency, alternative energy,

and water conservation as the priorities. The design of the Natrona County High School renovation and addition emphasizes these sustainable features, while also preserving and restoring an important landmark for the Casper community.

The design team for NCHS implemented the following sustainable design strategies:



**ENERGY EFFICIENCY**

- + Increased insulation in exterior walls
  - » Increased levels of insulation and a reduction in thermal bridging balances heat loss in the building and reduced the size of the central mechanical equipment.
- + Reduced air leakage through exterior walls
  - » The design of the building envelope reduces the uncontrolled infiltration of outside air through the walls.
- + Increased glazing performance
  - » The design team used an energy model to optimize window performance. After analyzing options, a high-performance, double-pane glazing system was chosen to significantly improve energy performance without adding unnecessary costs.
- + Heat recovery ventilation
  - » All exhaust air is run through a heat recovery device before being exhausted.
- + Chilled beams
  - » Active chilled beam technology, used for both heating and cooling in the classrooms, reduces energy consumption, increases comfort, and creates more usable classroom space over a conventional fan-coil system.
- + Radiant heating and cooling
  - » A radiant slab in the commons provides efficient heating and cooling in the large space and improves student comfort.
- + LED lighting
  - » LEDs use less energy than fluorescent lamps. The design uses LED lamping at all high-bay light fixtures and in classrooms and corridors.
- + Shading
  - » Solar shading at the commons reduces the energy needed to air condition the building.
  - » Daylight-optimizing blinds in classrooms allow teachers to control direct sun while still letting daylight in.
- + Commissioning
  - » The inclusion of a commissioning agent on the project team ensured that energy targets were met and systems operated as designed.

**DAYLIGHTING**

- + The team used daylight to reduce the energy needed for lighting and to improve the quality of instructional and other interior spaces
- + The design provides access to natural daylight and views to 98% of classroom and staff spaces

**WATER CONSERVATION**

- + Drought-tolerant and native plant species reduce the demand for irrigation water
- + High-efficiency plumbing fixtures reduce water consumption throughout the building

**BUILDING RE-USE**

- + The design saves the exterior and major structural elements of the historic building, allowing the building to serve the community for another 90 years
- + Re-used buildings have much lower embodied energy and environmental impact, generating the maxim, *the greenest building is the one that is already built*

**INDOOR AIR QUALITY**

- + 100% Fresh Air
  - » Heat recovery systems allow 100% fresh outdoor air to be delivered to all classrooms and offices. No recirculated air is sent back to these rooms. This results in exceptional indoor air quality throughout the building.
- + Non-toxic paints and low-VOC finishes are specified throughout the building

**OTHER GREEN BUILDING FEATURES IN THE DESIGN**

- + Exterior lighting and parking lot lighting eliminate light pollution and are “dark sky” compliant, in addition to reducing energy use through LED technology
- + An emphasis was placed on regional materials and materials with high recycled content

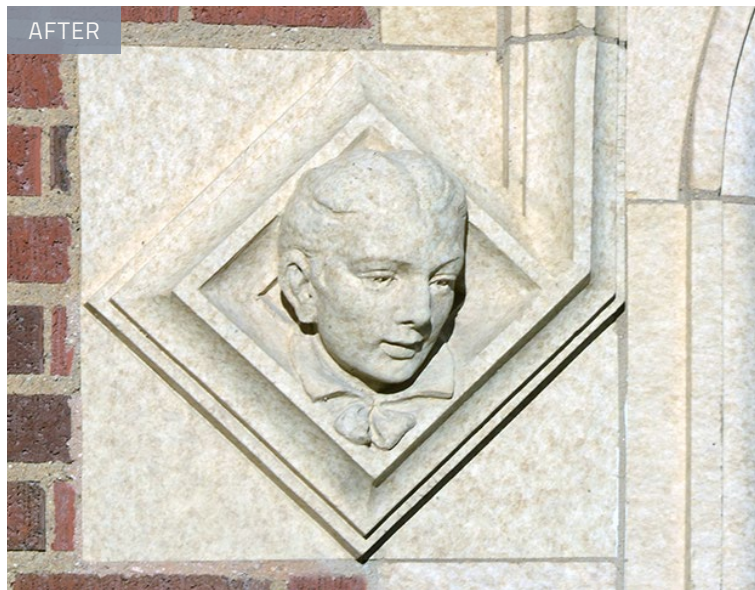
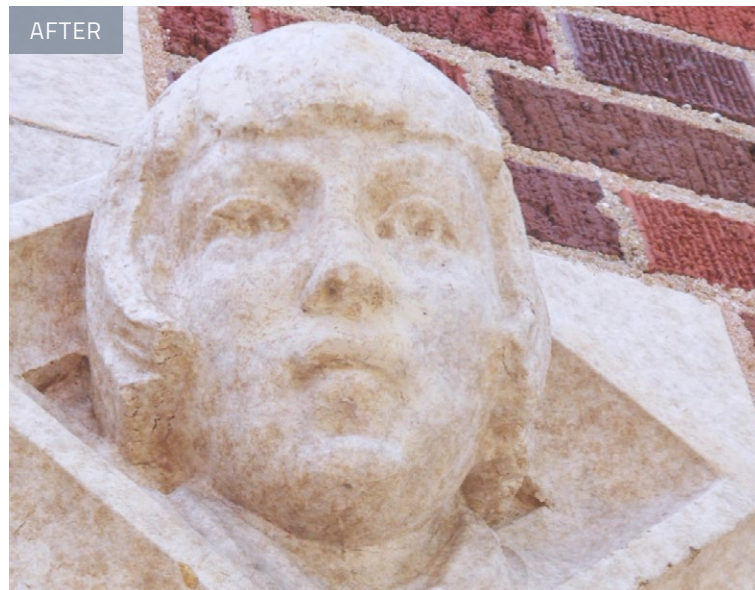
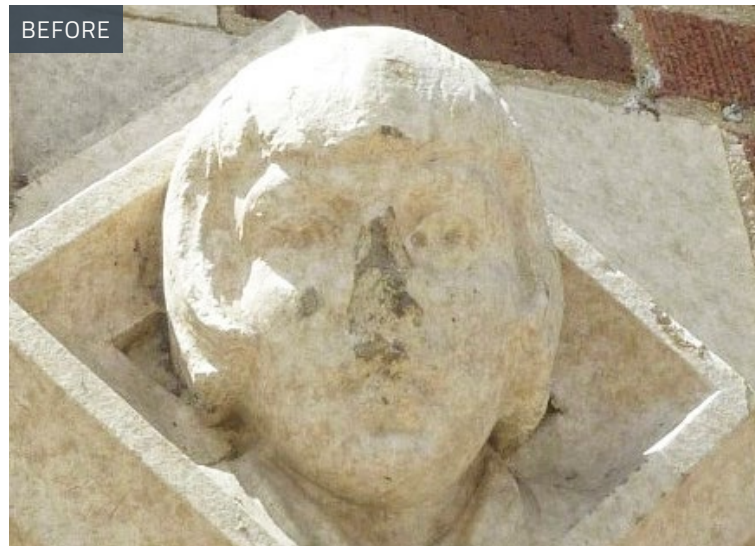


**COMMUNITY CONTEXT**

Given the historic presence of Natrona County High School since 1924, the iconic Gothic Revival landmark is foundational in the larger context of the community. Multiple generations of families have attended the school and the restoration and addition served to strengthen the position of the heritage school as the center of learning within the Casper community. The exterior facade and gracious south lawn were carefully preserved to maintain their historic community presence. The theatre was an iconic element of the historic context that was both thoughtfully preserved and fully rehabilitated.

With the exception of some finely crafted decorative plasterwork at the ceiling and the proscenium, much of the auditorium was in dire need of a major upgrade. Acoustics and sightlines of the historic theatre were poor and universal access was non-existent. Grand windows along the south facade had been covered and the general lighting (though historic) was inadequate. From a technical perspective, the old hall was utterly failing to meet the needs of a 21st century high school and the professional performance requirements of a community venue. The ancient stage rigging was dangerous, lighting locations were marginal to non-existent,

sound mixing was a forgotten art, and stage lighting access was even more frightful than the rigging. The stage was too shallow and access for moving sets was marginal. Lastly, support spaces for set construction, rehearsals, costume changes, makeup, and storage were also substandard to nonexistent.



Restored exterior terra cotta and interior decorative plaster.

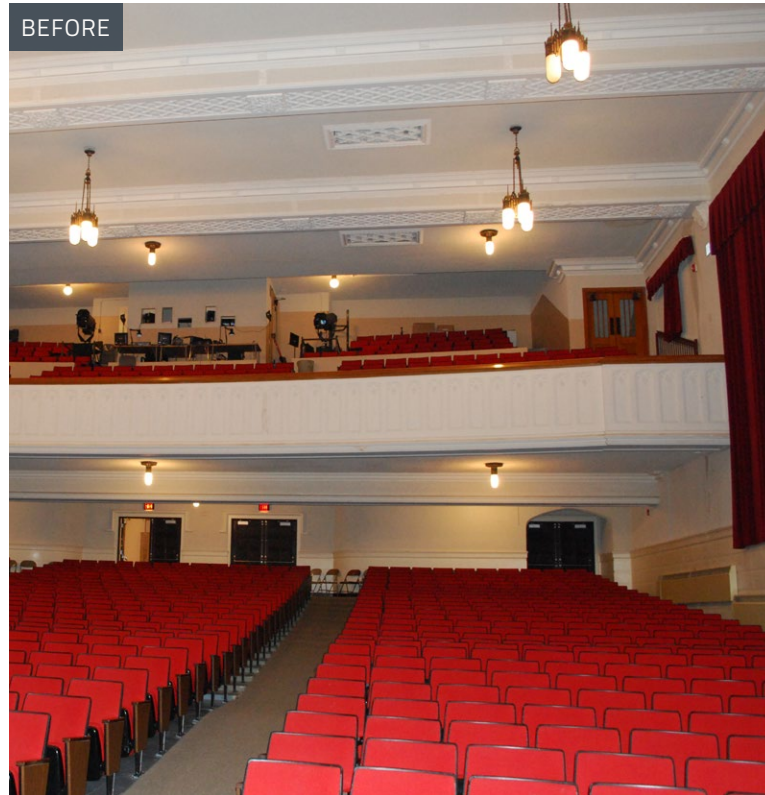


“I like walking people through who graduated before the renovation and fell in love with the space like I did. People who walk in thinking, ‘They changed it all. It’s not the high school I went to.’ Then, when they see it, they say ‘Oh, you kept this and you kept this.’ And I tell them, actually that’s new. They recreated that! It’s the John E. Welsh Auditorium you fell in love with, but it’s better. It’s just better!”

ZACH SCHNEIDER  
NC DRAMA DEPARTMENT CHAIR







The theatre restoration addressed all of these needs within the historic shell of the old auditorium. A new forestage was designed with two hydraulic lifts supporting multiple performance configurations. Options included a fully accessible orchestra pit, a modified thrust stage, and a more traditional proscenium and apron arrangement. The house was fully reconfigured to meet ADA accessibility provisions along with excellent sightlines. The historic windows were rebuilt to allow generous daylight or complete darkness through blackout shades.

Because the old house was simply too small a volume for proper acoustics, the design solution literally demanded outside the box thinking. By opening up the bays of the old ceiling, the design team was able to expand the room into the interstitial roof truss area above the auditorium and enhance the balance of sound within it. An acoustically transparent fabric was stretched across the open ceiling bays to replicate the original plaster ceiling finish. By expanding the volume of the room, both proper acoustical balance and reverberation times were achieved. Additionally, catwalks added between the original roof trusses provide safe student access to critical lighting positions. At the end of the day, the transformed theatre appears untouched but its functionality is vastly improved.

Rehearsal on the revitalized stage. Note the recessed location of the orchestra pit lift.



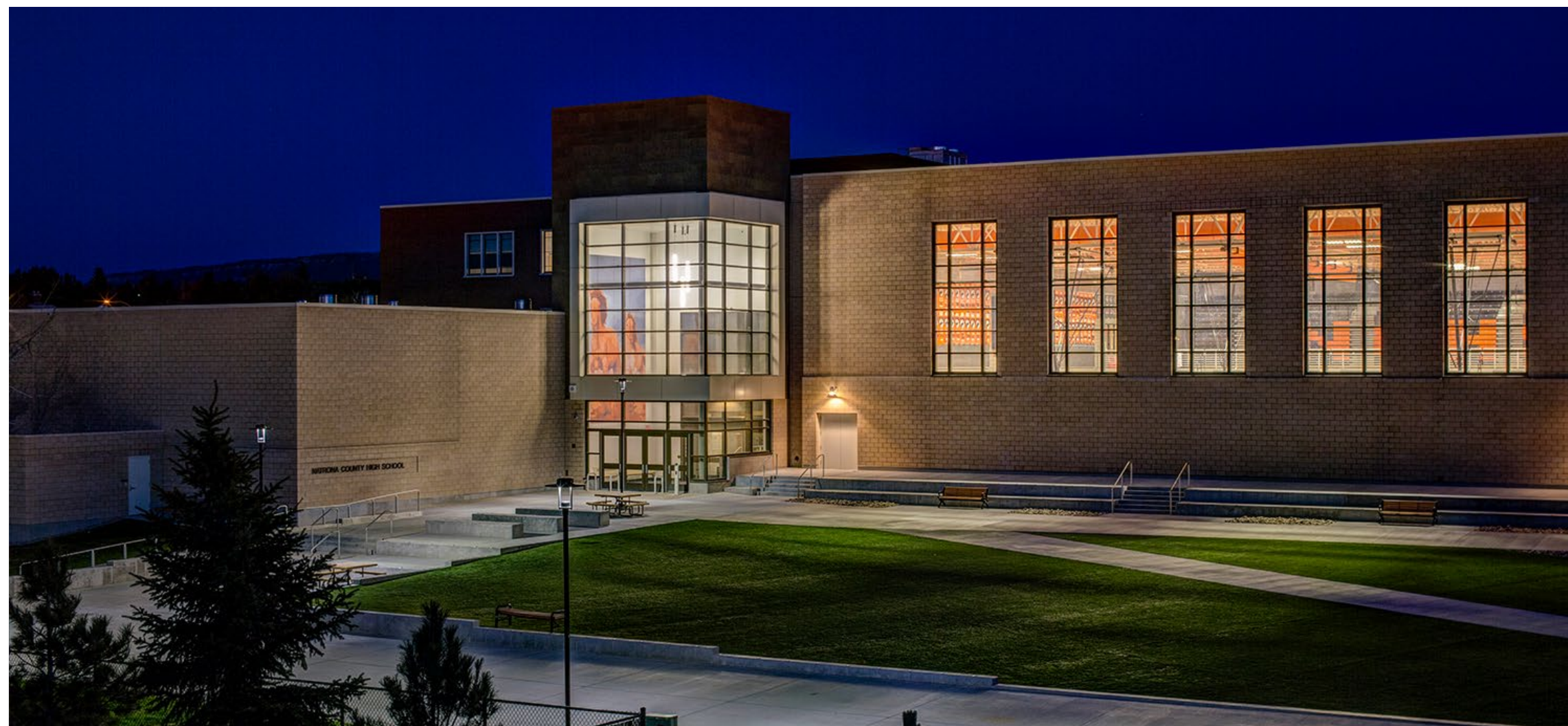
The new additions to the north of the historic school were designed to contextually reference and respect the landmark structure. Similar massing, fenestration, and materials help the new addition in its role of “little sister” to the “grand dame” presence of the historic Gothic facade. New entries to the east, west, and north have a quietly accentuated presence to mark the new portals without competing with the elaborate tower of the landmark.

Last, the community context of NC was enhanced through a variety of site improvements. Traffic patterns on the streets around the school were upgraded to enhance student safety and mitigate traffic jams during school transitions. Additionally, increased parking lots helped to minimize the spread of student vehicles into the surrounding neighborhood. A conjoined service area was developed to support both whole-school service requirements as well as access to academic shops and labs. Finally, a new student plaza was designed north of the new gym. The plaza serves as a gathering space before athletic contests, a place for the marching band to practice formations, and as a pedestrian link to the athletic fields.

The transformation of NC embodies a rich continuum within the Casper community. The pioneering spirit that settled the high plains, discovered oil, and built this proud Western city rides proudly into the 21st century within the restored school. The community’s investment continues – from preserving its rich history to endowing its young adults.

### INSPIRATION & MOTIVATION

Inspiration and motivation at NC comes from its openness and transparency. Visible learning throughout the building sparks student engagement. Displays, both analog and digital, trigger student interest. Open presentations prompt involvement. Visible collaboration models critical skills for future success. Staff presence propels good behavior. Student interests pique involvement and student excitement ignites school pride.



(Clockwise from top) Student plaza linking athletic venues; learning lab in action; corridors double as art galleries.



## RESULTS OF THE PROCESS & PROJECT

The renewed high school has met the educational, District, and community goals in spades.

### A CULTURE OF EMPOWERMENT

“We’ve been big collaborators before, but the layout of the space makes it interactive. As teachers, we move around a lot and use the classrooms for what we need because they are interchangeable. The teachers aren’t assigned to a room, which is a really great design. The drama department comes over here and has the arts kids do all the drama advertising. I think that, as we start evolving, we’ll start finding more collaborative things happening with other disciplines too. I think that was kind of the vision. And I think those flex spaces help with bringing the disciplines together.”

SHEILA MCHATTIE  
NC VISUAL ARTS DEPARTMENT CHAIR



Still life drawing class. Note: New NC art studios include flexible lighting options, generous storage, moveable white boards, and chilled beams that provide comfort throughout the summer and winter.



### INVENTIVE LEARNING SETTINGS

“Teachers are loving the spaces. The teaching walls make it easy to be interactive with students. Technology is state of the art. Furniture is flexible. In classrooms, teachers are constantly grouping kids and changing up activities so there is a lot of cooperative learning going on and those kinds of strategies used. In the new spaces, not only is it bright and new and fresh, but everything works so it’s been great for teachers.”

SHANNON HARRIS  
NC PRINCIPAL

### COLLABORATIVE LEARNING ENVIRONMENTS

“There are a lot better spaces for kids to hang out and collaborate. They seem comfortable since it’s warmed up and we’ve opened the courtyards. They love the glass bridges and walkways. They congregate in those areas where we have seating groupings and down the art wings and down the music hallways. There are great spaces that were intentionally designed and planned for kids and they are using all of those.”

SHANNON HARRIS  
NC PRINCIPAL



Classes meet in the protected courtyard – sheltered from the wind.



### A MEMORABLE CAMPUS

“People drop in and want to see the new school. For those of us who remember ‘the castle,’ the school as it’s always looked from the outside, they are amazed. Then visitors walk in and see the updates and renovations – they feel like the auditorium and the lobby are like the original but much better! And then they look at the classrooms and they are blown away that we could keep the historic features and character on the outside, but make these new state of the art learning spaces for kids on the inside. One of the things they are most surprised by is how light and open it is. The old school was a dark and dreary place. And now it’s light and uplifting.”

SHANNON HARRIS  
NC PRINCIPAL



Revitalized theatre lobby in the historic entry wing.



## UNINTENDED RESULTS AND ACHIEVEMENTS OF PROCESS & PROJECT

Natrona County High School was designed to support a learning model organized around career academies. The primary unintended result that occurred mid-construction was that the school changed the curricular organization to a departmental model. However, even with the mid-project shift, the revitalized school continues to deliver on the original goals of empowerment, innovation, collaboration, and meaning, inspiring both educational and cultural transformation within the NC community.



Collaborative learning on display!



"It was a long process with the way that it had to be done, but I'm really appreciative. I have always thought that I was teaching in the best school – now I'm also teaching in the best space."

ZACH SCHNEIDER  
NC DRAMA DEPARTMENT CHAIR



The band room in full swing.