Pine Technical & Community College
Technical/Trades Addition
& Renovation Predesign

November 15, 2018

Prepared by:
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100% Submittal
November 14, 2018

Brian Yolitz
Associate Vice Chancellor Facilities
Minnesota State
30 7th Street E., Suite 350
Saint Paul, MN 55101-7840

Dear Mr. Yolitz and Capital Bonding Review Team,

Thank you for your time in carefully considering the impact that will come from the capital bonding project submitted by Pine Technical and Community College (Pine). This project is the catalyst for Pine to achieve our strategic goals and fully implement our long range vision. The key vision for the college of reaching 1200 FYE by 2026 was identified during an inclusive and extensive strategic planning process in 2015. Aligned to the college’s strategic plan and a driver of this request are Pine’s master facilities plan, academic and technology plans and the regional economic development plan (CEDS).

Although Pine has not received new construction bonding for nearly 20 years, we are at a critical time to be funded now. If funded, this expansion project would place Pine with the physical plant footprint to support additional student access, promote long-term sustainability and our impact in promoting economic prosperity for all in the region.

Pine is unique in Minnesota State and the Midwest as a rapidly growing institution. Since our last small academic lab expansion project 20 years ago Pine has doubled in student enrollment. New technical programs in: Automation/Robotics, Welding, Emergency Medical Services, Medical Assisting, the Associate Degree in Nursing, and Gunsmithing expansion are coupled with our institutional mission change to include the Associate of Arts transfer degree.

Equally as important as our academic programming expansions, we have witnessed communities in our historical service area become recognized as part of the “New North Metro” due to sprawl. This project not only targets the last twenty years of student growth but prepares us for the next twenty years of regional growth and programming changes as the twin cities metropolitan region continues expanding up the I35 corridor toward our campus in Pine City, located just five blocks off the interstate exit.

This project is foundational to our continual growth and by extension, our long-term financial sustainability. Pine is the only provider of applied learning degrees within a 60 mile radius of
our campus. If we are not successful in expanding our academic labs, this distance will remain a significant barrier for accessing higher education. Technical programming is at the core of our growth strategy and will require applied learning spaces in the future that are constructed in a manner that promotes efficient delivery of those experiences.

Our great region has a generational history of low higher education attainment and as a long-term resident of East Central Minnesota, I know on a very personal level how this project will be a catalyst for change. I hope you will find the answers to the key questions about this project and support it appropriately. Pine looks forward to a successful bonding request for funding.

Sincerely,

[Signature]

Joe Mulford
President
Pine Technical & Community College
November 15, 2018

Joe Mulford
President
Pine Technical & Community College
900 4th Street SE
Pine City, Minnesota 55063

RE: Pine Technical & Community College
Technical/Trades Addition Predesign
292 Project No. 18034.00

Dear President Mulford:

We are pleased to submit to you, the final predesign document for the Technical/Trades Addition and Renovation for Pine Technical & Community College.

The attached document has been prepared in accordance with Minnesota State guidelines and requirements for Capital Budget Projects under direction of Pine Technical & Community College and in consultation with the Facilities Planning Office. The scope of our work for this project has been to provide professional planning services to confirm facility needs and establish a strong rationale for your Capital Bonding Request.

We would like to thank you and the faculty and staff who participated in a collaborative effort to define the project scope, requirements, budget and schedule. We look forward to seeing this very important project move forward and having the opportunity to work with the campus during the remainder of the process.

Sincerely,

Pamela Bakken Anderson, AIA, CID, LEED AP
Partner
MN Registration No. 21241

I certify that this report was prepared by me or under my direct supervision and that I am a duly licensed architect under the laws of the state of Minnesota.

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Project Participants

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Christopher Keeler; Gunsmithing & Firearms Technology Faculty, PTCC
Steve Lange; Physical Plant Supervisor, PTCC
Jen Rancour; Student Success Coordinator, PTCC
Denine Rood; Vice President of Academic and Student Affairs, PTCC
Janis Wegner; Chief Financial Officer, PTCC
Douglas Wickstrom; Automation & Robotics Instructor, PTCC

Pam Anderson, Partner/Architect - 292 Design Group
Maria Manion, Planner - 292 Design Group
FY2020-2024 Capital Projects Review References

The following pages are included to help identify and summarize the relationship of the Technical/Trades Addition project at Pine Technical & Community College to the goals and strategies of Minnesota State.

INTEGRATED PLANNING

1.1 Academic Priorities

PTCC Academic Master Plan: Objective 1) The project provides flexible, technology-rich spaces that support and attract faculty, and offer experiences closely related to the world of work.

PTCC Academic Master Plan: Objective 2) With this project, students have expanded learning opportunities via collaborative learning spaces, simulation labs, open study areas.

PTCC Academic Master Plan: Objective 3) Program hubs are created that increase learning opportunities, support collaboration, and provide efficiencies in operations. The project also provides access to high-tech equipment and training for faculty to incorporate into their student learning environments.

PTCC Academic Master Plan: Objective 4) The project creates programs hubs and collaboration spaces that enhance communication amongst students, faculty and staff.

With the lab space available to expand Welding and Automated Systems Technology to AAS degrees, PTCC graduates will have the ability to transfer into bachelor programs with university partners, specifically Bemidji State University’s Bachelor of Applied Science degree.

PTCC partners with Fond du Lac Tribal and Community College and Lake Superior College for customized training through the Comprehensive Workplace Solutions. The proposed project will strengthen this collaboration and enable PTCC and other Minnesota State campuses to save training and maintenance dollars.

PTCC carefully considered potential partnerships with other Minnesota State institutions to deliver the programming impacted by the proposed project such as the 360 Center of Excellence and 1 + 1 with Hennepin Technical College.

1.2 Regional Priorities

The proposed project will provide needed spaces to meet the projected growth in the 7E region, particularly in the 25-44 year age group.

The proposed project is a key workforce development strategy in the CEDS plan for East Central Minnesota.

The proposed project supports PTCC efforts to meet new programming goals in the Comprehensive Workforce Development Plan and provides lab spaces that foster partnerships with Minnesota State Central Minnesota Baccalaureate Initiative and 360 Center of Excellence programs.

1.3 Comprehensive Facilities Plan

The project was identified as a Top Priority Capital Bonding project in the 2017 Comprehensive Facilities Plan.

1.4 CFP Update

The PTCC Comprehensive Facilities Plan was updated in 2017.
1.5 Technology Plan
(page 3:12)
(PTCC Technology Master Plan Priority 1 – Engaging Student Learning Environments) The project creates spaces with the capacity to incorporate technology and equipment that students will find in the world of work. The open, flexible spaces also allow faculty to explore and evolve their course offerings. Use of technology improves utilization as spaces can be used for multiple purposes.

(page 3:12)
(PTCC Technology Master Plan Priority 2 – Reliability) Technologies in the facility spaces foster closer links between other arms of PTCC and promote rich and flexible learning environments.

(page 3:12)
(PTCC Technology Master Plan Priority 3 – Professional Technology Services Staff) Technology staff will play a key role in the technical/trades and health science program spaces as those industry needs and technologies are constantly evolving.

(page 3:12)
(PTCC Technology Master Plan Priority 4 – Sustainability) The project spaces and technology supports online education and distance learning.

1.6 Community, Workforce, or Campus Cultural Needs
(page 2:9)
The 7E region is the second fastest growing of the 13 economic development regions in the state, and now the seventh largest in total population. The 25 – 44 age group, those most likely to be seeking a college degree, is projected to grow nearly 17% over the next twenty years, and continued growth is anticipated from the expanding North Metro communities along the I35 corridor.

(page 2:12)
With new square footage, PTCC could expand capacity in existing and new programs that lead to high-demand occupations in the 7E region.

1.7 Continuing or Emerging High Demand Fields
(page 2:10)
The proposed project supports multiple technical/trades and health sciences programs that are identified as high-demand occupations.

1.8 Supports and Enhances STEM
(page 2:21)
PTCC takes seriously the role of the College in promoting STEM-related careers. All programs impacted by this project support STEM-related fields.

(page 2:29)
The HEAPR/EDA modernization project will provide technology and equipment upgrades that will allow PTCC to create workforce training opportunities in STEM-related fields that historically have not been well-represented in the region.

1.9 Minnesota Transfer Curriculum
(page 2:11)
With the lab space available to expand Welding and Automated Systems Technology to AAS degrees, PTCC graduates will have the ability to transfer into bachelor programs with university partners, specifically Bemidji State University’s Bachelor of Applied Science degree.

1.10 Retention and Completion
(page 2:13)
The proposed project would alleviate space limitations that prompted creation of weekend cohorts, all of which had lower retention rates.
1.11 Baccalaureate Opportunities  
page 2.11, 2.13  
The planned Applied Engineering AAS degree will articulate directly into Bemidji State’s Applied Engineering BAS degree, as will the AST and Welding diplomas once they are expanded into AAS degrees.

1.12 Campus Cooperation and Support  
page 2:11  
PTCC partners with Fond du Lac Tribal and Community College and Lake Superior College for customized training through the Comprehensive Workplace Solutions. The proposed project will strengthen this collaboration and enable PTCC and other Minnesota State campuses to save training and maintenance dollars.

1.13 Shared MN State Campus  
page 2:11  
PTCC carefully considered potential partnerships with other Minnesota State institutions to deliver the programming impacted by the proposed project such as the 360 Center of Excellence and 1 + 1 with Hennepin Technical College.

ENROLLMENT AND DEMOGRAPHICS  
2.1 Student Services, Advising and Tutoring  
page 3:9  
The current design includes new advanced manufacturing faculty offices which feature space to be used for student advising sessions, peer tutoring, and student project planning. The proposed study commons will be utilized for group advising and academic support workshops, bringing those services “to the student.”

2.2 Individualized Learning  
page 3:10  
This project includes several learning labs which promote individualized and collaborative learning, and provides for additional student supports, all of which we anticipate will help close the achievement gap for our under-represented student populations.

page 3:11  
Spaces such as the office suite, study commons or Applied Learning Lab help accessibility, retention and provide additional spaces for individualized learning.

2.3 Improved Diversity  
page 3:10  
The health sciences programs are the most diverse programs at PTCC; increased capacity in these programs will increase overall diversity. PTCC is also making an intentional effort to recruit for gender equity in the historically non-traditional occupations impacted by this project (i.e. manufacturing, health sciences).

2.4 Technology Accessibility  
page 2:12  
PTCC has been using technology to deliver courses in the “high-flex” method (students can attend in-class, online synchronously, and online asynchronously) to increase access to place-bound students.

2.5 Improved Enrollment  
page 2:12  
With new square footage, PTCC could expand capacity in existing and new programs that lead to high-demand occupations in the 7E region.

page 2:13  
The proposed project would alleviate space limitations that prompted creation of weekend cohorts, all of which had lower retention rates.
The proposed project will provide space for projected enrollment growth and anticipated, increased high school student transfer rate.

**FLEXIBILITY AND ADAPTABILITY**

3.1 Informal and Collaborative, Group Learning Methods

The study commons expands learning opportunities outside of the classroom and fosters greater communication between students.

The Applied Learning Lab and study commons increases learning outside of the lab and classroom.

The proposed project includes several learning labs which promote individualized and collaborative learning, and provide for additional student support, all of which PTCC anticipates will help close the achievement gap for their under-represented student populations.

3.2 Shared Campus Asset

PTCC deans follow certain scheduling guidelines when creating course schedules each semester which has resulted in higher average section sizes and increased usage of shared assets.

Collaborative build areas and lab spaces are shared across technical programs.

The simulation lab is shared amongst health sciences programs.

The proposed project creates spaces that are shared between programs—versus replicated across programs—and the entire addition will be considered an “integrated manufacturing” area to be shared by all faculty and students. The proposed facility will also be shared with the community through customized training and continuing education opportunities.

3.3 Space Utilization

The proposed project is intended to promote high space utilization using shared collaborative spaces, flexible labs and classrooms, portability of equipment, and use of technology for supplemental learning. Some labs currently show a lower utilization rate that is generally due to gaps in the scheduling process as opposed to true under-utilization.

3.4 Spaces for Applied Learning

The Health Sciences cluster of programs would benefit from a multi-disciplinary approach utilizing the proposed shared spaces and the simulation lab.

The entire proposed project, including the Simulation Lab and Integrated Manufacturing Lab, is geared towards increasing the applied learning spaces on campus.

3.5 Scheduling Policy

To mitigate existing space limitations, PTCC has created multiple, small cohorts to accommodate students.

PTCC has developed new, strict scheduling guidelines and deans follow these guidelines when creating course schedules each semester.
3.6 Flexible and Adaptable Features
page 3:10
The proposed project will incorporate flexible classrooms and furniture with moveable tables and chairs—a classroom without a front.

3.7 Flexible and Adaptable Technology
page 3:10
The proposed project will incorporate technology to support flexibility—convertible tables with laptop or desktop capability, and software that allows for Bluetooth connections.

INFRASTRUCTURE, SUSTAINABILITY AND ENERGY EFFICIENCY
4.1 Backlog and FCI
page 2:27
The proposed project will address deferred maintenance and renewal forecasts items, including items in the Gunsmithing and Nursing lab environments which are high on PTCC’s asset preservation priorities.

4.2 Renovation and Repurposed Space
page 2:31
The proposed project includes renovation of existing spaces to improve utilization for technical/trades and health sciences programs. It also allows for removal of temporary and modular buildings being used for classroom and offices.

4.3 Adjacent Needs
page 2:27
The proposed project will address deferred maintenance and renewal forecasts items.

4.4 Renewable Energy
page 1:1, 4:3
The Technical/Trades Lab Addition & Renovation is an opportunity to provide renewable energy through roof-mounted solar electrical panels.

4.5 Existing Infrastructure
page 2:26
The existing campus electrical, mechanical, heating and plumbing infrastructure will fundamentally support the additional building capacity.

FINANCIAL IMPACT
5.1 Supporting Contributions
page 5:3
The project will also be supported through private sector contributions generated during a capital campaign, headed by the PTCC Foundation, for equipment and program expansion funding support. Programs affected in this project have some of the strongest supporters in their respective industries.

5.2 Alternative Financing
page 5:3
PTCC has a successful track record of securing Federal Rural Development matching construction dollars. 3M match dollars have assisted in reducing the original scope and overall cost of this bonding project.

5.3 Investment and R&R Rates
page 6:1
PTCC has exceeded the $1.00 per square-foot threshold for the last two years, and projects to exceed that threshold again in 2019.
5.4 Operating Costs Optimizing
page 2:15
The proposed project enables larger section sizes with less additional expense. PTCC anticipates being able to serve an additional 250 students, 170 FYE’s, and $780,000 annually. Net gain/loss details for multiple programs illustrate the potential program capacity.

5.5 Project Cost and CRV
page 3:50
PTCC’s CRV is $29,263,889.

5.6 Debt Servicing Capacity
page 6:2
Debt service for the currently proposed project is projected to start in the final cycle of debt service for the 2003 bond.

5.7 Special Expenses for Operating New Equipment or Technology
page 6:2
PTCC does not project any new special expenses related to the bonding project. Proposed spaces will allow for a positive impact on operating expenses related to increased efficiencies.

PROJECTS ADDING NEW SQUARE FOOTAGE
6.1 Enrollment Demands and Workforce Needs
page 2:9
The 7E region is the second fastest growing of the 13 economic development regions in the state, and now the seventh largest in total population. The 25 – 44 age group, those most likely to be seeking a college degree, is projected to grow nearly 17% over the next twenty years, and continued growth is anticipated from the expanding North Metro communities along the I-35 corridor.

page 2:10
The proposed project supports multiple technical/trades and health sciences programs that are identified as high-demand occupations.

page 2:12
With new square footage, PTCC could expand capacity in existing and new programs that lead to high-demand occupations in the 7E region. For example, PTCC is only able to accommodate 12 students in the AST program, and 12 students in the welding labs due to space restrictions. CNC Machining is also restricted to labs of 20 because of space issues. With larger space, PTCC would be able to better meet student demand.

page 2:13
The firearms technology industry has been experiencing growth. In 2016 PTCC added a weekend cohort to help alleviate the gunsmithing program’s wait list. The cohort was in high demand but scheduling became difficult as PTCC tried to accommodate twice as many students.

page 2:20
PTCC has had all-time high enrollments in 15 of the last 18 years. In the last three years, enrollment has increased approximately 12% overall. Steady growth is expected over the next 5-7 years.

6.2 Consideration of Space Needs Via Short- or Long- term Methods
page 2:37
PTCC considered alternative space needs including utilization of incubator space, leasing of community space, addition of temporary buildings, and renovation of existing space.
6.3 Partner Contributions
page 5:3
The project will also be supported through private sector contributions generated during a capital campaign, headed by the PTCC Foundation, for equipment and program expansion funding support. Programs affected in this project have some of the strongest supporters in their respective industries.

6.4 Program or Student Needs
page 2:12
The project would provide larger labs so that students in a program could be taught simultaneously. “High-flex” method (students can attend in-class, online synchronously, and online asynchronously) are used to increase access to place-bound students.

page 2:13
The project would provide larger lab spaces to better accommodate students in the Gunsmithing program.

page 2:17
The project would provide an Integrated Manufacturing Lab for inter-disciplinary, shared learning.

page 2:17
The project would provide collaborative and shared spaces to support the “jack of all trades” preference of regional employers.

page 2:17
The addition of a simulation lab would provide increased learning opportunities and ease limitations on program capacity.

page 3:9
The project focuses on key technical programs and addresses deficiencies in specific lab areas that require specific building infrastructure to operate. Existing space does not exist in the college or region that could support such specific student learning needs.

6.5 Operating Budget Impact
page 6:2
Due to PTCC’s low amount of debt service, this bonding project will not significantly impact the college’s CFI. The project supports the ability to increase college revenues and continue to improve the college’s CFI.

6.6 Maximized Technology and Space Use
page 2:12
PTCC has created multiple, smaller cohorts to accommodate program enrollment and has used technology to deliver courses in the “high-flex” method. (Students can attend in-class, online synchronously, and online asynchronously.)

page 2:12
PTCC has expanded the cohort capacity in Nursing and adjusted seating in classrooms, when possible, to accommodate higher course enrollments. Not all spaces, classrooms or labs, can be expanded for efficient program delivery.

page 2:13
The proposed project would alleviate space limitations that prompted creation of weekend cohorts, all of which had lower retention rates.

6.7 Cost to Students
page 6:2
The proposed project would generate approximately $8.50 per credit in debt service.
Project Description

This project includes the renovation of, and addition to, the technical/trades applied learning labs at Pine Technical & Community College (PTCC). Also planned is the removal of current temporary instructional space. Technical/trades programming is the signature of PTCC and this project provides new and renovated lab spaces that are needed to provide access to technical education options that cannot be found within a 60-mile commute from Pine City. Expansion of high-demand, high-growth technical program areas such as nursing and advanced manufacturing will create student access to family-sustaining jobs, provide a foundation for institutional financial vibrancy, and allow PTCC to continue its leadership role in regional workforce development.

PTCC continues to expand enrollment through increased market penetration in high school direct transfer—a rapidly increasing population in PTCC’s key northern Twin Cities service area—and through the College’s purposeful efforts to be another higher education option to all the communities they serve. PTCC’s over-arching strategic goal is to positively impact their service region, which has historically held one of the lowest higher education attainment rates in the state. This project, along with other institutional initiatives such as increased scheduling efficiencies, expansion of current programming, and the addition of new programs, position the institution to achieve this goal and adequately serve their region’s citizens and workforce development needs.

Major Impacts

- Improve facilities to accommodate more students in high demand programs
- Create flexible, shared learning spaces with improved utilization rates
- Highlight signature PTCC programs and enhance program identity
- Enhance student study and collaboration areas
- Improve site circulation and safety by separating vehicles and pedestrians
- Build PTCC identity by enhancing the south and west campus borders

Project Summary

New Construction: 29,964 GSF
Renovation: 15,025 GSF
Renewal: 0 GSF
Demolition: 0 GSF

**TOTAL PROJECT AREA:** 44,989 GSF

Removal of Existing Modular Building & Temporary Office Building: 2,886 GSF

Costs & Funding

The project would be funded by General Obligation Bonds provided through Minnesota State and the State Legislature. There have been no previous appropriations for design or construction on this project. Overall project costs:

Design & Construction (Addition):
2020 Appropriation: $14,985,000

Schedule & Delivery

The project is anticipated to be constructed under a standard design-bid-build process.

- Bonding Request: December 2018
- Bonding Approval: May 2020
- Schematic Design: August - October 2020
- Release of 2020 Funding: July 2020
- Design Development through Bidding: November 2020 - April 2021
- Construction: June 2021 - August 2022 (2 phases)

Other Considerations

The Technical/Trades Lab Addition & Renovation will also provide an opportunity to provide renewable energy through roof-mounted solar electrical panels to increase energy efficiency for the existing building and to decrease operational costs.
The project would be funded by General Obligation Bonds provided through Minnesota State and the State Legislature for design and construction.

Pine Technical & Community College’s strategic plan sets a vision to reach 1,200 FYE by 2027. PTCC continues to meet key milestones in their strategic plan through new programming and expansion of existing programs, including their new transfer degree. This has resulted in reaching all-time high enrollments in 15 of the last 18 years since PTCC’s last building expansion. In the last three years, PTCC has increased enrollment approximately 12% overall. As outlined in the 2017 Comprehensive Facilities Plan, PTCC is projecting continued, steady growth over the next 5-7 years in order to meet regional workforce needs as well as remain a sustainable, stand-alone institution. While the population of Region 7E in total is expected to grow only slightly over the next 20 years according to DEED, the 25-44 age group, those most likely to be seeking a college degree, is projected to grow nearly 17% during that timeframe. In addition, PTCC is benefiting from the expansion of the North Metro along the I-35 corridor, resulting in nearly 40% of the current student population coming from south of the campus. PTCC’s continued growth is projected to come from not only the increased flow of students traveling from the North Metro, but also from an intentional effort to increase the participation rate in college in our low-educational-attainment-rate counties.

Meeting this growth goal will require the addition of new programs, expansion of existing programs, and increased capacity in individual courses, specifically in the trades programs, which PTCC considers to be their unique niche within a 60-mile radius.

To this end, PTCC added two new diplomas for Fall 2017 (Welding Technology and Automated Systems Technology (AST)), expanded the cohort capacity in Nursing from 30 to 40 in both the LPN and Associate Degree Nursing programs, and adjusted seating in certain existing classrooms to accommodate higher course enrollments. However, these expansion efforts are limited by the existing spaces available. For example, PTCC is only able to accommodate 12 students in the AST program, and 12 students in the welding labs due to space restrictions. CNC Machining and Gunsmithing are restricted to sections of 20 due to lab constraints. Nursing labs are also restrictive and the small spaces are often used for both lab and lecture.

With the additional lab space requested in this project, PTCC will be able to accommodate 24 students per cohort in Welding and AST and add a second year in Welding (Metal Fabrication). With these expansions, and expansions in the other programs impacted by this project, PTCC will be able to accommodate an additional 250 students per year, resulting in 250 additional workers in high-demand fields, and approximately $780,000 in additional tuition revenue per year. (See section Project Background Narrative: Program Capacity, Utilization & Financial Impact.)

In addition to expansion of existing programs, and in order to support sustained growth, PTCC plans to continue adding high-demand programming, some of which can be absorbed into their current spaces. In Spring 2019 an Emergency Medical Services Professional program will be implemented. In Fall 2019 PTCC will be adding an Applied Engineering AAS and the second year of Automated Systems Technology to round out the advanced manufacturing cadre of programs. This expansion will put additional stress on the heavily utilized trades labs. Future program development is anticipated to be in the high-demand construction trades, which PTCC anticipates housing in the Innovation Center.
Affected Programs

This request for additional square footage is being pursued after careful consideration of PTCC’s long-term growth goals, regional economic demand, innovations in learning environments and teaching pedagogies, and after weighing alternative solutions that could potentially fulfill these needs. The programs affected with this project support STEM-related occupations. See section Project Background Narrative: Affected Programs for more detail.

Gunsmithing & Firearms Technology
The Gunsmithing and Firearms Technology Program is one of only a few in the nation and as such has a high demand for enrollment. Since 1980, the average job placement rate has held between 96 and 100 percent.

Automated Systems Technology (AST)
The one-year AST diploma introduces students to both electrical and mechanical systems and how they work together. It utilizes technology and tools that are found in the industry and students work on collaborative, multi-disciplinary teams, mirroring the workplace.

Precision Machining Technology
The Precision Machining Technology program focuses on skills used in a modern machine shop. The projected growth for machinists is expected to grow 22% or more by 2022.

Welding Technology
The one-year welding program provides a foundation in production technologies and the basics of welding needed for entry-level careers. When students complete the 33-credit diploma, they are positioned to find Minnesota jobs where welding professionals are in high demand and salaries are higher than the national average.

Health Care Pre-Professional
The Healthcare Pre-Professional program gives students the hands-on opportunity to work in a residential healthcare capacity for the elderly and chronically ill as they prepare to enter several different career programs. As the population ages, the need for quality long-term care increases, and employment opportunities are expected to grow much faster than many other areas within the healthcare field.

Health Science - Broad Field
The Health Science program provides a solid foundation of health and science courses for students seeking a career in the medical field. After completion or partial completion, graduates may transfer to another institution and pursue studies in a more focused area of healthcare or science.

Medical Assistant
The Medical Assistant program prepares students to perform administrative and clinical tasks for the wide variety of medical practices and specialties.

Nursing
The Nursing program prepares graduates to function as practitioners in varied and diverse settings such as acute and long-term care, community, and home care settings. It also provides a foundation for leadership positions and further study. The field has growing demand and high job placement rates with great salary ranges.

Nursing Assistant
The Nursing Assistant program will prepare students to work in a variety of settings including nursing homes, adult day care centers, personal homes, and assisted living facilities. It’s an excellent stand-alone career or way to launch a nursing career.

Practical Nursing
The Practical Nursing program prepares Licensed Practical Nurses for a fulfilling career caring for patients in a variety of settings. The demand for skilled Licensed Practical Nurses continues to grow; they enjoy job security, high earning potential, and advanced opportunities.

Trained Medication Aide
The Trained Medication Aide course prepares students to distribute patient medications and monitor patients for adverse side effects. Medication aides are directly supervised by doctors or other licensed caretakers.
Deferred Maintenance
The following improvements will be made to the existing building to address deferred maintenance and renewal forecasts items:

• Conducting a feasibility study of cooling systems to determine if replacing the condensing unit with a newer split system or consolidating the cooling system in a central chilled water plant is the most viable and cost effective option.
• Replacing older air handling units, especially multizone systems which are inefficient.
• Replacing aging electrical panels and switchgear to improve performance and reduce risk of failure.
• Continuing to replace older light fixtures, especially those with T12 lamps, with LED fixtures to improve efficiency.
• Upgrading existing toilet rooms which do not meet accessibility requirements.
• Repairing, tuckpointing and caulking masonry joints in various areas to maintain building envelope.
• Repairing or replacing settled and cracking stoops and walkways.
• Replacing dated windows with more energy efficient windows.

Utilization Rates
Pine Technical & Community College’s overall space utilization rates run within the typical range of Minnesota State college campuses based on hours used per Minnesota State standards. The highest utilization rates appear in the existing technical/trades areas with the highest utilization rate shown for the Gunsmithing Lab. In addition, any classroom and lab sizes are inadequate for larger class sizes, thereby limiting enrollment and decreasing efficiency in program delivery. Right-sizing of these classrooms and labs will allow increased enrollment and improvements to utilization rates.
Pine Technical & Community College  
Technical/Trades Addition & Renovation Predesign

### Cost Breakdown

#### Full Project Costs
- Property Acquisition: $0
- Predesign Costs: $30,000
- Design Fees: $976,000
- Project Management: $493,000
- Construction Costs: $10,269,000
- Art: $50,000
- Occupancy (FFE, Telecommunications, Security): $547,000
- Inflation (January 2012 mid-point of construction): $2,650,000
- **Grand Total - Project Costs**: $15,015,000
- Prior Year Funding (Predesign): ($30,000)
- **Total of 2020 Bonding Request**: $14,985,000

#### Construction Cost Breakdown by Type
- Site/Building Preparation: $580,000
- New Construction: 29,964 GSF, $7,928,000
- Renovation: 15,025 GSF, $1,202,000
- Renewal: 0 GSF, $0
- Demolition: 0 GSF, $10,000
- Construction Contingency: $548,000
- **Construction Cost Totals**: 44,989 GSF, $10,268,000

### Project Schedule

- Bonding Request: December 2018
- Board of Trustees Recommendation: June 2019
- Legislative Bonding Approval: May 2020
- Release of 2020 Funding: July 2020
- Designer Selection: July 2020
- Schematic Design: August 2020 – October 2020
- Design Development: November 2020 – December 2020
- Construction Documents: January 2021 – March 2021
- Bidding: April 2021
- Award: May 2021
- Construction (Addition): June 2021 – December 2021
- Occupancy (Addition): January 2022
- Commissioning (Addition): January 2022 – February 2022
- Construction (Renovation): February 2022 – July 2022
- Occupancy (Renovation): August 2022
- Commissioning (Renovation): August 2022 – September 2022
No General Obligation Bond appropriations have been requested or received for the proposed project.

Past GO Bond Appropriations

With the proposed Technical/Trade Addition and Renovation, the following improvements will be made to the existing building to address deferred maintenance and renewal forecasts items:

- Conducting a feasibility study of cooling systems to determine if replacing the condensing unit with a newer split system or consolidating the cooling system in a central chilled water plant is the most viable and cost effective option.
- Replacing aging electrical panels and switchgear to improve performance and reduce risk of failure.
- Continuing to replace older light fixtures, especially those with T12 lamps, with LED fixtures to improve efficiency.
- Upgrading existing toilet rooms which do not meet accessibility requirements.
- Repairing, tuckpointing and caulking masonry joints in various areas to maintain building envelope.
- Repairing or replacing settled and cracking stoops and walkways.
- Replacing dated windows with more energy efficient windows.
- Installing solar panels on the proposed building addition to increase energy efficiency.

Backlog Reduction
Project Fit with Campus
Mission & Strategic and Academic Plans

Facility improvements are driven by the mission, vision, values and strategic and academic plans of the campus. The following summarizes those elements; the proposed project’s impact, as it relates to those elements, is noted throughout.

STRATEGIC PLAN
DISCOVER PINE: Our FY 2017-2019 Plan for Growth and Service

Vision
In 2027, the people of East Central Minnesota will first turn to Pine Technical & Community College when they want career education, new skills or general education. More than 1,200 FYE will be enrolled in programs; more than 4,000 will benefit from training experiences; and the region will enjoy a dynamic, vibrant cultural resource. The heart of the college will be in up-to-date, technology-driven facilities, complemented by satellite sites and online capabilities.

Mission
Known for innovation and contributions to strengthen communities, we make college possible for those starting out or starting over. Whether a student seeks a career program, new skills or general education transferable to another college or community, Pine Technical & Community College is an excellent choice.

Values
Student-focused
Innovative
Inclusive
Transparent
Respectful
Passionate

Three-year goal
To increase higher education attainment and contribute to prosperity in the region.

Objectives and Priorities
1. To achieve a sustainable financial model that allows for increased investment in educational programs and services
   1.1 Increase on-site and online enrollments.
   1.2 Create new customized training offerings and expand service.
   1.3 Identify grants and partnerships to advance the objectives in the strategic plan.
   1.4 Develop a sustainability plan for current grant-funded programs
   1.5 Fill available capacity in programs (average increase of two students per class).
   1.6 Optimize available facilities through creative scheduling, including evening and weekend courses and block offerings.
   1.7 Leverage the three ETC sites for classes and admissions, registration, testing, and training.
   1.8 Increase revenue from auxiliary enterprises, including the bookstore, cafeteria, vending, child care, facility rentals, data center and Innovation Center.
   1.9 Raise more money privately to support college needs and priorities.
We will have succeeded when:
- PTCC has emerged from Minnesota State’s Financial Recovery status and consistently maintains annual balanced budgets.
- Customized training revenue increases from $170,000 in FY 16 to $400,000.
- At least 6 new grants are secured.
- Grant-funded programs successfully evolve into sustainable initiatives.
- Program capacity increases to 75% by adding at least 4 per class.
- At least 20 evening and weekend classes are added. At least 3 block offerings are added.
- All ETC sites provide access to classes, admissions, registration, testing and training.
- At least 4 additional sites are used for class delivery.
- Revenue from auxiliary enterprises increases in FY 16.

**Project Impacts for Students**
The project allows for increased enrollment on campus, provides capabilities for new program development, and strengthens the opportunity for industry partnerships and customized training opportunities. The heightened identity of technical/trade and health science programs would build the campus brand and financial sustainability for the college. Incorporation of technology and flexibility in new and renovated spaces would improve space utilization by allowing spaces to be used by multiple programs and for multiple events or courses.

2. To increase enrollment from 700 FYE to 900 FYE by the end of FY 2019.
   2.1 Increase on-site enrollment (including ETC and other locations).
   2.2 Increase online credits
   2.3 Sustain concurrent enrollment at current levels.

We will have succeeded when:
- On-site enrollment increases from 480 in FY 16 to 750.
- Online credits increase from 49 in FY 16 to 125.

**Project Impacts for Students**
The proposed project provides space for increased on-site enrollment and opportunities for expanded online credits. For example, the Gunsmithing program which currently has a waiting list and runs cohorts of 20, would be able to increase enrollment and accommodate cohorts of 25 students. The AST Program, which can currently accommodate 12 students, could serve 18-24 students. The Welding Technology Lab could accommodate 24 students rather than the current 12 students and provide space for the second year Metal Fabrication programming.

3. To build greater appreciation in the market for PTCC as an excellent choice for both career and general education leading to transfer or an associate of arts degree.
   3.1 Evolve the college marketing and communications plan to identify target audiences, including younger students, and metrics for reaching those audiences.
   3.2 Develop a comprehensive student recruitment plan that aligns with the college marketing plan.
   3.3 Assertively promote the availability of the Associate of Arts option – as well as the availability of liberal arts and sciences for transfer.
   3.4 Conduct market research, including student focus groups, to identify the most influential marketing/media strategies.
   3.5 Update the website to focus more on students and student recruitment/service.

We will have succeeded when:
- We have a marketing plan with specific objectives and metrics, identified audiences and strategies to reach them, and alignment with the student recruitment plan.
• We have a student recruitment plan with specific objectives and metrics, aligned with the college marketing plan.
• Both plans specifically promote the Associate of Arts and courses for transfer, including measures of success.
• Qualitative market research contributes to establishing metrics in both plans; quantitative research is conducted only if a tangible benefit will result.
• The college website focuses on student needs and successes and includes dynamic functionality.

**Project Impacts for Students**
The proposed project raises the identity of PTCC in the region and brings attention to the full scope of program options that the college offers — whether a certificate, diploma, or associate degree. The collaborative spaces, such as the Integrated Manufacturing Lab and the Applied Learning lab, will enhance the PTCC brand as a comprehensive, innovative institution for the region.

4. **To launch/expand educational programs and courses needed in the region.** (See PTCC Master Academic Plan.)
   4.1 For credit:
      • Construction Technology (carpentry, HVAC, electrical, plumbing)
      • Expanded AA offerings
      • Emergency Medical Services
      • Industrial Maintenance
      • Increasing online courses
   4.2 Non-credit:
      • Motorcycle safety training
      • Welding
   4.3 Improve efficiency and cost-effectiveness by using Mediated Telepresence more broadly to offer courses.

   We will have succeeded when:
   • Construction Technology 16, Emergency Medical Services 24, Plumbing, Construction Electrician, Industrial Maintenance 16, HVAC 16 are launched.
   • AA offerings are expanded by 8 courses.
   • Online courses increase by 100%
   • Annually, truck driver training enrolls 40 students; motorcycle safety training enrolls 60 students; and welding enrolls 36 students.
   • Mediated Telepresence effectiveness enables an additional 10 courses.

**Project Impacts for Students**
The proposed project provides facilities for an expanded welding program (currently in a mobile welding unit) and new programs including applied engineering, metal fabrication, automated systems controls, industrial maintenance and emergency medical services programs—all desperately needed in the region.

5. **To strengthen support for current students**
   5.1 Expand advising; train faculty and staff to be more effective advisors.
   5.2 Explore how to expand tutoring.
   5.3 Work with the foundation to deliver scholarships for non-Pell students and micro-loans for students in hourly courses.
   5.4 Explore how to assist students more with housing and transportation needs.
   5.5 Expand hours the college is open and services available in coordination with the development of evening classes.
   5.6 Put the “cool in the college.”
We will have succeeded when:

- 500 students benefit from effective advising every year; according to surveys, faculty and staff feel more competent as advisors because of the training that they received.
- Decisions about tutoring are made/implemented.
- $60,000 in scholarships for non-Pell students and micro-loans are available every year.
- College task forces make recommendations about how to assist students more effectively with housing and transportation; recommendations are implemented as appropriate.
- Evening class planning and the expansion of services are coordinated and result in increased student satisfaction.
- At least 3 new initiatives are putting the “cool in the college.”

**Project Impacts for Students**

The proposed project provides facilities (i.e. Technical/Trade Commons, Applied Learning Lab) that would expand hours the college is open and provide opportunities for learning outside of standard class time. The design of the new facilities would visually open up the lab and learning spaces to highlight the programs, incorporate collaborative spaces for faculty and students (including advising “huddle rooms”) and create an environment that puts the “cool in the college.”

6. To nurture and sustain a positive campus culture.

6.1 Enhance transparency and inclusion in decision-making.
6.2 Create regular college-wide communication channels; communicate regularly with the college community.
6.3 Increase college-wide understanding of and appreciation for diverse communities; ensure a consistent definition of “diversity” is used. (See PTCC Diversity Plan.)
6.4 Identify ways for faculty and staff to learn more about each other and their programs and groups.
6.5 Strengthen IT support and improve customer service. (See PTCC Master Technology Plan.)

We will have succeeded when:

- The 2017 Climate Survey shows increased satisfaction with decision-making processes, communications and other metrics.
- 100% of faculty, staff and students engage annually in activities to increase appreciation for and understanding of diverse communities. The college’s definition of “diversity” is widely understood.
- A new college-wide e-newsletter updates faculty, staff and students at least twice per month. President Mulford communicates regularly by email with college constituencies about issues and opportunities.
- A plan to build, strengthen and sustain relationships within the college is developed, implemented and evaluated.
- Customer service metrics are developed for IT and regularly evaluated.

**Project Impacts for Students**

The proposed project provides facilities that support collaboration amongst faculty and students. Faculty offices for the technical/trades programs would be located in one office suite, opening up more opportunities for interdisciplinary engagement and student support. The technical/trades commons and Applied Learning Lab does the same; students from multiple programs can work together, building relationships across programs throughout the college. The project promotes diversity through expanded space—thus more access—for our region’s under-served populations such as our low-income and first-generation citizens.
PTCC ACADEMIC MASTER PLAN 2016 - 2020

Objectives and Priorities

1. To provide high-quality educational programs and services that promote accessibility, support retention and enhance learning success
   1.1 Maintain and support strong classroom instruction, cultivating a learning-centered environment to facilitate students’ intellectual growth and success
   1.2 Integrate more fully the concepts of globalization and diversity in instruction and services
   1.3 Recruit and retain highly qualified and diverse faculty
   1.4 Continue and grow the alignment of curricula and courses with external standards and/or professional practices
   1.5 Promote the availability of the Associate of Arts
   1.6 Explore and adopt appropriate transfer pathways
   1.7 Expand alternative modalities for service delivery, including flexible scheduling, distance learning, and customized training
   1.8 Perform periodic environmental scans to support the creation of new programs and enhance or make decisions on our current offerings
   1.9 Continue and expand collaboration with Adult Basic Education to increase students’ college readiness skills

Project Impacts for Students

The proposed project provides facilities that support PTCC’s high-quality programs. Improvements in facility layout, such as the Integrated Manufacturing Lab and shared work spaces, innovative technology, and flexibility for future changes all serve to support PTCC faculty and help attract faculty talent. The design allows the technical/trades and health science/nursing programs to offer learning experiences which more closely represent the world of work through collaborative learning and simulation labs, and to keep pace with the external standards and professional practices. These enhancements all lead to increased retention and completion for students.

2. To provide ongoing assessment, accountability, and continuous improvement measures that will guide future decisions affecting student learning at every level throughout the college
   2.1 Promote excellence in teaching with a focus on the process of student learning and on measuring what students know and are able to achieve
   2.2 Continue and grow the linkage of data to instructor support and improvement
   2.3 Review current assessment accountability practices and develop a comprehensive plan
   2.4 Continue to conduct ongoing curriculum and program reviews to assess effectiveness and ensure alignment with industry requirements
   2.5 Utilize program prioritization tools to manage and evaluate academic programs, balancing efficiencies in resource allocation while respecting both program strengths and institutional mission

Project Impacts for Students

The proposed project provides facilities that promote excellence in teaching through collaboration. Students have increased exposure to other programs and program faculty and have the opportunity for greater achievement. The project also allows for direct assessment of student learning by providing enough space for group projects for the advanced manufacturing programs, and multiple health sciences scenarios to practice and perform learned skills. The open work, commons and applied learning areas enhance communication amongst faculty and students. Faculty have an increased sense of what/how students are learning and how the success can be measured and improved.
3. To promote the integration of efforts across campus to enhance student learning, support faculty and staff in their efforts to provide high quality education and services, and to increase the efficiency of college operations

3.1 Align efforts with the Assessment of Institutional Effectiveness committee’s reaffirmation and Quality Initiative efforts
3.2 Continue and grow the effective use of technology in support of academic instruction
3.3 Ensure consistency between Academic Master Plan and Technology Master Plan that integrates appropriate technologies into the teaching learning process
3.4 Ensure student and program needs identified in Academic Master Plan are reflected in the Facilities Master Plan

1.1 Project Impacts for Students
The proposed project provides facilities that enhance learning opportunities for technical/trades and health science/nursing programs. Renovation and expansion of program spaces allows creation of program hubs that support collaboration between faculty and students, and provide efficiencies in operations such as shared courses and materials storage.

The new construction will consist of adding high-tech training equipment such as nursing simulators, robotic arms, and welding booths. Faculty will be trained to use unfamiliar equipment through vendor-purchased training, supported by a newly-created Teaching and Learning Coordinator position at PTCC. This individual will serve as the necessary “bridge” to assist faculty in learning new academic technology and incorporating it into their learning environment in order to improve the student experience. Using a “train-the-trainer” approach, the Teaching & Learning Coordinator can provide refresher training as well as train new faculty members without having to purchase additional training from vendors.

4. To expand collaboration, consultation, and communication within the College and between the College and its external constituents

4.1 Continue and grow college-wide communication channels
4.2 Continue work with other Minnesota State institutions to build additional collaborations

1.1 Project Impacts for Students
The proposed project allows creation of programs hubs and collaboration spaces (commons, Applied Learning Lab, etc.) that enhance communication amongst students, faculty and staff. It also provides opportunities to partner with other Minnesota State institutions through customized training in the new labs (serving the Comprehensive Workplace Solutions consortium), 2+2 and 3+1 articulation agreements for newly-developed technical AAS degrees, and as a simulation training “hub,” provide training for other institutions using simulation equipment.
The PTCC Comprehensive Facilities Plan, updated in 2017, identified a number of building development goals, one of which included "Enhancing Academic Programs."

Enhancing Academic Programs
PTCC provides a number of unique programs as well as core educational programs to serve the east central area of Minnesota. Goals to enhance the college’s academic strengths include:

- Co-locating programs/departments together and improving the visibility of programs by opening areas to the corridors.
- Adding a construction trades lab to grow PTCC’s signature technical focus.
- Expanding the gunsmithing lab - a program unique to PTCC - to accommodate more students.
- Expanding or renovating facilities to improve access and meet growing demands for the Nursing programs.
- Creating a faculty development space and shared work areas for faculty collaboration.

Components of the proposed project — which was identified as a Top Priority Capital Bonding project — directly address the development goals of PTCC’s recently updated Comprehensive Facilities Plan.

- The project co-locates technical/trade program spaces, as well as health science and nursing program spaces, to create areas of concentration for programs/departments.
- The Gunsmithing Lab is expanded to accommodate more students.
- A simulation lab, comprised of multiple healthcare setting scenarios, is created to provide enhanced training for nursing and medical assistant programs.
- Faculty suites are created to promote greater communication and collaboration across programs and departments.

This Capital Bonding request would expand educational opportunities for technical/trades employment. The phase 1 expansion will include new technical program lab spaces— along with delivery/dock area and support spaces—the Integrated Manufacturing Lab and study commons. Phase 2 of this project would include reconfiguration of the vacated gunsmithing lab space for a simulation lab and student storage areas. New health science spaces would be co-located with existing science and medical assistant labs.

Sitework will include a new south entry drive and parking lot to service this area of campus. Temporary buildings will be removed as part of this project.

PTCC has recognized continual growth in enrollment and has developed a unique niche in technical/trade programs. With growth in existing areas and a number of new programs that are queued up to begin within the next two years, the college needs to scale up to better meet industry needs. Due to their need for specialized, high-bay space, the current space within the college is not able to accommodate these programs. Utilization of the incubation space at the Innovation Center is planned for future programming in the construction trades.
PROPOSED LONG-RANGE SITE PLAN

Innovation Center

Main Complex Building

Technical Trades Expansion

Long Range Expansion Area

Long Range Expansion Area

Long Range Expansion Area

Long Range Expansion Area

N
Supporting Data & Analysis

Regional Demographics & Employment

Minnesota Department of Employment and Economic Development (DEED)

Economic Development Region 7E – East Central includes a total of 5 counties, located in the 13-county Central Minnesota planning region. The region saw a 20.6 percent population increase since 2000, making it the second fastest growing of the 13 economic development regions (EDRs) in the state, and now the seventh largest in total population. While the population of Region 7E in total is expected to grow only slightly over the next 20 years according to DEED, the 25 – 44 age group, those most likely to be seeking a college degree, is projected to grow nearly 17% during that timeframe. In addition, the “new North Metro” is expanding along the I35 corridor, resulting in nearly 40% of PTCC’s current student population coming from south of the campus. The college’s continued growth is projected to come from the increased flow of students from the new North Metro, and intentional efforts to increase college participation rates amongst those in the region’s historically low-educational-attainment-rate counties.

According to data from DEED’s Local Area Unemployment Statistics program, Region 7E has experienced uneven growth in the size of the available labor force over the last 15 years in response to changing economic conditions. As the region’s population grew through 2010, so did the labor force. However, the region saw a peak of 87,166 workers in 2010, and since then, Region 7E has lost about 1,600 workers. Despite the recent drop, the region still has over 11,100 more workers than it had in 2000, climbing from 74,467 workers in 2000 to 85,569 workers in 2016. The state was also gaining workers over the past decade and a half, without the recent drop (see Figure below). As the economy has recovered, the labor market in the region has been getting tighter, with only 3,951 unemployed workers actively seeking work in 2016.
According to DEED’s Occupations in Demand tool, there are over 200 occupations showing high demand in the region, with training and education requirements ranging from short-term on-the-job training to postsecondary education to advanced degrees.

Several of these high demand occupations are supported by an investment in the proposed Technical/Trades project, including:

- Registered Nurses
- Nursing Assistants
- LPNs and Licensed Vocational Nurses
- Machinists
- Industrial Machinery Mechanics
- Industrial Engineering Technicians
- Medical Records & Health Information Technicians

This project supports programming leading to higher paying jobs such as healthcare practitioners, computer, architecture, engineering and manufacturing.
Partnership Development
In preparing for this bonding request, PTCC carefully considered potential partnerships with other Minnesota State institutions to deliver the programming impacted by the proposed project. PTCC is a member of the 360 Center of Excellence and has partnered with other colleges to offer Production Technologies, Welding, Machine Technology, and Automation programming. In 2016 the Machine Technology and Automation programs were discontinued by the Center of Excellence (COE). In addition, the Welding program became somewhat of an issue for students who could not travel to other locations to get the lab component. Another potential partnership considered was a 1 + 1 with Hennepin Technical College for the Automated Systems Technology program. The first students placed into the program, in Fall 2018, are enjoying the diploma classes, and have indicated that they want to continue for an AAS degree, but all stated that they would not travel to Hennepin to take the second year. The issue for PTCC students is the 60-mile commute to any other college offering similar programming to that being proposed in this project. That is an insurmountable barrier for many of the students who come from surrounding counties.

Comprehensive Workforce Development Plan
This project supports PTCC efforts to meet goals of new programming in the regional Comprehensive Workforce Development Plan.

Minnesota State Central Minnesota Baccalaureate Initiative (CMBI)
The proposed project expands opportunities for Minnesota State university partners involved in the Minnesota State Central Minnesota Baccalaureate Initiative (CMBI). A key goal of the CMBI partnership is to provide access to baccalaureate degrees to rural communities. The current Precision Machining AA articulates to Bemidji State University’s Bachelor of Applied Science. With the proposed lab space available to expand the current Welding and Automated Systems Technology Diploma to AAS degrees, graduates will also have the ability to transfer into bachelor programs with university partners. Specifically, Bemidji State University’s Bachelor of Applied Science degree in Applied Engineering will accept the new AAS degrees in transfer. The study and collaboration areas included in the proposed project will provide study space for those students wishing to complete an online baccalaureate degree, but needing study space and access to high-speed internet to do so.

Fond du Lac Tribal and Community College & Lake Superior College
PTCC partners with Fond du Lac Tribal and Community College and Lake Superior College for customized training through the Comprehensive Workplace Solutions. The proposed project, with expanded lab capacity, will enable PTCC to better support this collaboration, and increase lab utilization in the high-demand manufacturing skills training. Due to lab constraints, the PTCC is currently not able to meet all employer customized training demands. The health sciences simulation lab proposed in this project will enable PTCC to become one of only three “hubs” for training on high-fidelity simulation equipment which will enable other Minnesota State campuses using Laerdal equipment to save training and maintenance dollars.

Comprehensive Economic Development Strategy (CEDS)
The Comprehensive Economic Development Strategy (CEDS) plan for East Central Minnesota identifies the need for new technical programming in general, and this proposed project specifically, as a key workforce development strategy for the region.
As outlined in the Comprehensive Facilities Master Plan, PTCC is projecting steady growth over the next 5-7 years in order to meet regional workforce needs as well as remain a sustainable stand-alone institution. Meeting this growth goal will require the addition of new programs, expansion of existing programs, and increased capacity in individual courses, specifically in the trades programs, which PTCC considers to be our unique niche within a 60 mile radius.

**Program Expansion & Growth**

**Sustained Growth Through Expansion of Current Programs**

With new square footage, PTCC would expand capacity in existing programs such as Welding, AST, LPN, Associate Degree Nursing, Medical Assistant, and CNC Machining, all of which are programs leading to high demand occupations in the 7E region.

**Welding, AST & CNC Machining**

PTCC added two new programs in Fall 2017: Welding Technology and Automated Systems Technology (AST) which were nearly filled to capacity (11 of 12 and 21 of 24 spots respectively). The expansion effort, however, was bound by the available, existing spaces. For example, PTCC is only able to accommodate 12 students in the AST program, and 12 students in the welding labs due to space restrictions. CNC Machining is also restricted to labs of 20 because of space issues. With larger space, PTCC would be able to better meet student demand while attaining scheduling efficiencies.

To help address the space issue, PTCC has had to be creative in scheduling and technology. For example, in the welding lab, 24 students were enrolled but had to be broken down into two 12-person lab cohorts in order to accommodate them all. This effectively doubled the cost of instruction in this program. A larger lab would allow PTCC to teach all 24 simultaneously. (See section 2: Supporting Data & Analysis: Program Capacity, Utilization & Financial Impact.) In addition, PTCC has been using technology to deliver courses in the “high-flex” method (students can attend in-class, online synchronously, and online asynchronously) to increase access to place-bound students.

**Nursing**

PTCC has expanded the cohort capacity in Nursing from 30 to 40 in both the LPN and Associate Degree Nursing programs, and adjusted seating in certain existing classrooms to accommodate higher course enrollments. However, nursing programs are restricted due to space limitations in lecture rooms and labs. Nursing lecture courses have a maximum class size of 50, yet classrooms can only accommodate 32 students. Nursing labs are too small for either lectures or labs and so are unable to accommodate the number of students required for efficient program delivery. Weekend CNA and EMT courses are offered to increase enrollment and provide options for students.

The proposed renovation would help alleviate space limitations by providing a shared simulation lab for collaborative learning and exposure to high-risk scenarios that may not happen in onsite clinicals. It would also provide storage space for health science students’ personal items.
Gunsmithing & Firearms Technology
The Gunsmithing and Firearms Technology programs will also benefit from expansion. The Pine Technical & Community College Gunsmithing and Firearms Technology Program is a unique program in the Minnesota State system and one of only a handful of programs in the nation. As such there is a high demand for program seats by students, and program graduates by employers. The Gunsmithing and Firearms Technology Program has been feeling the effects of demand and industry growth. The industry trend has been one of record annual growth in both sales and service. In 2016 PTCC added a second cohort as a weekend option to help alleviate the wait list. While the cohort was in high demand, scheduling became difficult as PTCC tried to accommodate twice as many students. Space limitations in the Gunsmithing lab, the machining lab, and the welding booths all led to the need for creative scheduling which finally resulted in a lower retention rate for the weekend cohort. The demand continues, however, and PTCC would like to make the necessary adjustments to facilities to run two, or even three, cohorts successfully. Since 1980 this program has had between a 96-100% placement rate.

Issues specific to this program that would be addressed by this project are limitations in available lab space and equipment access. The current lab design cannot support the numbers of students trying to accomplish tasks in the given class time. Currently the lab space consists of 48 workbench spaces, too few to accommodate the 93 students enrolled in the Gunsmithing program classes and who each need bench space and safe storage for tools and equipment.

Sustained Growth Through New Programs
In addition to program expansion, PTCC also plans to support sustained growth by continuing to add high-demand programming, some of which can be absorbed into our current spaces. In Spring 2019 an Emergency Medical Services Professional program will be implemented and in Fall 2019 we will be adding the Applied Engineering AAS degree along with two Automated Systems Technology AAS degree pathways, AST-Controls Technician and AST-Industrial Technician to round out the advanced manufacturing cadre of programs. As part of PTCC’s long-term strategic plan, and again, to support sustained growth, new programming is planned to target the extremely high-demand construction occupations. This cadre of programs would include framing, HVAC, electrical and plumbing which we anticipate housing in the Innovation Center.

Selection of new programs to pursue is informed through several sources including regional economic demand projections through DEED and other sources (i.e. BLS), industry requests (i.e. welding, construction), community interest (i.e. CNA, EMT), and subject matter expertise from PTCC faculty (i.e. Applied Engineering). New program development goes through a thorough vetting process to maximize the likelihood of success, including Minnesota State’s own Program Navigator workflow.

The planned Applied Engineering AAS degree will articulate directly into Bemidji State’s Applied Engineering BAS degree, as will the AST and Welding diplomas once they are expanded into AAS degrees. The Emergency Medical Professional Services certificate was designed to articulate into several of the system’s Paramedic, Medical Assistant, and LPN degrees.
## PROGRAM EXPANSION & GROWTH SUMMARY

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<th>Existing Limitations</th>
<th>With Proposed Project</th>
<th>Without Proposed Project</th>
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<td>12 student capacity in labs</td>
<td>24-student cohorts, can teach all students simultaneously; increased tuition revenue</td>
<td>Multiple cohorts, increased utilization costs, lower retention rates, limited multi-disciplinary learning</td>
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<tr>
<td>Nursing (LPN)</td>
<td>Labs too small to accommodate lectures/labs for 40-cohort capacity; limited number of clinical sites</td>
<td>Simulation lab provides more beds/settings so program enrollment can grow, opportunities for multi-disciplinary learning</td>
<td>Program growth limited by clinical sites, limited multi-disciplinary learning</td>
</tr>
<tr>
<td>Nursing (Associate Degree)</td>
<td>Labs too small to accommodate lectures/labs for 40-cohort capacity; limited number of clinical sites</td>
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<td>Planned New Programs</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Welding/Metal Fabrication (AAS)</td>
<td>No space for fabrication lab</td>
<td>Cohorts of 24 students taking 2nd year courses</td>
<td>Cannot expand capacity in existing program or develop a 2nd year as there is not enough space for fabrication lab</td>
</tr>
<tr>
<td>Automated Systems Technology - Controls Technician (AAS)</td>
<td>Use some existing classrooms</td>
<td>Able to offer within existing capacity</td>
<td>Will be offered in Fall 2019</td>
</tr>
<tr>
<td>Automated Systems Technology - Industrial Technician (AAS)</td>
<td>Machine labs are limited to cohorts of 20</td>
<td>Increase to 25-student cohorts</td>
<td>Developed for Fall 2019 but will be limited in capacity because of machining lab limitations</td>
</tr>
<tr>
<td>Applied Engineering (AAS)</td>
<td>Use some existing classrooms</td>
<td>Multi-disciplinary projects, build space</td>
<td>2nd year is limited without Applied Learning Lab and collaborative build space</td>
</tr>
<tr>
<td>Construction Trades Programs</td>
<td>Space not currently available</td>
<td>No impact</td>
<td>Will be housed in Innovation Center</td>
</tr>
<tr>
<td>Emergency Medical Services Professional</td>
<td>Current space not co-located with health science programs</td>
<td>Multi-disciplinary approach, simulation possible</td>
<td>Can run but not as efficiently or effectively</td>
</tr>
</tbody>
</table>
The proposed project allows PTCC to gain efficiencies in scheduling by enabling larger section sizes without incurring additional expenses (i.e. right-sizing). As an example, an analysis of the net gain/loss incurred by running the Welding Technology program with 12 students in each cohort showed a loss of $26,000, as compared with 24 students in a section, which showed a net gain of $25,000, even when adding a College Lab Assistant, a swing of over $50,000 per section.

With the proposed project, PTCC anticipates the ability to serve an additional 250 students, generate an additional 170 FYEs, and $780,000 additional tuition annually. PTCC feels that this is a conservative estimate, as it could go higher depending on student and workforce demands. The estimates for increased capacity and right-sizing are detailed below:

**Automated Systems Technology – 1 year diploma**

**Current capacity:**
- 12 students x 32 credits per AY = 384 credits x $153 = $58,752 in tuition revenue, 12.8 FYE
- Could add an additional section (evening), but it would continue to be at a loss given the instructor cost. There is currently no room to expand to a second year AST, although other paths towards an AAS are being explored.

**Planned capacity:**
- 24 students x 32 credits per AY = 768 credits x $153 = $117,504 in tuition revenue, 25.6 FYE (first year). This would require CLA time during labs in order to maintain quality of programming and safety.
- PTCC would also add a second year, estimated at an additional $85,680 in tuition revenue and 18.7 FYE (20 students x 28 credits per year).

**Welding Technology – 1 year Diploma:**

**Current Capacity:**
- 12 students x 32 credits per AY = 384 credits x $153 = $58,752 in tuition revenue, 12.8 FYE
- Currently offering 2 of these sections at an estimated loss of $25,000 per section. There is currently no room to expand to a second year.

**Planned capacity (2 sections):**
- 24 students x 32 credits per AY = 768 credits x $153 = $117,504 in tuition revenue, 25.6 FYE (per section, first year). This would require CLA time during labs in order to maintain quality of programming and safety.
- PTCC would also add a second year, estimated at an additional $85,680 in tuition revenue and 18.7 FYE (per section, 20 students x 28 credits per year).

**Gunsmithing & Firearms Technology:**

**Current capacity:**
- Currently accept 20 students into each of the two cohorts (A, B) each year for a total program capacity of 80 (cohort A, B, first year, second year)

**Planned capacity:**
- Accept an additional 5 students into each of the two cohorts generates an additional $107,100 tuition, 23.3 FYE (20 additional students (cohorts A, B, first year, second year) x 35 credits per AY = 700 credits)
Precision Machining:
Current capacity:
• Currently accept 20 students each year for a total program capacity of 40 (first year, second year)
Planned capacity:
• Accept an additional 5 students into each of the two cohorts generates an additional $53,550 tuition, 11.7 FYE (10 additional students (first year, second year) x 35 credits per AY = 350 credits)
• There is also a potential to add a second cohort specifically for Gunsmithing students on the waitlist for the one year program (Precision Machining). (20 students x 28 credits = 560 credits x $153 = $85,680 in revenue, 18.7 FYE)

Nursing (PN and AD):
Current capacity:
• Currently accept 30 students into each of the 3 cohorts (1ADN, 2 LPN) but can now expand to 40. Current capacity can handle expansion to 35, but not 40. Clinical sites may be an issue to filling completely. Simulation allows for more learning to be done outside of clinical sites and also exposes students to high risk scenarios that they may not be exposed to in clinicals.
Planned capacity:
• An additional 15 students generates $78,030 tuition, 17 FYE (15 additional students x 34 credits per AY = 510 credits)

Medical Assistant:
Current capacity:
• Currently accept 20 students each year, but PTCC has only been able to recruit 12. The college feels that with the newly renovated spaces, including the multi-disciplinary approach to learning, and the simulation capabilities, they should be able to fill.
Planned capacity:
• An additional 8 students generates $52,632 tuition, 11.5 FYE (8 additional students (first year, second year) x 43 credits per AY = 344 credits)

<table>
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<tr>
<th>Notes</th>
<th>Current Capacity</th>
<th>Planned Capacity</th>
<th>Total Projected Capacity</th>
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<td></td>
<td>FYE</td>
<td>Tuition</td>
<td>FYE 1st Year</td>
<td>Tuition</td>
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<tr>
<td>AST 12 to 24</td>
<td>12.8 $ 58,752</td>
<td>25.6 $ 117,504</td>
<td>18.7 $ 85,680</td>
<td>44.3 $ 203,184</td>
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<td>Welding 12 to 24 (2 sections)</td>
<td>25.6 $ 117,504</td>
<td>51.2 $ 235,008</td>
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<td>88.6 $ 406,368</td>
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<td>Gunsmithing</td>
<td>Additional 5 students per cohort</td>
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<tr>
<td>Machining</td>
<td>Additional 5 students</td>
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<tr>
<td>Machining</td>
<td>Additional section of 1 year program</td>
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Total increase in capacity in new square footage
148.2 $ 679,626

<table>
<thead>
<tr>
<th>Notes</th>
<th>Capacity Gain</th>
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<tbody>
<tr>
<td>Medical Assistant with new multi-disciplinary approach to learning</td>
<td>11.5 $ 52,632</td>
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<tr>
<td>Nursing with additional 5 students per cohort (3 cohorts-1ADN 2LPN)</td>
<td>17.0 $ 78,030</td>
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<tr>
<td>Total</td>
<td>28.5 $ 130,662</td>
</tr>
<tr>
<td></td>
<td>176.7 $ 810,288</td>
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</table>
Learning Environments & Teaching Pedagogies

The current PTCC facility was built at a time when learning environments and teaching pedagogies were teacher-centered and single disciplinary, leading to front-facing immovable classroom furniture and single-use labs. The delivery of higher education has changed to incorporate classrooms “without a front,” flexible learning spaces that can accommodate a variety of teaching styles within a single classroom space, and multi-disciplinary, collaborative learning. The PTCC vision with this expansion and ensuing renovation will provide the impacted programs the opportunity to integrate these new pedagogies, thereby retaining students through program completion and creating a more highly skilled graduate.

**Technical and Trades Learning Environments**

Faculty in the advanced manufacturing cluster of programs (AST, Welding, Machining, Gunsmithing and the planned Applied Engineering) are eager to embark on multi-disciplinary learning for their students. This will occur through a combination of shared spaces and shared learning for both students and faculty. The vision stems from the “makerspace” concept where students with a shared interest (i.e. manufacturing) can gather to work on projects while sharing ideas, equipment, and knowledge. Manufacturing program faculty plan to have their students build collaborative projects as part of their multi-disciplinary learning in the new Integrated Manufacturing Lab. Shared learning spaces such as a classroom, labs, and build-out areas will make efficient use of space while exposing students to all facets of the manufacturing industry, while at the same time honing their chosen area of specialty. Likewise, a shared office complex for advanced manufacturing faculty would promote collegiality, shared learning, shared resources, and collaboration across these program groups. Shared supplies and tool areas would make more efficient use of square footage and personnel resources.

Because of PTCC’s rural location, and the small-to-medium size of most businesses in our area, employees are often expected to be a “jack of all trades” for their employer. The PTCC trades programs generally seek to create “generalists” rather than “specialists.” For the proposed Applied Engineering program, as an example, students will specialize in the design function of manufacturing, but will be exposed to robotics and automation, machining, and welding. Not only does this make the student a more well-rounded employee, it also allows PTCC to “flex” the contents of a program over time as dictated by current employment demand.

**Health Sciences Learning Environments**

Similarly, the Health Sciences cluster of programs (i.e. Associate Degree Nursing, Licensed Practical Nurse, Nursing Assistant, Medical Assistant, and potential new Medical Scribe) would benefit from a similar multi-disciplinary approach. In the proposed space these programs could cohabitate, establishing shared resources such as classrooms, labs, and storage facilities. The health sciences faculty are eager to create a more realistic clinic setting which mirrors the industry, with a waiting room, reception desk, and medication room. These programs would like to expand the experiences offered to students by adding a procedure room setting for same-day procedures, geriatric and bariatric accessibility, and expanded simulation experiences.

Often the number of clinical sites is a limitation on program capacity. With the addition of simulation experiences, PTCC could expand capacity without adding clinical sites. The proposed simulation lab set-up would include multiple simulation...
rooms (smaller, but with a variety of potential student experiences) all viewed and controlled through one control room. In addition, simulations could be streamed into observation areas for additional student learning. Shared spaces could be used for charting and debriefing.

The added simulation lab would not replace clinical site experience but add to those experiences. This is not an “either-or” but a “both-and.” The more PTCC can use simulation to prepare students for their clinical sites the better. In addition, simulation allows students to learn skills to handle more advanced situations that they may not encounter in their clinical setting. Finally, the use of simulation allows us to expand capacity without adding clinical sites, which are always a restrictor of program growth in the health sciences.

The information and studies summarized below highlight issues relevant to the proposed PTCC Technical/Trade Addition and Renovation.


This UMN doctoral dissertation explored the relationship between community college applicant educational aspirations, proximity of college to home, and the influence of homophilic factors on applicant choices. It was conducted with archived applicant data from the 2013 academic year of Minnesota State Colleges and Universities (MnSCU) applicants. The 2013 applicants intent to attending a MnSCU community college or technical college were included in the study; applicants intent on attending any of the seven state universities were excluded from the study. The applicant educational aspiration trends were studied comprehensively among the 31 distinct MnSCU colleges across the state of Minnesota.

The study conclusions were threefold: applicants overwhelmingly chose colleges within 5 miles of home; demographic factors had little influence on applicant decisions regarding educational degrees they intended to pursue; and demographic factors were highly prevalent in applicant choices of fields of study, especially in the rural community and technical college applicant cohorts.

**Career and Technical Education: Five Ways That Pay (2012)**

This report from the Center on Education and the Workforce at Georgetown University details the 29 million "middle jobs"—jobs that pay middle class wages for workers without a four-year degree—and the five Career and Technical Education (CTE) pathways that lead to those jobs: Associate's degrees, postsecondary certificates, employer-based training, industry-based certifications, and apprenticeships. The report notes that at least some post-secondary education or training is becoming the entry-level requirement for many jobs and while the US ranks second, internationally, in baccalaureate attainment, it ranks 16th in CTE attainment. It further notes that the CTE pathways make further education more affordable.
Pathways To Prosperity: Meeting The Challenge Of Preparing Young Americans For The 21St Century (2011)
This paper from the Harvard Graduate School of Education focuses on the need to develop meaningful career training as part of a comprehensive school reform. It highlights the disparity between the rising college enrollment rates and the rates of degree completion. The paper notes that according to the Organization of Economic Cooperation and Development (OECD) the US has the highest college dropout rate in the industrialized world, a major reason being that many students can't see clear connection between their program of study and tangible opportunities in the labor market. The pedagogical hypothesis put forward in the paper is that most young people learn best in environments that are structured and included contextual, applied learning. The paper also noted that this approach is used in training of high-status professionals in the US, such as clinical practices or apprenticeships for doctors, teachers or architects.

Manufacturers Increase Efforts to Woo Workers to Rural Areas (August 2018)
This recently-published article from the New York Times highlights the primary challenge that is facing many manufacturing employers: the lack of workers to fill skilled and unskilled positions. The story illustrates this challenge by featuring a Minnesota-based company, Alexandria Industries, that has created a "Not So Heavy Metal" tour of their facilities to introduce middle and high school students—and the general public—to manufacturing. Many companies are increasing their recruiting efforts as the economic recovery, lack of skilled workers and retirement of baby boomers is causing a worker shortage—a shortage which is even causing business to turn away work. They are also promoting greater collaboration among teams and upgrading amenities to appeal to a younger generation, and working to change the misconception that manufacturing jobs are dark, dirty and dangerous. Many students shy away from these jobs because of that perception.
**Overall Enrollment**

PTCC’s strategic plan sets a vision to reach 1,200 FYE by 2027. The college continues to meet key milestones in their strategic plan through new programming and expansion of existing programs, including the new transfer degree. This has resulted in reaching all-time high enrollments in 15 of the last 18 years since PTCC’s last building expansion.

In the last three years, PTCC has increased enrollment approximately 12% overall. As outlined in the 2017 Comprehensive Facilities Plan, PTCC is projecting continued, steady growth over the next 5-7 years in order to meet regional workforce needs as well as remain a sustainable, stand-alone institution.

PTCC anticipates that the proposed innovative lab spaces will attract high school students into the technical/trades and health sciences programs, increasing the direct transfer rate from area high schools, as well as providing access to students who did not intend to go to college.

*The charts below show the enrollment trends and projections for overall college enrollment and demonstrates consistent and projected growth.*
Pine Technical & Community College is accredited by the Higher Learning Commission, North Central Association of Colleges and Schools and has been since 1994. The Medical Assistant program is currently accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), and is in good standing. The Practical Nursing and Associate Degree Nursing programs are approved through the Minnesota Board of Nursing, and recently had their site visit by the National League for Nursing Commission for Nursing Education Accreditation (NLN CNEA). Results are pending. The Gunsmithing program is compliant with the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF).

PTCC takes seriously the role of the College in promoting STEM-related careers. All programs impacted by this project support STEM-related fields.

**Gunsmithing & Firearms Technology**
The PTCC Gunsmithing and Firearms Technology Program is a unique program in the Minnesota State system. It is one of only a handful of these types of programs in the nation and as such has a high demand for enrollment. The program was recently updated to an A.A.S. degree and this will lead to more opportunity for students seeking employment in the industry as they graduate with a higher level of technical education. Since the program’s inception in 1980, the average job placement rate has held between 96 and 100 percent. Students graduate with skills in diverse areas such as woodworking, machining, welding and business.

**Automated Systems Technology (AST)**
In PTCC’s Automated Systems Technology program, students are introduced to both electrical and mechanical systems and learn how they work together. The program focuses on building a foundation of knowledge in AC and DC Electricity, Fluid Power Systems, Mechanical Systems, Programmable Logic Controllers (PLCs), Motor Controls and Robotics. The Automated Systems Technology program utilizes technology and tools that are found in the industry and students work on team projects that mirror the current workplace. Career paths include Maintenance Technician, Electrical Technician, Controls Technician, and a Robotics Technician.

**Precision Machining Technology**
Skilled machinists are in high demand. In PTCC’s high-tech manufacturing lab, students learn the skills needed to land a great career. This pathway of Certificate to Diploma to Associate in Applied Science Degree program is designed to provide students with the skills necessary to gain employment in the manufacturing industry. The projected growth for machinists is expected to grow 22% or more by 2022. PTCC’s Precision Machining Technology program focuses on skills used in a modern machine shop. Technical math, blueprint reading, conventional machine tool theory and lab, an introduction to Computer Numerical Control (CNC) and Computer-Aided Design (CAD) are covered in the first year. The second year offers specialized training in Computer-Aided Manufacturing (CAM) systems, quality concepts and CNC theory and procedures.
Welding Technology
This diploma provides courses designed to be an introduction to production technologies and welding fundamentals to start students on a career pathway. PTCC’s Welding program provides a foundation in production technologies and the basics of welding needed for entry-level careers. Non-welding courses are delivered in a "high flex" format-- learn in the classroom, view live through Adobe Connect or view a recording online. Students gain hands-on experience with specific welding processes from oxyacetylene cutting and welding to gas tungsten arc welding. When students complete the 33-credit diploma, they also earn two certificates along the way, Manufacturing Foundations and Production Technologies.

Health Care Pre-Professional
Pine Technical & Community College’s Healthcare Pre-Professional Certificate program gives students the hands-on opportunity to work in a residential healthcare capacity for the elderly and chronically ill as they prepare to enter several different career programs. As the population ages, the need for quality long-term care increases, and employment opportunities are expected to grow much faster than many other areas within the healthcare field. Working in nursing homes, assisted living facilities, retirement communities and hospice organizations require professionals who possess a sound understanding of healthcare and the practical aspects of managed care.

Health Science - Broad Field
The 60-credit degree includes focused coursework in the health sciences along with a range of well-paired general education courses. The program provides a solid foundation of health and science courses that will be required of students seeking a career in the medical field; moreover, it acts as a springboard to more specialized healthcare and/or science careers. After completion of the program (or partial completion), graduates may choose to transfer to another institution and pursue a more focused area of healthcare or science to study and earn additional certificates, diplomas, or degrees in a specialized area.

Medical Assistant
Across the state, there is a high demand for Medical Assistants in a variety of healthcare settings. Pine Technical & Community College’s Medical Assistant program prepares students to perform administrative and clinical tasks to keep the offices of physicians, podiatrists, chiropractors, and other health practitioners running smoothly. Designed with flexibility in mind, coursework includes Phlebotomy and Electrocardiography (EKG/ECG) training, as the duties of Medical Assistants vary from office to office, depending on the location and size of the practice and the practitioner’s specialty. This degree program includes courses covering anatomy, physiology, and medical terminology, as well as keyboarding, transcription, record keeping, accounting, and insurance processing. Students learn laboratory techniques, clinical and diagnostic procedures, pharmaceutical principles, the administration of medications, and first aid. Students will study office practices, patient relations, medical law, and ethics and will be prepared to take a national certification exam upon the completion of the coursework.
Nursing
The AS Degree in Nursing program provides a broad foundation in nursing and the more general healthcare sciences, which is necessary for preparing professional nurses capable of practicing in a competent and responsible fashion as informed citizens in a dynamic and diverse society. The curriculum prepares graduates to function as practitioners in acute and long-term care, community settings, home care, and other nontraditional settings, as well as provides a foundation for leadership positions and further study (for those who plan to pursue a BSN.) Graduates will be competent in meeting the current and future health needs of society. High job placement rates, growing demand in the field, and a great salary range create a bright outlook for Registered Nurses.

Continuing Education & Customized Training
The PTCC Continuing Education department offers a broad range of courses designed for an individual's professional growth and development, while the Customized Training department provides education and training tailored to businesses' specific needs. With changing technologies and changing markets, it is more important than ever to invest in an organization's most important resource — its people.

PTCC's Continuing Education department serves as the major regional provider of skill-based, short-term courses. Courses are offered during the day, evening and on weekends. They are open-enrollment and cater to a foreseen need such as new technology. Many courses are designed to meet an occupational licensing or legal requirement. Since class sizes are smaller, students receive more individual attention and learn more. Courses are shorter in duration than college credit classes and are delivered to meet the needs of the participant.

Through innovative assessment, delivery and evaluation, PTCC Customized Training is able to assist organizations with training, plan development and implementation. Technologies, processes and equipment are continually changing and to keep up, an employees need ongoing training.

PTCC currently has a popular high-flex offering of the Production Technologies 16-credit certificate and the college is starting to offer these courses on campus, at the request of area employers, rather than only online. There are other areas the college would like to explore, such as additive manufacturing (prototyping), to increase the sophistication of the region's manufacturers.
Nursing Assistant
In one semester or less, PTCC’s program will prepare students with the knowledge and clinical skills to work in a variety of settings including nursing homes, adult day care centers, personal homes, and assisted living facilities. Working as a nursing assistant (NA) is an excellent stand-alone career or an excellent way to launch a nursing career; in fact, many LPNs and RNs find their start as NAs. NA training requires just a few weeks of time and provides the information and skills needed to become a Nursing Assistant on the Registry (NA -R), delivering care and support for residents and patients in nursing communities and hospitals.

Practical Nursing
Licensed Practical Nurses are a vital part of any healthcare team, and the demand for skilled LPNs continues to grow. LPNs also enjoy job security, high earning potential, and advancement opportunities. Pine Technical & Community College’s Practical Nursing program prepares students for a fulfilling career caring for patients in a variety of settings.

Trained Medication Aide
Pine Technical & Community College offers a Trained Medication Aide course that includes an overview of metric, apothecary, and household measurement abbreviations, with implications for use with medication administration. Upon completion of the course the student will receive a certificate of completion of the course. A Trained Medication Aide (TMA) distributes patient medications in nursing homes, schools, correctional facilities, or other non-hospital, assisted living facilities for the physically or mentally disabled. Medication aides are directly supervised by doctors or other licensed caretakers. They typically assist patients in properly taking oral prescriptions in correct dosages. TMAs may also monitor patients to ensure they do not have any adverse reactions after taking their medications.

EFFECTS ON CLASS SCHEDULES
The increased square footage requested in this proposal will have positive impacts on class schedules and scheduling overall. Larger lecture classrooms will allow PTCC to continue to grow on-campus enrollments in the associate of arts program without adding staff. Several courses have class maximums of 40-50 students; however, it is only possible to accept the number of students the current classrooms will hold which is approximately 30.

In addition, designing spaces to be used by clusters of programs (i.e. advanced manufacturing, health sciences) will allow for flexible, multi-use labs and classrooms, while simultaneously creating collaborative learning spaces that more closely reflect actual industry. An example of this is a large welding lab which will be used by all advanced manufacturing programs, not just Welding Technology. Currently there are separate welding labs on campus.

Finally, increasing the amount of simulation spaces for the health sciences programs will reduce the need for clinical sites or, more likely, allow PTCC to grow the health science programs without the need to add clinical sites.
Areas affected by this proposed project include the 1978 Building, the 2001 Addition and previous renovations in 2001, 2006 and 2011.
The chart below provides the Backlog and 10-Year Renewal by Subsystem for the areas impacted by this proposed project.

## BACKLOG & 10 YR RENEWAL BY SUBSYSTEM

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<thead>
<tr>
<th>Building Name</th>
<th>CRV(000's)</th>
<th>GSF</th>
<th>Year Built</th>
<th>FCI</th>
<th>Subsystem Name</th>
<th>Backlog</th>
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| TOTAL BY | $783 | $161 | $519 | $375 | $634 | $787 | $247 | $535 | $203 | $185 | $506 | $4,936 |

The existing campus electrical, mechanical, heating and plumbing infrastructure will fundamentally support the additional building capacity. PTCC has made significant investments into infrastructure and holds one of—if not the best—deferred maintenance ratings. New boilers, air handlers, cooling towers and electrical systems are examples of the infrastructure. PTCC’s historical prioritization of existing system upgrades has deferred their investments into additional new square footage which they are attempting to now address.
Deferred Maintenance

With the proposed Technical/Trade Addition and Renovation, the following improvements will be made to the existing building to address deferred maintenance and renewal forecasts items:

- Conducting a feasibility study of cooling systems to determine if replacing the condensing unit with a newer split system or consolidating the cooling system in a central chilled water plant is the most viable and cost effective option.
- Replacing aging electrical panels and switchgear to improve performance and reduce risk of failure.
- Continuing to replace older light fixtures, especially those with T12 lamps, with LED fixtures to improve efficiency.
- Upgrading existing toilet rooms which do not meet accessibility requirements.
- Repairing, tuckpointing and caulking masonry joints in various areas to maintain building envelope.
- Repairing or replacing settled and cracking stoops and walkways.
- Replacing dated windows with more energy efficient windows.
- Installing solar panels on the proposed building addition to increase energy efficiency.
- The project will address deferred maintenance in the Gunsmithing and Nursing lab environments. These are high on PTCC’s asset preservation priorities.
The HEAPR/EDA project will be complete prior to start of the proposed Technical/Trades Addition & Renovation project.
The HEAPR/EDA project involves modernization of existing space while the proposed Technical/Trades project involves a proposed increase of square footage. Both serve to support increased enrollment and learning environments of high-demand occupations in the region.

Among other project goals such as a cafeteria renovation to create future opportunities in the food service industry and upgrades to the auditorium to create an accessible, multi-purpose lecture space, the HEAPR/EDA modernization project will upgrade existing technology and equipment in underutilized instructional spaces to allow remote access to training for potential workers who are currently place-bound. This expanded access will allow PTCC to create workforce training opportunities in STEM-related fields that historically have not been well-represented in the region. A pilot project which provides general manufacturing skills training to incumbent workers via distance delivery ("high flex") has been well received by several business partners such as Wyoming Machine, Plastech Corporation, and Parker Hannifin. Demand continues to grow for this innovative programming, but current technology and training spaces are not adequate to meet demand. Having new high-flex learning environments would allow PTCC to continue to expand existing courses and programs, and develop new ones based on industry and work force needs.

The equipment included in the project is a CNC turning machine, high fidelity health care simulation mannequins, automation robotics training stations, welding equipment and an auto services vehicle lift. This equipment will improve the applied learning experience for training participants and students by using industry-standard equipment. Providing new state-of-the-industry training experiences for training participants and students allows graduates to be immediately effective when entering the workforce.

Modernizing existing campus spaces will allow for creative solutions when meeting students and training participant ancillary needs. A new one-stop support services area will more efficiently and effectively connect participants to resources that can remove barriers that keep them from finishing their training (i.e. food, housing, counseling, academic support).
Space Usage
Existing Building Plan

The existing space usage diagram illustrates some items that would be addressed in the proposed Technical/Trades Addition project.

- PTCC has few classroom spaces. This limits use of classroom for other program needs.
- PTCC lacks casual study spaces.
- PTCC programs are disjointed. Nursing spaces, for example, are not co-located which diminishes program identity on campus.
- Visibility into the technical/trades program spaces is limited. Increased visibility would strengthen the technical/trades program identities.
Pine Technical & Community College's overall space utilization rates run within the typical range of Minnesota State college campuses based on hours used per Minnesota State standards. The highest utilization rates appear in the existing technical/trades areas with the highest utilization rate shown for the Gunsmithing Lab.

The following items provide some context for spaces with low to medium utilization rates:

- Reporting is for academic credit courses only and may not reflect other non-credit course uses such as continuing education or customized training.
- Nursing Lab and Medical Assistant Lab: These specialized spaces are not adaptable for other uses and may not reflect the need for clean-up/set up time between classes.

In areas affected by the proposed project, the college has high to very-high utilization of spaces, the existing trade labs being the most heavily utilized on campus, far exceeding the 75% threshold.

While this project does indeed request new square footage in order to support student and employer demands, the design is intended to promote high space utilization using shared spaces (i.e. Integrated Manufacturing Lab, Applied Learning Lab, Tool Crib, Materials Storage), flexible labs and classrooms, portability of equipment, and use of technology for supplemental learning. Some labs currently show a lower utilization rate (i.e. nursing, prototyping) however that is generally due to gaps in the scheduling process as opposed to true under-utilization. Those gaps in process continue to be addressed in order to more accurately reflect lab and classroom usage.

Courses across PTCC have increased in average section size from 14 (FY15) to 18 (FY19). Existing space and classroom/lab sizes, however, limit the college’s ability to expand section seat numbers and are not flexible enough to support increasing utilization. This project will allow PTCC to expand the number and type of offerings available, and to provide larger spaces to support increasing efficiency in those sections being offered.

The proposed project also allows for removal of temporary and modular buildings currently being used for classroom and office space.
PTCC acknowledges that adherence to strict scheduling guidelines results in increased student retention and completion, better enrollment management capabilities, and increased space utilization. To this end, PTCC deans follow certain scheduling guidelines when creating course schedules each semester (see below). Following these guidelines over the last two semesters has resulted in higher average section sizes (average section size of 17 compared to 14-15 in previous years). The specific guidelines leading to this increase include 1), 2), 4) and 5). Having pre-determined sequences minimizes the number of preps required as well as leads to the sharing of sections, especially the sharing of support courses like Computer Basics. Likewise scheduling the technical courses first, and then scheduling shared sections of general education courses, minimizes the number of sections required while creating conflict-free schedules for faculty and students. Guideline 10), which requires all room usage to be entered into EMS, will lead to more accurate reporting of room utilization. Finally, Guideline 11), which requires dean approval for schedule change requests, helps to avoid unintended consequences from ad hoc requests.

1) Schedules for each semester will be driven by the following:
   a. Published program plans and sequences
   b. Student enrollments
   c. Specific classroom and lab components and characteristics
   d. Established space capacities
   e. Established course maximums

2) The scheduling function will follow an established timeline resulting in timely publishing of course schedules (see attached).

3) A credit hour is considered to be 55 minutes.

4) Technical program core courses will be scheduled first to ensure a conflict-free schedule for students, faculty, and dedicated lab spaces.

5) General education and supportive courses will be scheduled after technical courses to ensure availability of required general education courses, a conflict-free schedule for students and faculty, and optimization of course sections.

6) Attempts should be made to minimize the number of trips a student must make to campus.

7) Faculty preferences will be honored assuming all other scheduling guidelines are met.

8) Class sections will generally be scheduled using the following standard time blocks. Exceptions may occur in order to accommodate specific program needs.
   a. Monday, Wednesday, Friday OR Tuesday, Thursday
   b. Classes will start on the hour or half-hour
   c. Between 8:00am and 10:00pm Monday – Friday

9) Alternative schedules are encouraged in order to promote student access and completion. These may include:
   a. 8-week blocked schedules
   b. Late start courses
   c. Hybrid and online courses
   d. Interactive television
   e. High-flex and accelerated delivery

10) Credit courses will take priority in room assignments. Once completed, rooms may be scheduled by non-credit, internal staff and external entities. All room usage MUST be entered into EMS in a timely fashion.

11) All scheduling change requests must go through the appropriate academic dean.

12) Courses which span more than one semester will be considered to occur in the semester in which they begin.
The Planning Process

The study evolved from work done on the 2017 Comprehensive Facilities Plan which identified a Tech Lab Addition & Health Sciences Renovation project as a capital bonding request in 2020. A request for proposals was issued in March 2018 and a predesign team was selected in April 2018.

In May 2018, an initial kick-off meeting was held to review the scope of the proposed project, project goals, and predesign submittal schedule. Follow-up meetings were held to collect input from faculty and administration and to confirm previous planning assumptions made for the 2020 Capital Bonding Request.

With this information, the planning team assembled a building space program and conceptual planning alternatives. The information was carefully reviewed and revised based on feedback from the PTCC Project Steering Committee and faculty. Through this collaborative process, a fully-defined building space program and concept plan was developed.

Project Steering Committee
- Heidi Braun; Customized Training Representative, PTCC
- Connie Frisch; Dean of Nursing & Health Sciences, PTCC
- Christopher Keeler; Gunsmithing & Firearms Technology Faculty, PTCC
- Steve Lange; Physical Plant Supervisor, PTCC
- Jen Rancour; Student Success Coordinator, PTCC
- Denine Rood; Vice President of Academic and Student Affairs, PTCC
- Janis Wegner; Chief Financial Officer / Chief Information Officer, PTCC
- Douglas Wickstrom; Automation & Systems Technology Instructor, PTCC

Project Planners
- Pam Anderson, Partner/Architect - 292 Design Group
- Maria Manion, Planner - 292 Design Group

Additional Input Session: Technical/Trades Programs
- Denine Rood; Vice President of Academic and Student Affairs, PTCC
- Christopher Keeler; Gunsmithing & Firearms Technology Faculty, PTCC
- Douglas Wickstrom; Automation & Systems Technology Instructor, PTCC
- Bret Lommel; Welding Technology Instructor, PTCC
- Darren Lund; Manufacturing Lab Assistant, PTCC
- Julie Dillenburg; Precision Machining Faculty, PTCC

Additional Input Session: Nursing/Health Sciences Program
- Denine Rood; Vice President of Academic and Student Affairs, PTCC
- Connie Frisch; Dean of Nursing & Health Sciences, PTCC
- Elayne Beehler; Nursing Faculty, PTCC
- Dione Thoma; Nursing Faculty, PTCC
- Kathy Daniels; Medical Assistant Director & Faculty, PTCC
The following planning alternatives/options considered during the planning process:

**Utilization of Incubator Space**
Pine Technical & Community College acquired the West Building in 2005. In 2013, PTCC renovated and expanded the building to create the Pine Innovation Center, a local business incubation center. The building has one small classroom, an office area and open high bay space. The college has a 20-year agreement in place which requires that this space remain as a shared community asset and limits options for expansion of academic programs. In addition, the programs included in this project would be negatively impacted by being located in a separate building.

**Leasing of Space within the Community**
In Pine City, there have been no other adequate facilities identified that would be able to house the academic programs included in this project. In addition, any other potential facilities would likely be located at a distance from the current campus and not provide a sense of connection or collaboration with the campus community.

**Temporary Buildings**
PTCC currently has one temporary classroom building that was added in 2012. This building has been identified for removal as part of this project and other such buildings would not be able to provide the type of space needed for the technical and trade programs.

**Renovation of Existing Space Only**
With current space utilization and the growth in both programs and enrollment, there is no available existing space which could be renovated for all of the technical and trade programs.

**Sustainability Highlights**
Pine Technical & Community College is committed to incorporating principles of sustainable design and energy efficiency into this building project. Sustainability goals include:

- Utilizing the B3 process and meeting SB2030 goals for energy use
- Replacing aging mechanical systems in renovated areas to increase energy efficiency
- Providing energy recovery systems on new equipment
- Replacing existing fixtures and providing new low-flow fixtures to reduce water consumption
- Replacing existing fluorescent fixtures and installing new fixtures with LED technology
- Installing occupancy sensors, automatic time switch controls and daylighting sensors where applicable to reduce energy use
- Reducing construction waste and requiring recycling
The following statutory requirements will apply to this project.

- MS 16B.32 (Subd. 2): Energy Conservation Goals
- MS 16B.323: Solar Energy in State Buildings
- MS 16B.325: Sustainable Building Guidelines, (B3-MSBG)
- MS 16B.326: Geothermal & Solar on New or Replacement HVAC Systems
- MS 16B.327: Recycle 50% of Construction & Demolition Waste
- MS 16B.33: State Designer Selection Board
- MS 16B.335 (Subd. 1): Notification to House & Senate
- MS 16B.335 (Subd. 3): Predesign Requirement
- MS 16B.335 (Subd. 3c): Consider the Use of MINNCOR Products
- MS 16B.335 (Subd. 4): Energy Conservation Standards
- MS 16B.35: Percent for Art
- MS 16A.633: Report on Jobs Created or Retained
- MS 177.42-44: Prevailing Wage Rates
- Laws 2014, Chapt. 294, Sec. 22 and 295, Sec. 21: American Made Steel
- Laws 2014, Chapt. 253: Responsible Contractor

The following regulatory agencies apply to the project and may impact the project’s design and implementation.

- Minnesota State Board of Health
- National Fire Protection Association
- Occupational Safety and Health Act
- Americans with Disabilities Act
- ASHRAE Laboratory Design Guide
- American National Standards Institute – Laboratory Ventilation
- American Society of Mechanical Engineers
- American Society of Heating, Air Conditioning and Refrigeration Engineers (ASHRAE)
- Air Moving and Conditioning Association
- American Water Works Association
- Sheet Metal and Air Conditioning Contractors National Association
- National Sanitation Foundation
- Pollution Control Agency
Pine Technical & Community College
Technical/Trades Addition & Renovation Predesign

Photos of Proposed Renovation & Expansion Area

ENTRY TO PRECISION MACHINING LAB

ADVANCED MANUFACTURING LAB

STORAGE

ADVANCED MANUFACTURING LAB

PROTOTYPE ROOM

CORRIDOR AT TECHNICAL/TRADE SPACES
Medical Assistant Classroom/Lab

Gunsmithing Lab

Shooting Tunnel

Nursing Lab

Medical Assistant Classroom/Lab
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Design Intent

This project includes the renovation of and addition to the Technical/Trades area of Pine Technical & Community College. The technical and trades programs are signature programs for the college, and the proposed project seeks to provide expanded and improved space to accommodate increasing enrollment and new academic programs. The proposed project also seeks to highlight the technical and trades focus by increasing visibility to the programs to strengthen program and institutional identity. As a consequence of the proposed project, a simulation lab for nursing and related health science programs would be created in the former technical/trades area to meet health sciences program needs.

Project goals are to:

• Provide new and renovated facilities that provide space for increased student enrollment and evolving equipment, technology and teaching needs
• Create flexible spaces that support existing programs but that can also accommodate future programs
• Design spaces that inspire achievement and learning
• Create an environment that strengthens the PTCC identity as the educational institution of choice
• Develop facilities that support diversity, communication and collaboration
• Design an environment that is "cool"
• Scale up space to accommodate planned new programs and to better meet industry needs
• Expand education opportunities for technical/trades employment
• Provide improved spaces for technical/trades programs that help promote programs and dispel misconception about manufacturing being a dark, dirty and dangerous field (Rosen, Ellen. "Manufacturers Increase Efforts to Woo Workers to Rural Areas.")
• Right-size space for increased enrollment in Gunsmithing
• Highlight the signature programs of PTCC by grouping programs together and improving visibility to those programs
• Build identity of PTCC as premier educational institution in the region
• Foster faculty collaboration by creating a shared office/work area
• Improve access to meet growing demands of nursing and other health sciences programs
This narrative describes the design intent for the mechanical and electrical systems required to serve the Technical/Trades Addition and Renovation project at Pine Technical and Community College. Nominal sizes and/or capabilities of those systems are outlined below.

A. The systems shall comply with all current and applicable codes as follows:
   1) Minnesota 2015 Building Code
   2) Minnesota 2015 Plumbing Code
   3) Minnesota 2015 Mechanical Fuel Gas Code
   4) Minnesota 2015 Energy Code
   5) National Electrical Code (2014)
   6) Minnesota 2015 Fire Code
   7) Minnesota Buildings, Benchmarks, and Beyond Benchmarking (B3)
   8) National Fire Codes (NFPA standards documents)
   9) Minnesota State Facilities Design Standards
   10) Americans with Disabilities Act
   11) Occupational Safety and Health Act (OSHA)
   12) Local applicable ordinances

PLUMBING SYSTEMS
The following section describes existing plumbing systems as well as work required for the project.

A. Sanitary/Storm Service:
   1) Multiple sanitary and storm mains serve the existing building.
   2) It is anticipated that a new 4” sanitary and a new 15” storm main will be required to serve the addition areas.
   3) Storm system shall include primary drains via interior leaders to below grade, with overflows to spill on grade (either as scuppers or via interior overflow leaders). Rainwater leaders shall be insulated on horizontal runs with 1” preformed fiberglass and all service jacket.
   4) All sanitary and storm systems shall be designed and installed per current Minnesota Plumbing Code.
   5) All sanitary and vent piping above grade shall be hubless cast iron per ASTM A888 or CISPI 301 with CISPI hubless couplings. Below grade, sanitary may transition to schedule 40 PVC. Storm piping materials shall be similar.

B. Domestic Water and Fire Protection Water Service:
   1) A water service and fire riser exist in the area of the 1986 addition.
   2) It is anticipated that with the addition of a new restroom group and additional fixtures required for the addition, the domestic water will need to be increased in size.
   3) The existing fire protection system will require new zoning. All new sprinkler work shall be by a licensed fire protection engineer and based on the most current NFPA 13 and Minnesota Fire Codes.
   4) No clean agent or dry fire suppression systems are anticipated.
   5) Sprinkler heads in renovated or addition areas shall be concealed-type head with white cover plates, or, where exposed, chrome upright heads. Manufacturers as Viking or equal.
   6) Sprinkler pipe shall be ASTM A53 schedule 40 black steel.
C. Gas Service:
   1) Two existing gas meter / regulator assemblies currently serve the building.
   2) It is anticipated that the added heating load of the renovation and addition (estimated to be 3.5 million btuh) can be accommodated with the existing boiler plant. While some modification will be required to get natural gas to discrete new equipment in the renovation and addition (e.g. bluing baths) no significant change should be necessary to the gas service(s).
   3) Natural gas pipe shall be ASTM A53 schedule 40 black steel, threaded or welded.

D. Domestic Water Heating and Plumbing:
   1) The primary domestic water heating source for the building is a water-to-water heat exchanger located in the boiler room. Additional discrete water heating sources exist in the building.
   2) The renovation and addition area will require a new water heater, primarily for the new restroom group, but also for emergency eyewash / shower stations. This will be provided with a hot water recirculation system, serving the new addition.
   3) Plumbing systems shall be designed and installed per current Minnesota Plumbing Code.
   4) All domestic water piping shall be Type L ASTM B88 copper, insulated with 1” preformed fiberglass and all service jacket.

HVAC SYSTEMS

A. Primary Heating Systems:
   1) The primary heating source for the building is a 3-boiler plant consisting of three 3 million btuh dual-fuel boilers. The boilers were installed in 2009 and are in good condition. Based on the current design temperatures (180F HWS, 160F HWR), total plant output should be approximately 7.5 million btuh. Per discussion with facilities personnel, no more than one boiler is ever required to fire, even on the coldest days. An additional, small, boiler also exists (added as a temporary heating system while the old, replaced, steam plant was in operation).
   2) The existing heating pumps and distribution system include two base-mount pumps designed for 475 gpm at 45 feet of head, each. Mains immediately off of the pumps are 6” steel.
   3) Distribution runs throughout the building to terminal units, air handlers, and the domestic water heat exchanger.
   4) It is anticipated that the existing boiler plant may remain in use, though the existing pumps will need to be replaced with larger pumps and the existing mains will likely need to be revised. The 6” mains are appropriate to the overall system capacity, but they are reduced down to 4” in the area most near the new addition.
   5) A new hot water distribution system into the new addition, as well as modifications to the existing system will be required. Design intent would be to retain the existing 180F HWS / 160F HWR but design all coils for lower entering water (this would allow for better efficiency at the plant if and as existing coils are replaced similarly).
   6) Unit heaters will be provided in discrete areas such as entry vestibules. New air handling systems will receive hot water as their heat source from the boiler plant. New terminal (e.g. variable air volume (VAV) box re-heats will be included as noted later in this narrative.
   7) It is recommended that an energy meter be installed on the boiler main.

B. Primary Cooling Systems:
   1) Cooling systems at the Pine Technical and Community College are generally discrete direct expansion systems, integrated with the associated air handling system. One air-cooled chiller (65 ton McQuay AGZ series) was installed in 2002 to serve a penthouse air handling unit.
   2) It is anticipated that the cooling systems in the area of renovation will remain in place and in operation.
   3) For the addition, total cooling load is anticipated to be approximately 100 tons, assuming some heat-only
areas as described below. This could be accomplished cost-effectively with dedicated direct expansion systems associated with individual air handling systems. However, due to the high variability of loads and high demands required for the new addition (including numerous 100% outdoor air systems), it is recommended that a new air-cooled chiller plant be provided for the new addition area, only. This would be approximately 100 tons, with an assumed 44F CWS and 58 CWR, requiring approximately 180 gpm system flow. The unit could be roof-mounted, with an integral pump enclosure, including air separation and expansion.

4) It is recommended that an energy meter be installed on the new chiller main.

C. Air Distribution Systems:

1) Existing air handling systems in the area of renovation include:
   a. AHU-2 (ca 2002), serving the existing Mechanics Lab.
   b. AHU-5 (ca 1978), serving the existing Gunsmithing Lab.
   c. AHU-8 (ca 2006), serving the existing Science Lab.
   d. AHU-9 (ca 2011), serving additional areas of Gunsmithing.
   e. And minor areas of AHU-7 (ca 2009) serving the existing Nursing Labs.

2) All units shall remain in place and in operation. Renovation areas will require (mostly minor) ductwork renovations, and in some cases, renovation to the associated terminal VAVs and reheats.

3) The new addition area will require new air handling systems and all new ductwork.

4) Based on anticipated plan, the following systems are potential zoning / design options:
   a. New modular-type variable air volume unit with chilled water and hot water coils, roof-mounted, serving Commons, Tech/Faculty Office, Classroom, R&D Classroom, and restroom group. Unit would include downstream VAVs with reheat.
   b. New modular-type 100% exhaust / 100% outdoor air unit with energy recovery, variable air volume, with hot water coil, roof-mounted, serving the Shooting Range. Unit would be designed to maintain 75fpm air across range cross-section and include HEPA filtration on inlet and outlets. This space must maintain a negative pressure relationship with adjacent spaces at all times.
   c. New modular-type variable air volume unit with chilled water and hot water coils and energy recovery, roof-mounted, serving AST, and Collaborative Build. Unit would include downstream VAVs with reheat.
   d. New modular-type variable air volume unit with chilled water and hot water coils and energy recovery, roof-mounted, serving Welding. Exhaust rate, as required by code would be 0.5 cfm/sqft of area for this unit. It is assumed that welding stations will be local capture and re-circulation type, and not exhaust through a central system. This allows greater flexibility and reduced energy costs. This space must remain negative to adjacent spaces at all times.
   e. New modular-type make-up air unit with hot water coil, roof-mounted, serving Dry Room and Paint Room. An associated exhaust system is required to maintain 100fpm air across all paint booth cross-sectional areas. Three such booth or stand areas are anticipated, and each would require its own dedicated exhaust fan. The make-up air would be required to track airflow and compensate accordingly. An additional exhaust system in the Dry Room would also be required. Both spaces must remain negative to adjacent spaces at all times.
   f. New modular-type make-up air unit with chilled water and hot water coils, roof-mounted, serving Wood Room. A dedicated dust collection system is anticipated for this space, but re-use of the air is not recommended. The dust collector should be installed exterior to the building. The make-up air would be required to track airflow and compensate accordingly. This space must remain negative to adjacent spaces at all times.
   g. The remaining space, the Bluing Room, will be an exhaust-only space, with no dedicated air-handling system. Transfer air from the adjacent Machining Room will be used to provide airflow and (limited) conditioning.
h. For all new air handling systems, ductwork is anticipated to be galvanized G60 steel, installed according to SMACNA standards. Ductwork shall be insulated with 1-1/2” fiberglass duct wrap with vapor barrier (FSK).

i. Variable air volume boxes shall be pressure-independent type with reheat (Titus model DESV or similar).

j. Air handling systems shall be designed to maintain no greater than NC 30 for classroom and office areas. Lab or work areas (Welding, Machining, etc) shall be designed for NC 40.

k. Return air may be either plenum (as existing) or fully ducted.

D. Building Automation System
1) The existing building was provided with a direct digital control (DDC) building automation system (BAS) in 2009. The existing system is a Johnson Controls MetaSys.
2) The existing BAS shall remain in place, and all new equipment shall be brought into this existing system.

E. Test and Balance
1) No existing test and balance information is available. The owner’s representative indicates that AHU-8 is at maximum capacity and should not be assumed to be capable of additional airflow / conditioning.
2) All areas renovated, and all new addition areas shall receive a complete air- and water-side test and balance. Insofar as the base building heating system is modified, that also will be tested and balanced. This would likely include only verification of differential setpoint prior to work, and then verification of same, after, with additional testing at the main hot water pumps. This would not be a complete water-side test and balance of the entire existing facility.
3) Testing and balancing would be executed by an independent test and balance contractor, NEBB-certified.

F. Commissioning
1) No existing commissioning information is available.
2) All systems and equipment modified or added in this scope would be fully commissioned by an independent consultant.

ELECTRICAL
A. Normal Power Distribution System:
1) The electrical service provider for this property is East Central Energy.
2) The existing utility transformer is a pad-mounted transformer located on the site near the northeast corner of the building. The electrical utility meter is located in a CT cabinet located adjacent to the transformer. Two separate sets of service entrance conductors route underground to Service Switchboards #1 and #2 located in the main mechanical/electrical room on the north side of the building. The building service is 208V, 3-phase, 4-wire.
3) Existing Service Switchboard #1 was replaced in 2009, and appears to have three 200 Amp spare breakers, two 100 Amp spare breakers and three 30 Amp spare breakers. It is anticipated that there is little or no spare capacity on the switchboard.
4) Existing Service Switchboard #2 was replaced in 1988 and is a fused switchboard. It appears to have one 200 Amp spare, one 60 Amp spare, one 50 Amp spare and two 30 Amp spare switches available. It is anticipated that there is little or no spare capacity on the switchboard.
5) As part of the expansion project, the utility transformer will be replaced to accommodate the additional required capacity. Existing Service Switchboards #1 and #2 will be replaced with two 4000 Amp, 208/120 Volt, 3-phase, 4-wire switchboards with full neutral and copper bussing. Each switchboard will be rated 200kAIC. The switchboards will have individual-mounted fusible switches with current-limiting fuses on feeders serving panelboards that are existing to remain. Each switchboard will include a 4000 Amp main switch, a surge protective device ( SPD), customer power monitoring/metering, fused switch distribution sections and be provided with 25% spare spaces and capacity. New service entrance conductors will be provided from the transformer to the new switchboards.
6) The existing panelboard in the Gunsmithing Lab will be removed, and a new panelboard will be installed in the area to serve the Medical program in the renovated area.

7) New distribution and branch circuit panelboards will be installed in the expansion area to provide power to the Gunsmithing Lab, AST, and Welding spaces.

8) All electrical equipment will be 100% rated for the available fault current.

9) All conductors will be copper with 100% rated neutrals. All feeder and branch circuit conductors will be in conduit.

10) Branch circuit power and receptacle panels shall have 200% rated neutral bus, and 25% spare breakers. The panelboards will have dead front construction with a hinged door-in-door cover. Circuit breakers will be bolt-on type.

11) All circuits will have a ground wire back to the panelboard or overcurrent device.

B. Standby Power Distribution System:
1) The existing standby power distribution system consists of a 130kW generator. The generator serves the lighting and equipment located in the data room on the mezzanine level. Equipment in the data room is also backed up via a 45kW UPS for ride-through until generator start-up.
2) The existing generator will be relocated as part of the project.

C. Lighting:
1) Light fixtures will be LED type and have 3,500 degree Kelvin color temperature throughout. All fixtures will be provided with electronic dimmable drivers.
2) Areas with lay-in ceilings will be recessed, lensed LED.
3) Lighting in storage and utility spaces will be surface or suspended industrial lensed LED.
4) Exit lights will be LED type with red face.
5) Emergency egress lighting will be provided with wall-mounted bugeye LED fixtures with backup battery packs.
6) Lighting power density shall comply with the Minnesota Energy code (2012 IECC).

D. Lighting Control System:
1) A new distributed lighting control system will be provided for the renovated and expansion spaces.
2) Automatic time switch controls with an after-hours override capability will be provided in public spaces and lab spaces. The time switch control system will be provided with communications to the building energy management system to allow time schedule on/off set points to be entered into the system.
3) Occupancy/vacancy sensing controls will be provided in classrooms, meeting rooms, private offices, storage rooms, janitorial closets, and other spaces 300 square feet or less.
4) Automatic daylight harvesting will be provided for all areas adjacent to vertical fenestration. Control will be provided by photo sensors located in the space being controlled.
5) Where scene control is indicated, provide three zones of lighting control and a minimum of four preset scenes.
6) Dual technology occupancy sensor controls will be utilized where occupancy control is utilized. Sensors shall be manual on, automatic off control, except in public restrooms.
7) Provide a communication network between the lighting control devices, lighting control panels and a server-based software. System to have the capability to remotely monitor, set or control all lighting functions from the server-based software.
8) Provide onsite factory system startup, programming, training and commissioning with follow-up training.
**E. Power:**
1) Motor controllers and disconnect switches will be provided for all new motors.
2) Receptacles will be placed throughout the building for communications equipment, cleaning and maintenance.
3) Overhead modular busway will be installed in lab and machining spaces for power to floor-mounted equipment and workbenches via overhead cord-drop connections.
4) Receptacles will be provided at each lab bench.
5) A dedicated lockable receptacle will be provided for each welder.
6) A double duplex receptacle will be provided in each private office.
7) A furniture feed connection will be provided to each piece of modular furniture in open office areas.
8) Minimum conduit size shall be 3/4”.
9) Conduit shall be type EMT. MC cable will not be allowed.
10) Wiring devices will be extra hard usage specification grade.

**F. Signal Systems:**
1) Fire Alarm
   a. The fire alarm control panel is existing.
   b. The existing system will be extended into the new building addition. Devices will be reconfigured in existing areas to be renovated.
   c. All wiring will be installed in conduit.
2) Voice and Data
   a. Data outlets will be provided in all offices, classrooms, labs, assembly areas, and where necessary to meet space program requirements. Provide 1” conduit stub ups from outlets to cable tray system.
   b. Provide a wire basket type cable support system to the existing voice/data closet for routing and support of new data cables.
   c. It is anticipated that there is enough capacity in the existing data room to accommodate the data requirements in the new addition.
   d. Wireless Access Points will be provided throughout the renovation and expansion to provide wireless internet access for students.
3) Security
   a. Provide empty conduit as required for Owner-furnished security system.
4) Audio Visual System
   a. Provide empty 1-1/4” conduit and associated power for audio visual equipment in classrooms and other areas as required by the Owner.
   b. The audio-visual system, complete power supplies and necessary distribution equipment and cables will be provided under contract between the Owner and AV consultant.
5) Testing
   a. All applicable testing of systems will be performed as required by current Minnesota State standards.
Purpose & Rationale for the Project

3.1 Nursing/Health Science Programs
- Renovated space to create simulation lab that could be used by all programs
- Creation of program hub to heighten visibility of programs
- Renovation of Medical Assistant lab/classroom to enhance learning opportunities.

Study Commons
- The study commons expands learning opportunities outside of the classroom and fosters greater communication between students.

Technical/Trade Programs
- Expanded space to meet growing enrollment and workforce demands
- Flexible, high-bay space to accommodate large equipment and future equipment and program changes
- Collaborative build areas for increased communication between and exposure to other programs
- Shared spaces such as wood room, tool crib, Applied Learning Lab, welding, etc. for better space utilization
- Office suite for increased communication between faculty
- The Applied Learning Lab and study commons increases learning outside of lab and classroom and is shared by all programs.
- Heightened visibility of the programs on campus and to the community
- Program hub for technical/trades programs to strengthen identity of programs and increase communication/collaboration
The purpose and rationale for the project is grounded in the campus mission, academic plan, and workforce needs. It positively impacts students by providing spaces that fosters learning and success, both in school and in the workplace. With this project, students have improved access to collaborative environments, flexible lab spaces, technology, and equipment that can better prepare them for the working world.

The proposed project supports the growing technical/trades and nursing/health science workforce demands of the region by providing renovated and expanded spaces for high-demand occupations in health science and manufacturing/trades, and by creating program hubs that increase visibility of the programs and highlight their profile within the college and community. (See Section 2: Supporting Data & Analysis). It focuses on key technical programs and addresses deficiencies in specific lab areas that require specific building infrastructure to operate including welding lab capacity (HVAC and Electrical), nursing simulation space (control room and simulated patient room), paint room (ventilation), and secure firearms storage space (non-breachable space). Existing space does not exist in the college or region that could support such specific student learning needs.

Technical/trades spaces include high-bay, flexible space that can accommodate large pieces of equipment and that is arranged to provide increased collaboration between students and faculty in various technical/trades programs. The layout of technical/trades spaces also seeks to increase shared use of spaces; for example, Gunsmithing can use the welding lab for their curriculum, ancillary spaces such as the wood room and tool crib are shared by all students, and an Integrated Manufacturing Lab has been created to enhance inter-disciplinary learning.

For nursing and health science, renovated spaces include a new simulation lab that provides various healthcare scenarios that students would encounter outside of PTCC. The simulation lab helps students learn skills to handle more advanced situations that they may not encounter in clinical site experience. The number of clinical sites available can limit program capacity, so the simulation lab would allow the nursing and health science programs to grow. The ability for programs to share lab spaces also supports new programs—and better space utilization—such as EMT.

Technical/trades and nursing/health science program spaces are located to create program hubs. The hubs increase program visibility to students and visitors and raise the profile of the programs on campus and in the community. The hubs also help to highlight the unique technical and health focus of the college.

**LEARNING & COLLABORATION OUTSIDE THE CLASSROOM & LAB**

Precision Machining faculty offices are currently housed in the Machining Lab and are not conducive to student advising meetings or faculty collaboration. The proposed design includes new advanced manufacturing faculty offices which feature collaboration space and a small “huddle room” to be used for student advising sessions, peer tutoring, and student project planning. The proposed study commons will be utilized by Student Affairs staff to hold group advising and academic support workshops closer to where manufacturing students are located, bringing those services “to the student” rather than asking them to “come to us.”
EXPANDED INDIVIDUAL & COLLABORATIVE LEARNING

The proposed project includes several learning labs which promote individualized and collaborative learning, and provide for additional student support, all of which PTCC anticipates will help close the achievement gap for their under-represented student populations. The college currently has significant achievement gaps in students of color, low-income, and first-generation students which, in total, represent a majority of students attending the college. These gaps range from 4% to 18% when compared with the overall student success rate of 63%. In addition to simply increasing access for under-represented populations to high-paying employment opportunities, the collaborative, multi-disciplinary student learning spaces such as the Applied Learning Lab and Health Science Simulation Lab, the Student Study Commons will engage these under-represented populations and lead to greater completion rates.

SUPPORTING PROGRAM DIVERSITY

The health sciences programs are the most diverse programs at PTCC. With the increased capacity in these programs, PTCC overall diversity will also increase. In addition, PTCC is making an intentional effort to recruit for gender equity in the historically non-traditional occupations impacted by this project (i.e. manufacturing, health sciences).

A SHARED CAMPUS ASSET

In addition to the collaborative learning spaces, the proposed project also creates shared spaces such as a single welding lab (currently Gunsmithing has their own inadequate welding lab), tool crib and materials storage (each program currently has their own spaces), Applied Learning Lab, the paint room and drying room, gas storage, student study commons, and faculty office suite. The entire addition will be considered an “integrated manufacturing” area to be shared by all faculty and students engaged in the advanced manufacturing cadre of programs. In addition, this facility will be shared with the community through customized training and continuing education opportunities (i.e. manufacturing skills, emergency medical training and refreshers, and nursing continuing education) as well as sister institutions (i.e. simulation equipment training) making this project truly a shared campus asset.

APPLIED LEARNING

The entire proposed project is geared towards increasing the applied learning spaces on campus. The Health Sciences Simulation Lab, with its clinic-style design, will provide students with opportunities to practice learned skills, including high-risk scenarios. Nursing students will collaborate with students in other programs (i.e. emergency medical technician, medical assistant) to see how these occupations integrate to provide care. The Integrated Manufacturing Lab will provide manufacturing students with the opportunity to apply their learning in collaborative, project-based activities. Through established partnerships with vendors and private donors, PTCC will actively seek funding for equipment and technology for the new spaces. PTCC’s ability to effectively raise capital has been demonstrated throughout the years, most recently in the raising of private funding for the mobile welding trailer and start-up equipment for the Automated Systems Technology program.

FLEXIBLE DESIGN, TECHNOLOGY & FURNITURE

As PTCC refurbishes current classrooms, flexible furniture and technology have become the norm. This trend will carry through to the new spaces proposed in this project. This includes moveable tables and chairs, convertible tables with laptop or desktop capability, and software that allows for Bluetooth connections rather than hard-wired equipment. The Technology Committee will continue to explore how technology can be used in the “classroom without a front” to create maximum flexibility in classroom spaces. The HVAC and electrical systems in the labs will be designed for maximum flexibility to allow for future expansions or converted uses.
ACADEMIC MASTER PLAN: OBJECTIVES & TECHNICAL/TRADES PROJECT

The proposed project responds to the objectives of the PTCC Academic Master Plan.

1. To provide high-quality educational programs and services that promote accessibility, support retention and enhance learning success

   The proposed facilities support PTCC’s high-quality education programs by providing expanded, flexible lab spaces that can accommodate ongoing changes in technologies and equipment to better prepare students for the workforce. The large, high-bay spaces provide program flexibility. The spaces also support and attract faculty by providing collaborative work environments—both in office and in lab settings. Other spaces, such as the office suite, study commons or Applied Learning Lab, help accessibility, retention and learning success. Office suites contain individual workstations and a huddle room (small meeting rooms) that can support collaboration efforts between faculty or provide additional spaces for individualized learning. Both areas—the technical/trades and nursing/health sciences—will have improved lab areas, such as the health science simulation lab, that more closely represents the work world, thereby enhancing the learning success of students.

2. To provide ongoing assessment, accountability, and continuous improvement measures that will guide future decisions affecting student learning at every level throughout the college

   The proposed facilities promote excellence in teaching as students have increased exposure to other programs. Collaborative lab spaces are located in the technical/trades lab area and shared spaces such as the Applied Learning Lab, the study commons and faculty offices foster interaction between students and faculty of differing programs. The expanded lab spaces allow students to practice and perform learned skills, and for better assessment of those skills by faculty.

3. To promote the integration of efforts across campus to enhance student learning, support faculty and staff in their efforts to provide high quality education and services, and to increase the efficiency of college operations.

   Technical/trades and nursing/health science spaces are located to create program hubs that support collaboration between faculty and students and provide efficiencies in operations. The simulation lab provides expanded learning opportunities for faculty to provide high-quality educational experiences. In the technical/trades area, the Integrated Manufacturing Lab would be used by multiple programs (and for shared projects) and ancillary spaces such as storage, paint rooms, or the classroom would be shared across programs.

4. To expand collaboration, consultation, and communication within the College and between the College and its external constituents

   Program spaces are co-located to create program hubs that increase communication and collaboration amongst students, faculty and staff. Spaces, such as the study commons and Applied Learning Lab also promote greater communication and collaboration. Within the technical/trades area, open build areas (one a designated collaborative build space—the Integrated Manufacturing Lab) have been created to enhance cross-program interactions.
TECHNOLOGY MASTER PLAN: PRIORITIES & TECHNICAL/TRADES PROJECT 2017-2020

The following outlines how the project responds to the priorities of the PTCC Technology Master Plan.

Priority 1 – Engaging Student Learning Environments
Promote the integration of efforts across Campus to enhance student learning, support faculty and staff in their efforts to provide high quality education and services, and to increase the efficiency of college operations.

The proposed project creates engaging student learning environments by providing expanded space which has the capacity to incorporate new technologies and new state-of-the-art equipment that students will encounter outside of PTCC. The new spaces also allow faculty to explore and evolve their course offerings. The technical/trades spaces are open, flexible spaces that can better accommodate the large pieces of machinery needed for those programs; the alignment of those spaces, with technical/trades area being located adjacent to each other and incorporating an Integrated Manufacturing Lab, provides for increased learning opportunities; the simulation lab offers multiple healthcare setting scenarios that allows students to encounter and learn from situations which may not happen during clinical experiences. The Applied Learning Lab allows students to experiment and learn outside of the other lab spaces.

Technologies in the renovated and expanded space also improve space utilization. Streaming capabilities allow classrooms to be used for debriefs of simulation lab exercises by nursing students by the technical/trades for lectures prior to lab work. Access to wifi, printers or other tools in the Applied Learning Lab or in the study commons fosters learning outside of the lab and classroom.

Priority 2 – Reliability
Technology services can be counted on for consistent operation, at a consistently high level.

Reliable technologies in the facility spaces fosters closer links between other arms of PTCC - online learning, PTCC website, and administrative tasks and student support services. PTCC is currently using technology to deliver technical/trades courses in the “high-flex” method (students can attend in-class, online synchronously, and online asynchronously) increasing access to place-bound students. Renovated/expanded spaces, such as the huddle rooms, classroom, and Applied Learning Lab promote a rich, technology-enhanced learning environment.

Priority 3 – Professional Technology Services Staff
Technology Services conducts services and support in a business-like, customer service focused manner that meets the expectations of students, faculty and staff.

Technology staff will play a key role in the technical/trades and health science program spaces as those industry needs and technologies are constantly evolving. The spaces are flexible to accommodate future changes so that student learning environments can shift and change to keep up with changes in the world of work. The study commons, faculty huddle room, Applied Learning Lab and classroom are opportunities to introduce and expand campus technology goals.

Priority 4 – Sustainability
The Campus is currently replenishing cash reserves to a sustainable level. Technology Services will make financial decisions with attention towards student needs, cost consciousness, resource allocation awareness and quality.

The proposed project is an opportunity to further use technology in support of online education and distance learning. Spaces such as the classroom, huddle room, and Applied Learning Lab can support both on-site and online learning.
Program Summary

On the following pages, the program summary for the PTCC Technical/Trades Lab Addition & Renovation provides a comparison of current spaces and square footages with programmed space needs. This program was developed from meetings with the constituents - faculty, staff and college administration.

Following the summary pages, detailed Space Needs Inventory pages for each space type have been developed to identify:

- Name/usage description
- Square footage
- Occupancy
- Departments Served
- Functions
- Adjacencies
- Systems - Mechanical, electrical, technology, security/safety
- Furnishings/Fixtures/Equipment
- Diagrammatic Layout
Space Needs Summary
The inventory sheets that follow contain specific equipment, systems and adjacency needs of individual spaces listed below.

**ADDITION: Expansion for technical/trade programs**

<table>
<thead>
<tr>
<th>Program Space</th>
<th>Description</th>
<th>Existing SF</th>
<th>Proposed SF</th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gunsmithing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bench workstation for 50 people @ 30 sf/person (1,500)</td>
<td>2,242</td>
<td>3,500</td>
<td>1,258</td>
</tr>
<tr>
<td>Welding</td>
<td>will use new welding lab</td>
<td>162</td>
<td>-</td>
<td>(162)</td>
</tr>
<tr>
<td>Wood Room</td>
<td></td>
<td>248</td>
<td>900</td>
<td>652</td>
</tr>
<tr>
<td></td>
<td>Existing space outside of workshop, includes misc. storage, equipment, etc.</td>
<td>747</td>
<td>-</td>
<td>(747)</td>
</tr>
<tr>
<td>Bluing Room</td>
<td>includes 12 tanks @ 10 sf/each &amp; 2 heat ovens</td>
<td>269</td>
<td>450</td>
<td>181</td>
</tr>
<tr>
<td>Storage</td>
<td>existing in (4) areas (Tool Room, Storage 214, Hall &amp; Storage 235, Storage 224); will use shared storage/tool crib areas in new addition</td>
<td>1,001</td>
<td>-</td>
<td>(1,001)</td>
</tr>
<tr>
<td></td>
<td>Shooting tunnel including (1) 8’-wide shooting station</td>
<td>1,000</td>
<td>1,300</td>
<td>300</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td>5,669</td>
<td>6,150</td>
<td>481</td>
</tr>
<tr>
<td><strong>Welding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Included welding stations and build space</td>
<td>-</td>
<td>5,400</td>
<td>5,400</td>
</tr>
<tr>
<td></td>
<td>Indoor; with interior and exterior access</td>
<td>-</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td>-</td>
<td>5,540</td>
<td>5,540</td>
</tr>
<tr>
<td><strong>AST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Includes work area, floatable build area, wash down area, VEX team area and secure storage</td>
<td>1,394</td>
<td>2,100</td>
<td>706</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td>1,394</td>
<td>2,100</td>
<td>706</td>
</tr>
<tr>
<td><strong>Shared Spaces</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Existing offices in rooms 215 and 241/242; new office suite includes 8-7’x6’ or 12-6’x5’ workstations, 2-5 person huddle rooms for meetings or private conversations, open meeting area, and print area</td>
<td>606</td>
<td>1,000</td>
<td>394</td>
</tr>
<tr>
<td></td>
<td>Study area for students</td>
<td>-</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>Including paint booths</td>
<td>-</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>Drying room</td>
<td>-</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>Includes floatable, open build areas and storage</td>
<td>-</td>
<td>2,100</td>
<td>2,100</td>
</tr>
<tr>
<td></td>
<td>Tool check out and storage/space for 700 weapons, long and short; based on Secure-It cabinets model 84, 60 SF of cabinets are needed (140’ circulation)/includes work station for FT attendant</td>
<td>-</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>Equivalent existing space includes prototyping and 3D printing; new addition includes space for 2D (15 sf) and 3D printers (15 sf), and computers for research for 20 students</td>
<td>-</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td>1,332</td>
<td>8,550</td>
<td>7,218</td>
</tr>
<tr>
<td><strong>Support Spaces</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Circulation</td>
<td>-</td>
<td>3,300</td>
<td>3,300</td>
</tr>
<tr>
<td></td>
<td>Mechanical/Electrical Mezzanine space</td>
<td>-</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>Restrooms Men’s, women’s and janitor</td>
<td>-</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td>-</td>
<td>4,900</td>
<td>4,900</td>
</tr>
</tbody>
</table>

**PROGRAMMED AREA - NET SQUARE FOOTAGE**

<table>
<thead>
<tr>
<th></th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,395</td>
<td>18,845</td>
</tr>
</tbody>
</table>

Net to gross factor 10%

**TOTAL GROSS AREA** 29,964
<table>
<thead>
<tr>
<th>Medical Assistant / EMT</th>
<th>Existing SF</th>
<th>Proposed SF</th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMT Lockers/Commons</td>
<td>-</td>
<td>280</td>
<td>280</td>
</tr>
<tr>
<td>EMT Storage</td>
<td>-</td>
<td>225</td>
<td>225</td>
</tr>
<tr>
<td>SUBTOTAL</td>
<td>-</td>
<td>505</td>
<td>505</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Simulation Lab</th>
<th>Existing SF</th>
<th>Proposed SF</th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Science Simulation Lab</td>
<td>-</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Control Room</td>
<td>-</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>Supply Room</td>
<td>-</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>Medication Room</td>
<td>-</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Debriefing room</td>
<td>-</td>
<td>640</td>
<td>640</td>
</tr>
<tr>
<td>SUBTOTAL</td>
<td>-</td>
<td>3,790</td>
<td>3,790</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shared</th>
<th>Existing SF</th>
<th>Proposed SF</th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Sciences Lockers/Commons</td>
<td>-</td>
<td>370</td>
<td>370</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machining</th>
<th>Description</th>
<th>Existing SF</th>
<th>Proposed SF</th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machining Lab</td>
<td></td>
<td>4,661</td>
<td>6,300</td>
<td>1,639</td>
</tr>
<tr>
<td>CNC space</td>
<td>included in Machining Lab space above</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Storage</td>
<td>existing storage in Metal Stock 245, to be in shared materials room in new addition</td>
<td>227</td>
<td>-</td>
<td>(227)</td>
</tr>
<tr>
<td>SUBTOTAL</td>
<td></td>
<td>4,888</td>
<td>6,300</td>
<td>1,412</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support Spaces</th>
<th>Description</th>
<th>Existing SF</th>
<th>Proposed SF</th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation</td>
<td></td>
<td>-</td>
<td>956</td>
<td>956</td>
</tr>
<tr>
<td>Science Storage</td>
<td></td>
<td>144</td>
<td>160</td>
<td>16</td>
</tr>
<tr>
<td>Restrooms</td>
<td>Men's, women's, janitor room</td>
<td>440</td>
<td>511</td>
<td>71</td>
</tr>
<tr>
<td>SUBTOTAL</td>
<td></td>
<td>584</td>
<td>1,627</td>
<td>1,043</td>
</tr>
</tbody>
</table>

**PROGRAMMED AREA - NET SQUARE FOOTAGE**

<table>
<thead>
<tr>
<th></th>
<th>Existing SF</th>
<th>Proposed SF</th>
<th>Net Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6,722</td>
<td>14,042</td>
<td>7,320</td>
</tr>
</tbody>
</table>

**Net to gross factor**

|               | 7%           |

**TOTAL GROSS AREA**

|               | 15,025       |
Space Needs Inventory

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Gymnastics Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>3,500 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>52 (50 students &amp; 2 instructors)</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Gymnastics</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Workshop/instructional space</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Welding, wood room, paint &amp; drying, bluing room, indoor shooting tunnel, Also need direct access from parking and Tool Crib/Armory</td>
</tr>
</tbody>
</table>

SYSTEMS AND FINISHES

| FINISHES | Concrete floors, masonry walls, acoustical ceiling tile |
| LIGHTING | Direct/indirect; 80 f.c.; plus task; daylighting sensors, lighting controls |
| HVAC, ELECTRICAL & PLUMBING | 120V to each benchtop |
| TECHNOLOGY | Voice and data at instructor station and at walls; wireless internet, multi-media/audio visual equipment |
| FURNITURE, FIXTURES & EQUIPMENT | 30”x60” workbenches (with 46” high min. storage underneath to accommodate long and short firearms, a toolbox, and books), stools, white boards, display boards, rolling tool chests, instructor station/demo |
| OTHER REQUIREMENTS | Acoustic panels/baffles for sound control, Need visibility from faculty office suite |

LAYOUT & ADJACENCIES DIAGRAM
PROGRAM SUMMARY DETAIL

DESCRIPTION

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Wood Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>900 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Gunsmithing</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Workshop space</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Gunsmithing lab</td>
</tr>
</tbody>
</table>

SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Concrete floors, masonry walls, exposed structure ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 50 f.c. daylighting sensors, lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>Ventilation system, Dust collector, air supply for blasting cabinets, 120V power for equipment</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>None</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>See list below</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>Acoustic panels/baffles for sound control</td>
</tr>
</tbody>
</table>

LAYOUT & ADJACENCIES DIAGRAM

1. Vertical Milling Machine (35 SF)
2. Wood Band Saw (2@16SF/each)
3. Drill Press (2@12SF/each)
4. Belt Sander/Pedestal Grinder (2@7sf/each)
5. Wood Planner (18SF)
6. Sand Blast Machines/Cabinets (2@20sf/each)
7. Disc Sanders (3@5SF/each)
8. Metal Pedestal Buffers (2@6sf/each)
### Bluing Room

**Proposed Area (NSF):** 450 (NSF)

**Number of Rooms:** 1

**Number of Occupants:** --

**Programs Served:** Gunsmithing

**Function(s):** Workshop space

**Critical Adjacencies:** Gunsmithing lab

**Finishes:** Concrete floors, masonry walls, exposed ceiling structure

**Lighting:** Direct/indirect; 50 f.c. daylighting sensors and lighting controls

**HVAC, Electrical & Plumbing:** Ventilation system, natural gas for heating tanks, 120V power for equipment, 240V for two electric tanks, water, floor drain, sink

**Technology:** None

**Furniture, Fixtures & Equipment:** 10 gas-heated tanks; 2 electric tanks; two heat treatment ovens

**Other Requirements:**

---

![Bluing Room Layout](image-url)
PROGRAM SUMMARY DETAIL

DESCRIPTION

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Shooting Tunnel - Single station</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>1,300 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>2</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Gunsmithing</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Firearm testing space</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Gunsmithing lab</td>
</tr>
</tbody>
</table>

SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Concrete floors, masonry walls, exposed ceiling structure at shooting station, concrete ceiling structure at shooting tunnel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Indirect, 50 f.c., lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>Ventilation system; power to range equipment</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>Wireless access</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Storage for hearing protection and shooting glasses</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>Acoustic panels/baffles for sound control; targets/retrieval system, bullet trap, secure ammunition storage</td>
</tr>
</tbody>
</table>

LAYOUT & ADJACENCIES DIAGRAM

Required ADA clearance at door
Shooting station
## Welding Lab

**Program Summary Detail**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Welding Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>5,400 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>26 (24 students and 2 instructors)</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Welding, Gunsmithing, Manufacturing</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Workshop space</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Gunsmithing lab, wood room, metals room, fabrication area</td>
</tr>
</tbody>
</table>

### Systems and Finishes

- **FINISHES**: Concrete floors, masonry walls, exposed ceiling structure
- **LIGHTING**: Direct/indirect; 50 f.c. daylighting sensors and lighting controls
- **HVAC, ELECTRICAL & PLUMBING**: 120V & 208V power for equipment (separate gas cylinder storage)
- **TECHNOLOGY**: Wireless access
- **FURNITURE, FIXTURES & EQUIPMENT**: Welding stations for 24 students, secure storage
- **OTHER REQUIREMENTS**: Acoustic panels/baffles for sound control; Dock for mobile lab, supplies closet; 14’ door for forklift access

### Layout & Adjacencies Diagram

- (24) 8’x8’ welding stations
- 14’ overhead door
- 14’ overhead door
- Secure storage for helmets, leathers and tools
- 18’x80’ open build area
### PROGRAM SUMMARY DETAIL

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Gas Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>140 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>1</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Welding, Gunsmithing, Manufacturing</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Gas storage; access from interior &amp; exterior</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Welding Room, Exterior</td>
</tr>
</tbody>
</table>

**SYSTEMS AND FINISHES**

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Concrete floors, masonry walls, exposed ceiling structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct; 20 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>Ventilation</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>None</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Cabinets for tank storage</td>
</tr>
</tbody>
</table>
### PROGRAM SUMMARY DETAIL

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Automated Systems Technology (AST) Lab/Workroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>2,100 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>30</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>AST, Manufacturing</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Workshop space with storage and water testing area</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Manufacturing lab,</td>
</tr>
</tbody>
</table>

### SYSTEMS AND FINISHES

- **FINISHES**: Concrete floors, masonry walls, exposed ceiling structure
- **LIGHTING**: Direct/indirect; 50 f.c. daylighting sensors and lighting controls
- **HVAC, ELECTRICAL & PLUMBING**: Compressed air drops, power drops 208 3-phase/cord reels for 120 vac., water and floor drain
- **TECHNOLOGY**: Voice and data at walls; wireless internet, multi-media/audio visual equipment
- **FURNITURE, FIXTURES & EQUIPMENT**: See diagram and list, sink
- **OTHER REQUIREMENTS**: Acoustic panels/baffles for sound control
  14' overhead doors to adjacent spaces

### LAYOUT & ADJACENCIES DIAGRAM

SEE DIAGRAM AT RIGHT
1. Large Robots (2@15sf/each)
2. AST Conveyors (2@17.5sf/each)
3. Steel shearing unit (15sf)
4. Metal chop saw (9sf)
5. Welders (15sf)
6. Large robotic arm (32sf)
7. Plasma Cutter (4sf)
8. Computer simulator (25sf)
9. Small robotic arms (4@4sf/each)
**PROGRAM SUMMARY DETAIL**

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Faculty Office Suite - Technical/Trades</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>1,000 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>Open office suite with breakout room</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>9-12 staff</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>AST, Manufacturing, Gunsmithing, Welding</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Office space, faculty collaboration space</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Centrally located near programs</td>
</tr>
</tbody>
</table>

**SYSTEMS AND FINISHES**

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Carpet, painted gyp. board walls, ceiling grid with acoustic tile</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 30 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>120V power for equipment</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>Voice and data at workstations and at walls; wireless internet</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>12 - 6’x6’/9 - 7’x7’ Workstations, conference table and chairs, printer, Tables/chairs in breakout rooms</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>Sound control</td>
</tr>
</tbody>
</table>

**LAYOUT & ADJACENCIES DIAGRAM**

Diagram showing the layout of the Faculty Office Suite, including workstations, conference tables, chairs, and printer/storage areas.
### PROGRAM SUMMARY DETAIL

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Technical/Trades Commons</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>1,200 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>40</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>AST, Manufacturing, Gunsmithing, Welding</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Student study and collaboration space</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Programs noted above</td>
</tr>
</tbody>
</table>

### SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Carpet, painted gyp. board walls, ceiling grid with acoustic tile</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 30 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>120V power for equipment</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>Wireless access</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Moveable tables and chairs, lounge furniture, lockers</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>---</td>
</tr>
</tbody>
</table>

### LAYOUT & ADJACENCIES DIAGRAM

![Diagram of the layout and adjacencies](image-url)
PROGRAM SUMMARY DETAIL

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Paint Room &amp; Drying Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>600 (NSF) + 300 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>2 (1 of each)</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>6</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Gunsmithing, Manufacturing, AST, Welding</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Workshop space for painting</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Gunsmithing lab, Welding, Manufacturing, AST</td>
</tr>
</tbody>
</table>

SYSTEMS AND FINISHES

- FINISHES: Concrete floors, masonry walls, exposed ceiling structure
- LIGHTING: Direct/indirect; 50 f.c. at paint room; 30 f.c. at drying; lighting controls
- HVAC, ELECTRICAL & PLUMBING: Ventilation system, 120V power for equipment
- TECHNOLOGY: None
- FURNITURE, FIXTURES & EQUIPMENT: Exhausted paint booths (2 @ 5’ x 3’ bench booths and 1 @ 8’ x 6’ open booth) and racks/shelving for drying/storage
- OTHER REQUIREMENTS: ---

LAYOUT & ADJACENCIES DIAGRAM

[Diagram showing layout with notes on paint booths, ventilation, ADA clearance, and required rack or counter drying space.]
PROGRAM SUMMARY DETAIL

DESCRIPTION

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Integrated Manufacturing Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>2,100 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>30</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Gunsmithing, Manufacturing, AST, Welding</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Shared workshop and build space</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>AST Lab, Welding, Machining Lab, Classroom</td>
</tr>
</tbody>
</table>

SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Concrete floors, masonry walls, exposed ceiling structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 50 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>120V and 240V power at perimeter and power drops for equipment, ventilation system, one stall with a floor drain and water</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>Wireless access</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>See diagram below.</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>Acoustic panels/baffles for sound control</td>
</tr>
<tr>
<td></td>
<td>14' overhead doors to adjacent spaces</td>
</tr>
<tr>
<td></td>
<td>Windows to build spaces</td>
</tr>
</tbody>
</table>

LAYOUT & ADJACENCIES DIAGRAM
Program Summary Detail

<table>
<thead>
<tr>
<th>Room/Space Name</th>
<th>Tool Crib/Armory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Area (NSF)</td>
<td>1,200 (NSF)</td>
</tr>
<tr>
<td>Number of Rooms</td>
<td>1</td>
</tr>
<tr>
<td>Number of Occupants</td>
<td>4</td>
</tr>
<tr>
<td>Programs Served</td>
<td>AST, Manufacturing, Gunsmithing, Welding</td>
</tr>
<tr>
<td>Function(s)</td>
<td>Equipment/tool storage and check-out, rolling tool chest storage</td>
</tr>
<tr>
<td>Critical Adjacencies</td>
<td>Gunsmithing Lab &amp; Entry, AST, Manufacturing, Welding</td>
</tr>
</tbody>
</table>

Systems and Finishes

<table>
<thead>
<tr>
<th>Finishes</th>
<th>Concrete floors, masonry walls, exposed ceiling structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting</td>
<td>Direct; 30 f.c. daylighting sensors and lighting controls, ventilation</td>
</tr>
<tr>
<td>HVAC, Electrical &amp; Plumbing</td>
<td>120V power for equipment</td>
</tr>
<tr>
<td>Technology</td>
<td>Data at workstations and at walls; wireless internet</td>
</tr>
<tr>
<td>Furniture, Fixtures &amp; Equipment</td>
<td>Automated tool check-out system machines, workstation</td>
</tr>
<tr>
<td>Other Requirements</td>
<td>Storage cabinets for 700 firearms (long and short); 48&quot; minimum for rifle/ shotgun lengths, space for tool chests, cabinets for chemicals</td>
</tr>
<tr>
<td></td>
<td>Secured area</td>
</tr>
</tbody>
</table>

Layout & Adjacencies Diagram

- Gun cabinets for long and short firearms (700). Based on Secure-IT Model 84 (15"x36")
- Required ADA clearance at door
- Automated tool control/check-out system
- Rolling tool chest storage
# PROGRAM SUMMARY DETAIL

## DESCRIPTION

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>PROPOSED AREA (NSF)</th>
<th>NUMBER OF ROOMS</th>
<th>NUMBER OF OCCUPANTS</th>
<th>PROGRAMS SERVED</th>
<th>FUNCTION(S)</th>
<th>CRITICAL ADJACENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage - Indoor</td>
<td>250 (NSF)</td>
<td>1</td>
<td>---</td>
<td>AST, Manufacturing, Gunsmithing, Welding, Nursing</td>
<td>Shared storage area for wood, metals and other materials</td>
<td>Welding lab, manufacturing lab, gunsmithing lab</td>
</tr>
</tbody>
</table>

## SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>LIGHTING</th>
<th>HVAC , ELECTRICAL &amp; PLUMBING</th>
<th>TECHNOLOGY</th>
<th>FURNITURE, FIXTURES &amp; EQUIPMENT</th>
<th>OTHER REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete floors, masonry walls, exposed ceiling structure</td>
<td>Direct, 30 f.c., daylighting sensors, lighting controls</td>
<td>None</td>
<td>None</td>
<td>Forklift, 3x3 scrap-tote storage, racks for material storage</td>
<td>Overhead doors</td>
</tr>
</tbody>
</table>

## LAYOUT & ADJACENCIES DIAGRAM

![Diagram](image-url)
**Program Summary Detail**

<table>
<thead>
<tr>
<th>Room/Space Name</th>
<th>Applied Learning Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Area (NSF)</td>
<td>1,000 (NSF)</td>
</tr>
<tr>
<td>Number of Rooms</td>
<td>1</td>
</tr>
<tr>
<td>Number of Occupants</td>
<td>25</td>
</tr>
<tr>
<td>Programs Served</td>
<td>AST, Manufacturing, Gunsmithing, Welding</td>
</tr>
<tr>
<td>Function(s)</td>
<td>Research and design space</td>
</tr>
<tr>
<td>Critical Adjacencies</td>
<td>---</td>
</tr>
</tbody>
</table>

**Systems and Finishes**

<table>
<thead>
<tr>
<th>Finishes</th>
<th>Carpet, painted gyp. board walls, ceiling grid with acoustic tile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting</td>
<td>Direct/indirect; 50 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, Electrical &amp; Plumbing</td>
<td>120V power for equipment</td>
</tr>
<tr>
<td>Technology</td>
<td>20 computer stations; wired and wireless access</td>
</tr>
<tr>
<td>Furniture, Fixtures &amp; Equipment</td>
<td>Computer stations, laptop stations, 3D printer, copier/printer, shelving for reference materials</td>
</tr>
<tr>
<td>Other Requirements</td>
<td>---</td>
</tr>
</tbody>
</table>

**Layout & Adjacencies Diagram**

[Diagram showing a floor plan with labels for White Board, Design Area, Reference Materials, 3D Printer, Copier/Printer, Computer Stations, Required ADA clearance at door]
Pine Technical & Community College
Technical/Trades Addition & Renovation Predesign

PROGRAM SUMMARY DETAIL
DESCRIPTION

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Classroom - Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>900 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>32</td>
</tr>
<tr>
<td>DEPARTMENTS SERVED</td>
<td>AST, Manufacturing, Gunsmithing, Welding</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Shared classroom space for up to 32 students</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Programs noted above</td>
</tr>
</tbody>
</table>

SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Carpet Tile; painted gypsum board; special finish; acoustical panel ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; accent fixtures; 50 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls,</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>120V power at walls; Voice and data at instructor station and at walls; wireless internet, multi-media/audio visual equipment</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Moveable tables and moveable chairs that fold and nest; instructor station (desk/podium), whiteboards and front and sides of room</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>Sound Control</td>
</tr>
</tbody>
</table>

LAYOUT & ADJACENCIES DIAGRAM
<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Materials Storage - Outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>2,000 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>---</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>AST, Manufacturing, Gunsmithing, Welding</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Exterior, sheltered storage for bulk materials</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Loading area</td>
</tr>
</tbody>
</table>

**SYSTEMS AND FINISHES**

- FINISHES
- LIGHTING
- HVAC, ELECTRICAL & PLUMBING
- TECHNOLOGY
- FURNITURE, FIXTURES & EQUIPMENT
- OTHER REQUIREMENTS
Pine Technical & Community College
Technical/Trades Addition & Renovation Predesign

**PROGRAM SUMMARY DETAIL**

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Public Restrooms, Janitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>600 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>DEPARTMENTS SERVED</td>
<td>---</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Accessible toilet rooms to serve expansion area</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>---</td>
</tr>
</tbody>
</table>

**SYSTEMS AND FINISHES**

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Ceramic tile at toilets, sealed concrete at janitor, Painted gypsum board; ceramic tile at plumbing walls; FRP at janitor, acoustical panel ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; accent fixtures; 30 f.c. Occupancy sensors.</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls, exhaust, sinks, urinals, floor drains, mop sink at janitors</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>120V GFCI power at walls;</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Toilet partitions, urinal screens, paper towel dispensers, hand dryers, soap dispensers, baby changing stations, sanitary napkin dispenser and disposal trash receptacles,</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>Noise Control</td>
</tr>
</tbody>
</table>

**LAYOUT & ADJACENCIES DIAGRAM**

![Diagram of layout and adjacencies](image-url)
Medical Assistant Lab

1,250 (NSF)

24

Medical Assistant, EMT, Health Sciences

Nursing Labs; Health Sciences Simulation Lab, EMT Storage, Storage

Resilient flooring; painted gypsum board; special finish; acoustical panel ceiling

Direct/indirect; accent fixtures; 50 f.c. daylighting sensors and lighting controls

75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls; 120V power at walls

Voice and data at instructor station and at walls; wireless internet, multimedia/audio visual equipment

Moveable tables and moveable chairs that fold and nest; instructor station (desk/podium), whiteboards (see below for lab equipment)

Sound Control

### SYSTEMS AND FINISHES

### FINISHES

### LIGHTING

### HVAC, ELECTRICAL & PLUMBING

### TECHNOLOGY

### FURNITURE, FIXTURES & EQUIPMENT

### OTHER REQUIREMENTS

### LAYOUT & ADJACENCIES DIAGRAM
### PROGRAM SUMMARY DETAIL

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Medical Assistant Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>200 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Medical Assistant</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Storage for Medical Assistant Program</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>---</td>
</tr>
</tbody>
</table>

### SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Resilient flooring; painted gypsum board</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 30 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>None</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Shelving, lockable cabinets</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>---</td>
</tr>
</tbody>
</table>

### LAYOUT & ADJACENCIES DIAGRAM

---
### PROGRAM SUMMARY DETAIL

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>EMT Lockers/Commons</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>280 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>---</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>EMT</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Lockers/storage for EMT students</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Nursing Labs; Health Sciences Simulation Lab, EMT Storage</td>
</tr>
</tbody>
</table>

### SYSTEMS AND FINISHES

**FINISHES**
- Resilient flooring; painted gypsum board; acoustical panel ceiling

**LIGHTING**
- Direct/indirect; accent fixtures; 50 f.c. daylighting sensors and lighting controls

**HVAC, ELECTRICAL & PLUMBING**
- 75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls; 120V power at walls

**TECHNOLOGY**
- Wireless internet

**FURNITURE, FIXTURES & EQUIPMENT**
- Lockers

**OTHER REQUIREMENTS**
- ---

### LAYOUT & ADJACENCIES DIAGRAM

[Diagram showing room layout with labels for storage, 18" x 60" training tables and chairs, and lockers.]
**PROGRAM SUMMARY DETAIL**

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>EMT Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>225 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>---</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Medical Assistant, EMT</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Storage for Medical Assistant and EMT Programs</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>---</td>
</tr>
</tbody>
</table>

**SYSTEMS AND FINISHES**

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Carpet Tile; painted gypsum board; acoustical panel ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 30 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>None</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Shelving, cabinets</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>---</td>
</tr>
</tbody>
</table>

**LAYOUT & ADJACENCIES DIAGRAM**

![Diagram](image)
### PROGRAM SUMMARY DETAIL

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Health Science Simulation Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>3,790 (NSF) - total area including spaces noted below</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1 (see layout)</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>40</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Nursing, Medical Assistant, EMT, Health Sciences</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Hospital/clinic simulation space shared by all health science programs</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Nursing Labs, Medical Assistant Lab, EMT and other storage areas</td>
</tr>
</tbody>
</table>

**SYSTEMS AND FINISHES**

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Resilient flooring; painted gypsum board; special finish; acoustical panel ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; accent fixtures; 50 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; DDC; 120V power, sinks, toilets, shower</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>Voice and data at nurse's station and at walls; wireless internet, multimedia/audio visual equipment, nurse call, microphones and cameras in each simulation space</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>See below for lab equipment and layout</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>Capability to stream to other classrooms.</td>
</tr>
</tbody>
</table>

**LAYOUT & ADJACENCIES DIAGRAM**

SEE DIAGRAM ON FOLLOWING PAGE

Space includes:
- Reception Area
- Nurse's Station
- Control Room
- Simulation Areas (6)
- Debriefing Room
- Storage/Linen Room
- Medication Room
- Supply Room
- Storage Room
HEALTH SCIENCE SIMULATION LAB DIAGRAM

RECEPTION AREA: Waiting area chairs (4)

NURSE’S STATION: Station Desk, chairs, computers for 3 people

SIMULATION AREAS - VARIED SETTINGS: Areas which can be set up as simulated hospital (3) and clinical (3) rooms in various settings.

Hospital: 3 head boards with oxygen and air flow meters, humidifiers, nasal cannulas, analog vacuum regulator, and suction collection canister and ring holder; 3 hospital beds approximate; 3 night stands approximate; 3 hospital white boards approximate; 3 over bed tables approximately; 6 patient chairs approximately; 3 rolling stools approximately; 3 sharps holders approximate; 3 glove holders approximate; cameras/microphones/video recording; 2 3g simmen approximately; 1 simbaby approximately; 1 Noelle Birthing Simulator; 3 computers outside of rooms

Clinical Rooms: 3 clinic exam table approximate; 3 computers approximately; 3 desks in rooms; 3 rolling stools approximately; 6 patient chairs approximately; 3 sharps holders approximate; 3 glove holders approximate; 3 Otoscopes sets approximately; 3 mayo stands approximately

CONTROL ROOM:
    Counter/desks, chairs for 3 - 4, equipment to run multiple simulations, wire storage shelves

DEBRIEFING ROOM: Single table and chairs for 12, bookcase/shelving for reference materials, A/V

STORAGE/LINEN ROOM: Shelving

MEDICATION ROOM: 3 approx. Wire storage selves to line wall; 30 approx stacking small storage bins; 30 approx stacking medium storage bins; 20 approx stacking large storage bins; Pyxis medication dispensing system

STORAGE ROOM: Wire shelving to line wall, small, medium & large stacking storage bins (40 each size)

LOCKERS: keyed lockers for 20; wide to accommodate student rolling backpacks
### Machining Lab

- **Room/Space Name:** Machining Lab
- **Proposed Area (NSF):** 8,200 (NSF)
- **Number of Rooms:** 1
- **Number of Occupants:** 40
- **Programs Served:** AST
- **Function(s):** Workshop space
- **Critical Adjacencies:** Welding

### Systems and Finishes

- **Finishes:** Concrete floors, masonry walls, exposed ceiling structure
- **Lighting:** Direct/indirect; 30 f.c. daylighting sensors and lighting controls
- **HVAC, Electrical & Plumbing:** 120V & 20V power for equipment, dehumidification system
- **Technology:** Voice and data at walls; wireless internet, multi-media/audio visual equipment
- **Furniture, Fixtures & Equipment:** See diagram and list
- **Other Requirements:** Acoustic panels/baffles for sound control

### Layout & Adjacencies Diagram

See diagram at right
1. Manual Milling Machines (20)
2. Manual Lathes (20)
3. CNC Machines (10)
4. Optical Comparator (1)
5. Faro Arm (1)
6. Surface Plate Tables: (3)
7. Surface Grinders (4)
8. Bench Grinders/vertical belt sander (6)
9. Drilling sharpener (1)
10. EDM Machines (2)
11. Table Router (1)
12. CNC Simulators (4)
13. Laser Engraver, Tensile Strength Tester, Spectrometer, Differential Scanning Calorimeter (1 EA)
14. 2 Ton Chain Hoist (1)
15. Automatic Metal Band Saw (1)
16. 3D Printer (1)
<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Health Sciences Lockers/Commons</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>370 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>Nursing, Health Sciences</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Nursing Labs; Simulation Lab</td>
</tr>
</tbody>
</table>

**SYSTEMS AND FINISHES**

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Resilient flooring; painted gypsum board</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 30 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING TECHNOLOGY</td>
<td>75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Shelving, lockable cabinets</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>---</td>
</tr>
</tbody>
</table>

**LAYOUT & ADJACENCIES DIAGRAM**
### PROGRAM SUMMARY DETAIL

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Science Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>160 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>---</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>---</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Storage for Science Lab</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>Science Lab</td>
</tr>
</tbody>
</table>

### SYSTEMS AND FINISHES

<table>
<thead>
<tr>
<th>FINISHES</th>
<th>Resilient flooring; painted gypsum board</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>Direct/indirect; 30 f.c. daylighting sensors and lighting controls</td>
</tr>
<tr>
<td>HVAC, ELECTRICAL &amp; PLUMBING</td>
<td>75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls</td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td>None</td>
</tr>
<tr>
<td>FURNITURE, FIXTURES &amp; EQUIPMENT</td>
<td>Shelving, cabinets</td>
</tr>
<tr>
<td>OTHER REQUIREMENTS</td>
<td>---</td>
</tr>
</tbody>
</table>

### LAYOUT & ADJACENCIES DIAGRAM
PROGRAM SUMMARY DETAIL

DESCRIPTION

<table>
<thead>
<tr>
<th>ROOM/SPACE NAME</th>
<th>Public Restrooms, Janitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSED AREA (NSF)</td>
<td>440 (NSF)</td>
</tr>
<tr>
<td>NUMBER OF ROOMS</td>
<td>1</td>
</tr>
<tr>
<td>NUMBER OF OCCUPANTS</td>
<td>---</td>
</tr>
<tr>
<td>PROGRAMS SERVED</td>
<td>---</td>
</tr>
<tr>
<td>FUNCTION(S)</td>
<td>Renovation of existing restrooms</td>
</tr>
<tr>
<td>CRITICAL ADJACENCIES</td>
<td>---</td>
</tr>
</tbody>
</table>

SYSTEMS AND FINISHES

FINISHES
Ceramic tile at toilets, sealed concrete at janitor, Painted gypsum board; ceramic tile at plumbing walls; FRP at janitor, acoustical panel ceiling

LIGHTING
Direct/indirect; accent fixtures; 30 f.c. Occupancy sensors.

HVAC, ELECTRICAL & PLUMBING
75°F and 50% relative humidity in summer; 72°F winter; overhead duct distribution; direct digital controls, exhaust, sinks, urinals, floor drains, mop sink at janitors

TECHNOLOGY
120V GFCI power at walls;

FURNITURE, FIXTURES & EQUIPMENT
Toilet partitions, urinal screens, paper towel dispensers, hand dryers, soap dispensers, baby changing stations, sanitary napkin dispenser and disposal trash receptacles, Noise Control

LAYOUT & ADJACENCIES DIAGRAM
Project Illustrations
Proposed Site Plan
Note that codes listed are current as of this Predesign; later editions and revisions will apply based upon the date of the project.

**Design Guidelines**
- Minnesota State Facilities Design Standards

**Building Code**
- 2012 International Building Code, (IBC) with MN amendments per Chapter 1305
- 2015 Minnesota State Building Code

**Accessibility Standards**
- 2012 International Building Code, (IBC), Chapter 11
- 2015 Minnesota State Building Code
- 2009 ICC/ANSI 117.1 (with MN Amendments)

**Fire/Life Safety Code**
- 2012 International Fire Code, (IFC), with MN amendments per Chapter 7511
- 2015 Minnesota State Fire Code

**Mechanical Code**
- 2015 International Mechanical Code (as amended) per Chapter 1346
- 2015 Fuel Gas Code

**Plumbing Code**
- 2015 Minnesota State Plumbing Code, Chapter 4715

**Electrical Code**
- 2014 National Electric Code (as amended)

**Energy Code / Sustainability**
- 2015 Minnesota State Energy Code, Chapter 7680-7678
- 2012 International Energy Conservation Code (IECC)
- ASHRAE 90.1 - 2010 Energy Standard for Buildings
- Minnesota Sustainable Building Guidelines (B3) Version 2.2

**Elevator Standards**
- 2015 Minnesota Elevator and Related Devices Code
- ASME A17.1-2004; ASME A17.15-2005

The following regulatory agencies apply to the project and may impact the project’s design and implementation.
- Minnesota State Board of Health
- National Fire Protection Association
- Occupational Safety and Health Act
- Americans with Disabilities Act
- ASHRAE Laboratory Design Guide
- American National Standards Institute – Laboratory Ventilation
- American Society of Mechanical Engineers
- American Society of Heating, Air Conditioning and Refrigeration Engineers (ASHRAE)
- Air Moving and Conditioning Association
- American Water Works Association
- Sheet Metal and Air Conditioning Contractors National Association
- National Sanitation Foundation
- Pollution Control Agency
The following statutory requirements apply to the project and may impact the project’s operational program:

- **MS 16B.32 (Subd. 2): Energy Conservation Goals**
- **MS 16B.323: Solar Energy in State Buildings**
- **MS 16B.325: Sustainable Building Guidelines, (B3)**
- **MS 16B.326: Geothermal & Solar on New or Replacement HVAC Systems**
- **MS 16B.327: Recycle 50% of Construction & Demolition Waste**
- **MS 16B.33: State Designer Selection Board**
- **MS 16B.335 (Subd. 1): Notification to House & Senate**
- **MS 16B.335 (Subd. 3): Predesign Requirement**
- **MS 16B.335 (Subd. 3c): Consider the Use of MINNCOR Products**
- **MS 16B.335 (Subd. 4): Energy Conservation Standards**
- **MS 16B.35: Percent for Art**
- **MS 16A.633: Report on Jobs Created or Retained**
- **Laws 2014, Chapt. 294,Sec. 22 and 295, Sec. 21: American Made Steel**
- **Laws 2014, Chapt. 253: Responsible Contractor**

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Security/Safety Concerns

Site and building security issues pertaining to this project include appropriate exterior lighting at pathways and new building entrances and provisions for students or faculty in the gunsmithing program.

The proposed project addresses these concerns by:

- Creating a secure entry for gunsmithing students and faculty. The new firearm entry would provide direct access from the exterior of the building to the gunsmithing area. Gunsmithing students would check-in their firearms at the staffed tool crib/armory.
- Providing adequate lighting for students in parking lots and along pathways and trails. This is particularly important in regard to the new building entrances, both the secondary main entry off the parking lot to the east and the secure gunsmithing entry to the south.
- Installing appropriate security cameras at the new building entrances.
# Building Summary Form

## OCCUPANCY GROUP(S) (EXISTING)
B, A-3, F-1

## PRIMARY SPACE TYPES (OFFICE, CLASSROOM, ETC.)
Classrooms, Labs, Technical/Fabrication Labs, Offices, Support Spaces

## TYPE OF CONSTRUCTION (PER CURRENT MN BUILDING CODE )
II-B

## BUILDING SIZE
**EXISTING:** 90,100 GSF; **Total with Proposed Addition:** 133,200 GSF

## ALLOWABLE HEIGHT
55 feet

## ALLOWABLE AREA/FLOOR
Unlimited (see IBC)

## TOTAL BUILDING AREA
133,200

## BUILDING SYSTEMS (DESCRIBE TYPE OF SYSTEM & CONDITION)

<table>
<thead>
<tr>
<th>Type</th>
<th>Existing</th>
<th>Addition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROOFING TYPE(S):</strong></td>
<td>4-ply Built-Up Roof</td>
<td>4-ply Built-Up Roof</td>
</tr>
<tr>
<td><strong>STRUCTURAL SYSTEM TYPE(S):</strong></td>
<td>Concrete masonry, steel, steel bar joist and deck</td>
<td>Precast concrete panels, steel bar joist and deck</td>
</tr>
<tr>
<td><strong>MECHANICAL SYSTEM TYPE(S):</strong></td>
<td>Multiple air handling units with DX cooling, some VAVs</td>
<td>New air handling units with DX cooling, VAVs</td>
</tr>
<tr>
<td><strong>ELECTRICAL SYSTEM TYPE(S):</strong></td>
<td>600 amp service; distributed switchgear and panels</td>
<td>New 600 am service; new switchgear and panels</td>
</tr>
<tr>
<td><strong>FIRE PROTECTION TYPE(S):</strong></td>
<td>Building fully sprinklered</td>
<td>Building to remain fully sprinklered</td>
</tr>
<tr>
<td><strong>EXTERIOR WALL TYPE(S):</strong></td>
<td>Brick and concrete masonry</td>
<td>Precast concrete</td>
</tr>
<tr>
<td><strong>INTERIOR WALL TYPE(S):</strong></td>
<td>Concrete masonry and metal stud/drywall</td>
<td>Concrete masonry and metal stud/drywall</td>
</tr>
<tr>
<td><strong>CONVEYING SYSTEM(S):</strong></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>LIFE EXPECTANCY OF BUILDING AND SYSTEM(S):</strong></td>
<td>Overall building 50 years+</td>
<td>50 years+ (see other sections for building systems narratives)</td>
</tr>
<tr>
<td><strong>TECHNOLOGY SYSTEM(S):</strong></td>
<td>Cat 5 wiring, wireless access, audio/video systems at classrooms</td>
<td>(see Technology section for additional narrative on technology systems)</td>
</tr>
<tr>
<td><strong>SUSTAINABILITY/ALTERNATIVE ENERGY SYSTEMS(S):</strong></td>
<td>None</td>
<td>Proposed roof-mounted solar panels</td>
</tr>
<tr>
<td><strong>NOTES ON EXISTING FF&amp;E:</strong></td>
<td>Some equipment to be reused/relocated</td>
<td>See program pages for additional equipment and furnishings</td>
</tr>
</tbody>
</table>

## CODE INFORMATION

<table>
<thead>
<tr>
<th>CODE INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALLOWABLE HEIGHT</strong></td>
</tr>
<tr>
<td><strong>ACTUAL AREA/FLOOR</strong></td>
</tr>
<tr>
<td><strong>SPACE EFFICIENCY (%)</strong></td>
</tr>
</tbody>
</table>

## METRICS

| CURRENT BACKLOG: | $276,000 |
| CURRENT RENEWAL: | $1,040,000 |
| **CURRENT SPACE UTILIZATION:** | 54% classrooms, 53% lab, 66% tech labs |
| **PROPOSED SPACE UTILIZATION:** | 60% classroom, 60% labs, 70% tech labs |
| **CRV:** | $29,263,889 |
Analysis of Project
Alternatives & Options

See Section 2: Alternatives.

Past Actions

No General Obligation Bond appropriations have been requested or received for the proposed project.

Project Impacts on Campus Site

The proposed addition prompts changes to the site including:

- Development of a new south entry drive and redeveloped intersection with new signage landscaping and campus brand.
- A new south parking lot off the new south entry drive with staff parking, reconfigured service access, circulation and storage areas.
- Relocation of existing, fences auto yard between service buildings—with proper screening

These items were identified in the 2017 Comprehensive Facilities Plan.

Project Phasing

In order to optimize the construction budget, the project is planned for funding of both design and construction in one Capital Bonding request with completion of construction by August 2022. Within this bonding request, work will be phased to construct the new addition first, relocate technical programs to their new areas and then renovate vacated spaces for the Health Sciences programs. This will allow the college to remain fully operational during construction.
In 2009, Minnesota State Colleges and Universities started using the B3 system establishing the baseline for energy use. The information below reflects Pine Technical College’s energy use of both natural gas and electricity. The baseline shows how the site would perform if no changes or improvements had been made.

With the planned projects to replace the multi-zone HVAC, older air conditioning units and controls along with continued replacement of lighting with LED fixtures will allow the college to achieve or exceed their goal of a 20% reduction in energy consumption from 2009 to 2020.

The following charts provide a snapshot of the baseline energy use for the campus and demonstrate energy savings achieved through recent mechanical and lighting upgrades.

Benchmarking report illustrating monthly energy usage year over year from 2008 through 2018. Upgrades in mechanical systems in recent years of resulted in reduced energy consumption.
Benchmarking report illustrating monthly electric usage.

![Electric Monthly Continuous Chart]

Benchmarking report illustrating monthly natural gas usage.

![Natural Gas Monthly Continuous Chart]
Plan for B3 Compliance

Pine Technical & Community College is committed to incorporating principles of sustainable design and energy efficiency into this building project. The result is intended to be an optimal balance of cost and environmental, community and individual benefits while meeting the mission and function of the completed facility. The college will utilize an integrated design process in order to achieve SB2030 goals including generating the Energy Standard and Carbon Footprint early in the planning process and documenting in the B3 tracking tool, calculating predicted building annual energy use and developing building strategies to achieve energy goals. These are reviewed and updated at each stage of the design process (SD and DD phases) and documented prior to construction (CD phase). As part of the one-year correction period, the Energy Standard and Carbon Footprint are updated and recorded along with actual building energy use.

As part of the B3 process, a life-cycle cost evaluation will be complete that takes into account all capital expenditures for equipment and labor, as well as a detailed energy analysis of the proposed building addition and renovated areas.

Renewable Energy Initiatives

The Technical/Trades Lab Addition & Renovation is an opportunity to provide renewable energy through roof-mounted solar electrical panels.

State of Minnesota B3 guidelines will be applied to new buildings and major renovations. Guidelines require review of solar photovoltaic, geothermal, or other alternate energy sources for viability at the specific project site and conditions.

**Photovoltaic Array**

Minnesota B3 guidelines require an economic analysis of onsite renewable energy systems sufficient to offset 2% of the predicted energy demand (MN Statute 16B.32 Subd. 1). The following is an analysis for energy production and utility bill offset for 1kW of photovoltaic panels. This would encompass approximately 10.7 square feet of space. The cost of installation for this system can vary greatly if structural reinforcement is required, but for this example the cost of $3,000/kW is used. The electric utility rate is approximately $0.119/kWh.

- **Location:** Pine City, MN.
- **Annual Average Solar Radiation:** 3.84 kWh/m2/day.
- **Annual Energy Produced:** 80,811 MWh/year.
- **Annual Energy Bill Reduction** (energy produced at the utility rate listed above): $156/year.
- **Simple Payback Period:** greater than 25 years.

For photovoltaic panels to become cost effective and achieve a maximum payback of 15 years as targeted by Minnesota Sustainable Building Guidelines (MN B3) either the cost of electricity will need to significantly increase, or the panels will need to come down greatly in cost (this reduction in cost can come from material costs, labor costs, or incentives).

**Geothermal**

Minnesota B3 guidelines require economic analysis of geothermal systems for heating and cooling. In this case, the existing building renovation requires no significant additional cooling or heating. The addition, however, requires heat and cooling. Specifically, the mechanical section of this report notes that the new addition can use the existing heating / boiler system, but will require a new (air-cooled) chiller, sized at approximately 85 tons. The potential exists, then, to use a geothermal system in lieu of the chiller plant proposed. However, cost analysis
shows this to be an unattractive option. Geothermal systems are particularly good at transferring heat during colder seasons, and even during moderate temperatures through the use of the earth. In this case, the benefit would be lost insofar as the most cost-effective option for heating would be re-use of the existing system. Trying to achieve reasonable payback for a cooling-only geothermal system is not practical. As a basis of comparison, the 85-ton chiller has a cost of $50,000 (excluding installation) while the geothermal system would exceed $200,000. Making this payback more difficult still is the minimal gain a geothermal system would have in cooling-only mode. An air-cooled chiller efficiency rating would be in the 10-11 EER range, while geothermal (water-to-water) would only be 13-14 EER at design conditions. While it is true that both systems would see improvements in colder seasons, and that the geothermal would see significant improvement, in this case it would not be enough to offset initial costs. Lastly, geothermal systems use electricity in lieu of natural gas for heating energy. Current low natural gas prices make for a difficult argument in favor of geothermal.

The project is anticipated to include the following low-cost efficiency measures:

- Installing of energy-saving LED lighting
- Using occupancy sensors, automatic time switch controls and daylighting sensors where applicable
- Replacing existing plumbing fixtures in renovated areas and providing new low-flow fixtures to reduce water consumption
- Locating student commons spaces and classrooms to maximize daylighting opportunities

The waste management goal of the state is to foster an integrated waste management system to protect the state's land, air, water, and other natural resources and the public health. Waste management practices will be required for the construction of this project including:

- Waste reduction and reuse;
- Waste recycling;
- Composting of source-separated compostable materials

A construction waste management plan will be included with the project construction requirements with a goal to divert a minimum of 75% of construction waste from landfill.

The following sustainable energy statutes apply to this project:

- MN Statute 16B.32 Subd. 2 Energy Conservation Goals
- MN Statute 16B.323 Solar Energy in State Buildings
- Predesign to contain cost benefit of up to 5% fo appropriation to be used on Solar Energy System when doing substantial reconfiguration of space or replacement of energy systems.
- MN Statute 16B.325 Apply Sustainable Guidelines (B3-MSBG)
- MN Statute 216B.2451 Sustainable Building 2030 Requirements
- MN Statute 16B.326 Written plan with predesign to consider providing Geothermal & Solar Energy Heating & Cooling System on new ore replacement HVAC systems
- MN Statute 16B.327 Recycle 50% of Construction & Demolition Waste (B3-MSBG requires 75%)
Estimate of Capital Expenditures

Based upon the project background and rationale, Pine Technical & Community College is pursuing funding in 2020 to complete design and construction of the Technical/Trades Addition and Renovation project. Within this bonding request, work will be phased to construct the new addition first, relocate technical programs to their new areas and then renovate vacated spaces for the Health Sciences programs. This will allow the college to remain fully operational during construction.

Full Project Costs

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Acquisition</td>
<td>$0</td>
</tr>
<tr>
<td>Predesign Costs</td>
<td>$30,000</td>
</tr>
<tr>
<td>Design Fees</td>
<td>$976,000</td>
</tr>
<tr>
<td>Project Management</td>
<td>$493,000</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>$10,269,000</td>
</tr>
<tr>
<td>Art</td>
<td>$50,000</td>
</tr>
<tr>
<td>Occupancy (FFE, Telecommunications, Security)</td>
<td>$547,000</td>
</tr>
<tr>
<td>Inflation (January 2012 mid-point of construction)</td>
<td>$2,650,000</td>
</tr>
<tr>
<td><strong>Grand Total - Project Costs</strong></td>
<td><strong>$15,015,000</strong></td>
</tr>
<tr>
<td>Prior Year Funding (Predesign)</td>
<td>($30,000)</td>
</tr>
<tr>
<td><strong>Total of 2020 Bonding Request</strong></td>
<td><strong>$14,985,000</strong></td>
</tr>
</tbody>
</table>

Construction Cost Breakdown by Type

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site/Building Preparation</td>
<td>$580,000</td>
</tr>
<tr>
<td>New Construction</td>
<td>29,964 GSF</td>
</tr>
<tr>
<td>Renovation</td>
<td>15,025 GSF</td>
</tr>
<tr>
<td>Renewal</td>
<td>0 GSF</td>
</tr>
<tr>
<td>Demolition</td>
<td>0 GSF</td>
</tr>
<tr>
<td>Construction Contingency</td>
<td></td>
</tr>
<tr>
<td><strong>Construction Cost Totals</strong></td>
<td>44,989 GSF</td>
</tr>
</tbody>
</table>

Budget and Schedule Impacts

Based upon the project background and rationale, Pine Technical & Community College is pursuing full funding in 2020 to complete design and construction of the Technical/Trades Addition and Renovation project. Within this bonding request, work will be phased to construct the new addition first, relocate technical programs to their new areas and then renovate vacated spaces for the Health Sciences programs. This will allow the college to remain fully operational during construction. There are no other budget and schedule impacts anticipated.

Inflation/Escalation Factors

The total 2020 Bonding Request includes the escalation factor provided by MMB for a midpoint of construction of January 2021. No other inflation factors have been assumed for this project.
Cost Histories and Assumptions

At the predesign level of project development and investigation, our method of cost analysis for this project is to attach typical square foot costs and overall square foot unit costs to all of the spaces and activities associated with the renovation/addition work. This includes demolition, architectural renovation, finishes, new construction work, mechanical and electrical items. These costs are based on historical knowledge of similar projects and on analysis of the particular requirements of the spaces.

The following assumptions and clarifications are included:

• Miscellaneous general conditions costs and contractor fees for typical renovation/addition construction are included in the unit prices as listed.
• A design contingency is applied to all items. The contingency is typical for this level estimating and can likely be decreased according to future clarifications and changes in the project.
• Costs represented in this estimate are reflective of 2018 pricing. Escalation as been calculated on the Project Workbook form, to an assumed midpoint of construction.
• Building addition costs represent all work associated with the construction of new space as delineated in the architectural description, drawings and program.
• Interior renovation / fit-out costs represent all work to create newly configured and programmed spaces within existing building spaces, including appropriate finishes.
• Unit and square foot costs include design and construction to meet B3 sustainability requirements and state requirements for on-site renewable energy sources.
• A line item for site modifications has been included. This cost would accommodate necessary roadway, sidewalk and parking reconfigurations around the addition as well as stormwater management, utility relocations and greenspace restoration.
• It is assumed that existing utility and MEP infrastructure on campus has the capacity to accommodate the renovation and addition for this project. Some allowance costs have been included for typical modifications to existing systems infrastructure.
• Costs for special systems such as technology, AV and security are included. This would include all pathways, cabling and equipment for these systems, to meet campus requirements.
• No hazardous materials abatement costs are anticipated.
Project Funding Sources
The project would be funded by General Obligation Bonds provided through Minnesota State and the State Legislature. There have been no previous appropriations for design or construction on this project.

The project will also be supported through private sector contributions generated during a capital campaign, headed by the PTCC Foundation, for equipment and program expansion funding support. PTCC has a long history of program support by industry partnerships. This support includes contributions of cash, equipment, and time. Programs affected in this project have some of the strongest supporters in their respective industries.

In addition, the college has a successful track record of securing Federal Rural Development matching construction dollars that support regional building projects. PTCC's 3M match dollars have assisted in reducing the original scope and overall cost of this proposed bonding project.

Scheduling and Construction Sequencing
To optimize the construction budget, the project is planned for funding of both design and construction in one Capital Bonding request with completion of construction by August 2022. Work will be limited to two construction phases—new addition, followed by renovation—which will increase efficiency of construction delivery.

Project Delivery
The project will be built using the design-bid-build delivery method. This method involves three roles in the project delivery process—owner, architect, and builder and provides for competitively bid, lump-sum construction contracts based on complete and prescriptive contract documents prepared by the architect. The phases of work are conducted in linear sequence. The owner contracts with an architect for design; uses the design documents produced by the architect to secure competitive bids from contractors; and, based on an accepted bid, contracts with a contractor for construction of the building. This project may also be considered for a Construction Manager at Risk delivery method although additional costs may be incurred for this delivery method.

Budget Accommodations
Refer to the previous page for budgeting assumptions related to construction costs for sustainability, utilities, mechanical/electrical upgrades and hazardous materials abatement.

In addition, the overall project budget has included accommodations for fixtures, furniture and equipment, as well as security costs, including new equipment for:

- The Machining Lab (manual milling machines, manual lathes, CNC machines, bench grinders)
- The Welding Lab (24 new welding stations)
- The Painting Room (paint spray booths - Gunsmithing Program)
- The Bluing Room (bluing tanks - Gunsmithing Program)
- The Test Firing Tunnel (Gunsmithing Program)
- Health Sciences Simulation Lab (beds, recliners, exam tables, supply carts, IV stands, med carts, bedside and overbed tables, mannequins, simulation systems, etc.)

Details on equipment are included on the facility program pages.

IT/Technology requirements are described in detail under Section 8.
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Financial Information - Operating Expenses

Ongoing Operating Expenditures

Budgets for ongoing building repair, replacement and maintenance
The following table provides a history of repair and renewal spending at PTCC:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Spending</th>
<th>Spending per SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2018</td>
<td>$207,106</td>
<td>$1.85</td>
</tr>
<tr>
<td>FY2017</td>
<td>$119,068</td>
<td>$1.06</td>
</tr>
<tr>
<td>FY2016</td>
<td>$105,640</td>
<td>$0.94</td>
</tr>
<tr>
<td>FY2015</td>
<td>$105,765</td>
<td>$0.95</td>
</tr>
</tbody>
</table>

5-year Projection of Operating Budget
The following is the projected budget for FY2019:

- Base Revenue Assumptions $ 8,104,870
- Less Financial Sustainability $ 200,000
- Less Strategic Investments $ 100,000
- Less 2.5% Budget Variance $ 195,122
- Plus Administrative Indirect $ 100,000
- Operations Budget $ 7,709,748

Building Operating Expenditures
The estimated utility cost of addition of 27,240 net square feet, multiplied by the $1.25 per square foot would be an additional cost of $34,050 per year.

As a result of this project, the modular and temporary buildings will be removed, so 2,886 square feet multiplied by $1.50 per square feet (the building is heated and air conditioned by electric) would result in a savings per year of $4,329.

One full time General Maintenance worker would add $45,000 per year in personnel costs.

Currently the College is in the process of converting all T-8 lighting systems to LED with an estimated savings on the electric costs of 20-25%, the majority of this conversion should be complete by 2020. A HEAPR project that is partially funded includes the LED changeover.

R & R Rate
FY 2019 — $151,809, which is $1.36 per square foot (projected)
FY 2018 — $207,106, which is $1.85 per square foot.
FY 2017 — $119,068, which is $1.06 per square foot.

PTCC has exceeded the $1.00 per square-foot threshold for the last two years, and projects to exceed that threshold again in 2019.
Debt Service
Currently, the college has a debt service of .006% of annual revenues. With the addition of debt service on this project PTCC’s annual project debt service will be .025%. The annual debt service will be supported by the project. Current debt service is for the last bonding project in 2003. Debt service for the currently proposed project is projected to start in the final cycle of debt service for the 2003 bond.

The proposed project would generate approximately $8.50 per credit in debt service.

CFI
Due to PTCC’s low amount of debt service, this bonding project will not significantly impact the college’s CFI. The college has had consecutive years where it increased their reserve fund balance. The project’s debt service would not negatively impact annual operating funds as the new expense would be absorbed within the current net positive operating position. The project supports the ability to increase college revenues and continue to improve the college’s CFI.

Special Expenses
Programs affected by the proposed building project have current capacity to support additional lab spaces. PTCC does not project any new special expenses related to the bonding project. The college projects that larger lab spaces and classroom will allow for a positive impact on operating expenses related to increased efficiencies.
Graphic Schedule

Phase 1: Addition

- **Schematic Design** / August-October 2020
- **Design Development** / November-December 2020
- **Construction Documents** / January-March 2021
- **Bidding** / April 2021
- **Award** / May 2021
- **Construction** / June - December 2021
- **Occupancy** / January 2022
- **Commissioning** / January-February 2022

- **Release of 2020 Funding & Designer Selection** / July 2020
- **Bonding Approval** / May 2020
- **Board of Trustees Recommendation** / June 2019
- **Bonding Request** / December 2018

Phase 2: Renovation

- **Construction** / February-July 2022
- **Occupancy** / August 2022
- **Commissioning** / August-September 2022
As outlined in the Comprehensive Facilities Plan, PTCC is projecting steady growth over the next 5-7 years in order to meet regional workforce needs as well as remain a sustainable stand-alone institution. Meeting this growth goal will require the addition of new programs, expanding existing programs, and increasing capacity in individual courses.

As described in Section 1, new programs have been added, cohort capacities have been increased to the maximum allowable within the current space and sections have been added but these expansion efforts are bound by the existing spaces available. With larger space, PTCC would be able to better meet student demand.

Limitations on funding for this project will restrict the ability to meet these needs. Options are limited as there is simply no extra space on campus to accommodate these programs.

If funding for design and construction of the full project is not received in one biennium, the project would need to seek funding in two cycles. Phase 1 would need to fund design and construction of the Addition in 2020 and then Phase 2 would fund construction of Renovations in 2022. This would delay the start of renovation work to at least August of 2022 and completion in January of 2023.
The people of East Central Minnesota turn to Pine Technical & Community College when they want career education, new skills or general education. PTCC works to meet their needs by providing up-to-date, technology-driven facilities, complemented by satellite sites and online capabilities. The Technology Master Plan is the framework by which the College continues to provide innovative and responsive facilities that meet the needs and aspirations of students.

PTCC’s Technology Master Plan focuses on the three-year goal from the College’s strategic plan, Discover Pine: FY 2017-2019 Plan for Growth and Service: To increase higher education attainment and contribute to prosperity in the region.

Planning Assumptions
Several planning assumptions and resources were used to develop the technology master plan.
1. Information Technology is critical to the realization of institutional goals and must be aligned with the mission, core values, strategic vision and strategic goals of the College.
2. The College is dedicated to supporting an information technology infrastructure that is robust, reliable, and transparent to the end user.
3. The Minnesota State Colleges and University (Minnesota State) System Office (SO) provides and supports the core administrative software applications used by the institution.
4. The College embraces training and development to assist students, faculty and staff with the use and application of information technology.
5. In January 2016, the SO performed an independent analysis of PTCC technology infrastructure and support.
6. Technology is conceptually changing how we conduct business.
7. Planning for technology is difficult given the changing and evolving landscape of the organization.
8. We face growing financial challenges as we continue to grow and evolve.

Priorities
Priority 1 – Engaging Student Learning Environments
Promote the integration of efforts across Campus to enhance student learning, support faculty and staff in their efforts to provide high quality education and services, and to increase the efficiency of college operations. Aligns with Objective 3 of the Academic Master Plan 2016-2020.

Priority 2 – Reliability
Technology services can be counted on for consistent operation, at a consistently high level. Aligns with Objective 6 of the Strategic Plan.

Priority 3 – Professional Technology Services Staff
Technology Services conducts services and support in a business-like, customer service focused manner that meets the expectations of students, faculty and staff. Aligns with Objective 3 of the Academic Master Plan 2016-2020.

Priority 4 – Sustainability
The Campus is currently replenishing cash reserves to a sustainable level. Technology Services will make financial decisions with attention towards student needs, cost consciousness, resource allocation awareness and quality. Aligns with Objective 1 of the Strategic Plan.
Goals and Outcomes: Impact on Proposed Project
The proposed project supports PTCC’s Technology Master Plan goals of providing engaging student learning environments, enhancing links between other arms of PTCC, supporting professional services and introducing opportunity for increased sustainability measures.

Engaging Student Learning Environments
1. Direct Technology Services focus on academics and student success.
2. Encourage and support technology-enhanced department-initiated course redesign.
3. Explore and implement enhanced methods of accessible video and audio delivery of instructional materials.
4. Explore new and emerging technologies (hardware and software) that promise to improve and enhance teaching and learning.
5. Enhance the support of technology engaging student activities and new forms of communication, feedback and assessment.
6. Set standardized tools for the College; for example, consistent operation of academic computer labs.
7. Meet specialized, program specific technology needs.

Impact to proposed expansion
• Providing more space to incorporate new program technologies - the nature of the programs include large pieces of machinery and additional square footage is needed to provide space for state-of-the-art equipment that students will encounter outside of PTCC.
• The addition of a state-of-the-art simulation lab with multiple healthcare setting scenarios allows students to encounter and learn from situations which may not happen during clinical experiences.
• The ability to introduce new, state-of-the-art equipment allows faculty to redesign, or evolve, courses - in addition to exploring new technologies.
• Technologies that support student learning - such as computer labs or the proposed Applied Learning Lab, allows students to experiment, research and develop additional skills outside of the lab, the technologies provide more avenues of learning.
• Improves space utilization as multiple programs can use a single space, such as the classroom that can be used by nursing - for debriefs of simulation lab exercises - or by the technical/trades for intro lectures prior to lab work.
• Creating program hubs - where tech programs are grouped together (similar for health sciences) - fosters increased interaction amongst students and faculty - technologies allow these hub spaces (space for gathering and study) to be better study and collaboration spaces where students have access to wifi or printers or other tools - technologies foster learning outside of the lab and classroom.

Reliability
1. Explore long-term opportunities to collaborate with the SO and other institutions to assist with managing the administrative infrastructure.
2. Develop and implement formal Technology Services processes and procedures.
3. Implement a service management tool that would provide transparency and communication to the end users.

4. Explore opportunities with the SO to assist with utilizing Microsoft System Center Configuration Manager (SCCM) a tool to help manage desktop applications.

5. Improve communications within the Technology Services group as well as with the Campus community.

6. Support a strategic vision for the College website.

7. Provide a range of tools and opportunities to enable end-users to be self-sufficient and self-guided in accessing Technology Services.

8. Explore and implement telephone upgrades.

9. Implement a more functional way to access systems while off site.


11. Develop and implement comprehensive information technology security and backup plans that address the growing threats and current needs of State laws, policies and procedures, including but not limited to the Payment Card Industry (PCI) compliance. Manage the balance between security and end user experience and efficiency.

12. Explore opportunities to increase technology connectivity to off-site locations.

Impact to proposed expansion

- Increasing technologies in the facility spaces fosters closer links between other arms of PTCC - online learning, PTCC website, and administrative tasks and student support services.
- Increased reliability of technologies in these spaces will provide a more effective and efficient learning environment.

Professional Technology Services Staff

1. Maintain a “students first!” mindset and focus.

2. Develop customer service metrics for Technology Services, evaluate findings.

3. Revitalize the Campus Technology Committee to act as an advisory and sounding board for Technology Services, policies, annual technology budget, work plan, strategic and capital planning cycles, and solution resolution.

4. Create service providing redundancies within existing staff or leveraging relationships with other institutions or SO.

5. Invest in Technology Services staff development particularly regarding “soft skills” such as business communications, relationship building, teamwork, partnership and diversity.

6. Invest in skill specific training to support the technologies that the Campus has or is planning to put into place.

7. Determine what an ongoing Campus dialogue looks like at the College. Engagement will be regular and deliberate, purposeful and a compliment to the Campus governance structure.

8. Provide security education for students, faculty and staff.

Impact to proposed expansion

- Technology staff will play a key role in programs where the industry needs and technologies are constantly evolving - will require continued evaluation of systems and how best to provide students with a positive and meaningful educational opportunities
- Provides opportunities to introduce/expand campus technology goals
- Can not only support programs but can educate students, staff and faculty regarding capabilities of Technology services and security issues - technology will play a greater role in the college dialogue

Sustainability
1. Look for strategies to reduce the overall cost of technology to the Campus.
2. Review all current software supported on the Campus to determine utilization.
3. Develop and refine print management and associated policies and procedures to encourage the reduction of printed-paper.
4. Develop a comprehensive technology replacement plan from entry to disposal.
5. Build capacity to support the use of electronic media, distance learning and online education.

Impact to proposed expansion

- Project will initiate review of existing and applicable technology - software and hardware
- Project is an opportunity to introduce or reinforce sustainability measures - how best to use technology to reduces material and energy usage
- Project is an opportunity to further use technology in support of online education and distance learning
Pine Technical & Community College has worked hard to maintain and updated their existing technology infrastructure throughout the campus. Improvements to the main data center were completed in 2012 and provide sufficient capacity for the proposed Technical/Trades additions and renovations. As part of this project, the technology backbone will be extended and provide improved data, audio and video capabilities to the technical spaces such as machining and advanced manufacturing. For the health sciences programs, the infrastructure will be upgraded to provide for enhanced simulation systems as well as enhancing collaborative teaching and active learning environments.

The project’s IT plan correlates with building framework goals of PTCC’s Comprehensive Facilities Plan by:

- Supporting flexible learning spaces. The renovated and new spaces would incorporate mobile and adaptable technology that could accommodate room configurations to support active collaborative learning.
- Supporting enhanced learning outside of traditional classrooms spaces. Technology would support online learning or study and collaborative learning in the proposed study commons and Applied Learning Lab.
- Supporting advanced learning through technology enhanced systems such as the health sciences simulation systems and advanced manufacturing and robotics.

Positive outcomes for technology implementation with this project include:

- Improving space utilization through added flexibility in room use
- Creating program hubs to foster collaboration among students and faculty
- Providing new spaces for research and development to occur
- Developing additional spaces where new technologies can be implemented

Refer to previous pages for additional discussion of project outcomes.

For this project, a base technology budget will provide for enhanced technology - data, wireless access, audio/visual or interactive technologies - in classrooms, offices and student study areas. In addition, more advanced technology systems required for the Health Sciences Simulation Lab and for the Advanced Systems Technology Lab (AST) as well as other technical labs will require a higher budget and has been reflected in FFE portion of the project budget.
ATTACHMENT 1

Affidavit of Noncollusion
State of Minnesota
Request for Proposals

Firm Name: ____________________________

Instructions: Please return your completed form as part of the Response submittal.

I swear (or affirm) under the penalty of perjury:

1. That I am the Responder (if the Responder is an individual), a partner in the company (if the Responder is a partnership), or an officer or employee of the responding corporation having authority to sign on its behalf (if the Responder is a corporation).

2. That the attached proposal submitted in response to the ____________ Request for Proposals has been arrived at by the Responder independently and has been submitted without collusion with and without any agreement, understanding or planned common course of action with, any other Responder of materials, supplies, equipment, or services described in the Request for Proposals, designed to limit fair and open competition.

3. That the contents of the proposal have not been communicated by the Responder or its employees or agents to any person not an employee or agent of the Responder and will not be communicated to any such persons prior to the official opening of the proposals.

4. That I am fully informed regarding the accuracy of the statements made in this affidavit.

Authorized Signature

Responder

Firms Name: __________________________________________________________________________

Print name of

Authorized Representative _______________________________ Title: ____________________________

Authorized Signature __________________________________________ Date ________________________

Notary Public

Subscribed and sworn to before me this:

_______ day of ________________________, __________

______________________________

Notary Public signature

______________________________

Commission Expires (mm/dd/yyyy)
ATTACHMENT 2

STATE OF MINNESOTA –WORKFORCE CERTIFICATE INFORMATION

Required by state law for ALL bids or proposals that could exceed $100,000

Complete this form and return it with your bid or proposal. The State of Minnesota is under no obligation to delay proceeding with a contract until a company becomes compliant with the Workforce Certification requirements in Minn. Stat. §363A.36.

BOX A – MINNESOTA COMPANIES that have employed more than 40 full-time employees within this state on any single working day during the previous 12 months, check one option below:

☐ Attached is our current Workforce Certificate issued by the Minnesota Department of Human Rights (MDHR).

☐ Attached is confirmation that MDHR received our application for a Minnesota Workforce Certificate on ____________________ (date).

BOX B – NON-MINNESOTA COMPANIES that have employed more than 40 full-time employees on a single working day during the previous 12 months in the state where it has its primary place of business, check one option below:

☐ Attached is our current Workforce Certificate issued by MDHR.

☐ We certify we are in compliance with federal affirmative action requirements.

BOX C – EXEMPT COMPANIES that have not employed more than 40 full-time employees on a single working day in any state during the previous 12 months, check option below if applicable:

☐ We attest we are exempt. If our company is awarded a contract, upon request, we will submit to MDHR within 5 business days after the contract is fully signed, the names of our employees during the previous 12 months, the date of separation, if applicable, and the state in which the persons were employed. Send to compliance.MDHR@state.mn.us.

By signing this statement, you certify that the information provided is accurate and that you are authorized to sign on behalf of your company.

Name of Company: ____________________________ Date ____________________________

Authorized Signature: ____________________________ Telephone number: ____________________________

Printed Name and Title: ____________________________ Email: ____________________________

For Assistance with this form, contact:

Minnesota Department of Human Rights, Compliance Services
Email: compliance.mdhr@state.mn.us TTY: 651-296-1283
STATE OF MINNESOTA
MINNESOTA STATE PREFERENCE FORM

In accordance with M.S. 16C.16, the basis of award is that eligible certified targeted group (T.G.) prime Bidders and certified economically disadvantaged (E.D.) prime Bidders will receive a six percent (6%) preference. Preference will only be allowed if the Bidder is certified prior to the scheduled bid opening. Both the targeted group (T.G.) preference and the economically disadvantaged (E.D.) preference are applied only to the first $2,000,000 of the bid. Preferences are not cumulative; the total percentage of preference granted on a contract may not exceed the highest percentage of preference allowed for that contract. Bidders interested in becoming a certified vendor or to verify their T.G. eligibility and certification or E.D. certification, should refer to the state of Minnesota, Department of Administration, Office of Equity in Procurement Division website at https://mn.gov/admin/business/vendor-info/oep/sbcp/, or call the division’s help line at (651) 296-2600. The Bidder shall designate their company’s status in below.

ARE YOU A CERTIFIED, TARGETED GROUP PRIME CONTRACT BIDDER?
___Yes ___No

ARE YOU A CERTIFIED, ECONOMICALLY DISADVANTAGED PRIME CONTRACT OR?
___Yes ___No

Statutory requirements and appropriate documentation must be met by the solicitation response due date and time to be awarded the targeted group or economically disadvantaged preference.

Claim the Preference

By signing below I confirm that:

My company is claiming targeted group or economically disadvantaged preference afforded by Minn. Stat. § 16C.16. By making this claim, I verify that:

- The business has been certified by the Office of Equity in Procurement as being a targeted group (T.G.) or an economically disadvantaged (E.D.) business.

Name of Company: ___________________________ Date: ___________________________
Authorized Signature: ___________________________ Telephone: ___________________________
Printed Name: ___________________________ Title: ___________________________

Attach a copy of your firm’s letter indicating certification by the Office of Equity in Procurement and sign and return this form with your solicitation response to claim the TG/ED preference.
STATE OF MINNESOTA
STATE OF MINNESOTA
VETERAN-OWNED PREFERENCE FORM

Unless a greater preference is applicable and allowed by law, in accordance with Minn. Stat. §16C.16, subd. 6a, the state will award a 6% preference on state procurement to certified small businesses that are majority owned and operated by veterans.

Veteran-Owned Preference Requirements - See Minn. Stat. § 16C.19(d):

1) The business has been certified by the Office of Equity in Procurement as being a veteran-owned or service-disabled veteran-owned small business.

or

2) The principal place of business is in Minnesota AND the United States Department of Veterans Affairs verifies the business as being a veteran-owned or service-disabled veteran-owned small business under Public Law 109-461 and Code of Federal Regulations, title 38, part 74 (Supported By Documentation).

ARE YOU A CERTIFIED, VETERAN OWNED OR DISABLED VETERAN OWNED SMALL BUSINESS PER EITHER REQUIREMENT ABOVE?

___Yes ___No

Name of Company: ______________________

Authorized Signature: ___________________ 

Statutory requirements and appropriate documentation must be met by the solicitation response due date and time to be awarded the veteran-owned preference.

Claim the Preference
By signing below I confirm that:

My company is claiming the veteran-owned preference afforded by Minn. Stat. § 16C.16, subd. 6a. By making this claim, I verify that:

• The business has been certified by the Office of Equity in Procurement as being a veteran-owned or service-disabled veteran-owned small business.

or

• My company’s principal place of business is in Minnesota and the United States Department of Veteran’s Affairs verifies my company as being a veteran-owned or service-disabled veteran-owned small business (Supported By Attached Documentation)

Name of Company: ______________________ Date: ______________________

Authorized Signature: ______________________ Telephone: ______________________

Printed Name: ______________________ Title: ______________________

Attach documentation, sign, and return this form with your solicitation response to claim the veteran-owned preference.

Information regarding certification by the United States Department of Veterans Affairs may be found at: https://www.va.gov/osdbu/
Owner’s Representative Scope of Services Exhibit

Owner: Pine Technical & Community College
Project: PTCC-20 Technical/Trades Addition and Renovation

The Owner’s Representative (OR) shall work with the Owner’s appointed Project Manager, the Owner’s System Office Program Manager, and related consultants and the construction contractor(s) to administer the design and/or construction contract(s) on behalf of the Owner to assure the project is designed and constructed in accordance with the Minnesota State Design Standards, and is completed on schedule, on budget and to a level of quality commensurate with the Owner’s requirements.

Below is a list of responsibilities identified for this project divided into the categories of General, Phase, and e-Builder. If additional responsibilities are needed; they will be added with a contract amendment.

Overall Responsibilities:
• Provide services that are consistent with such skill and care to ensure the orderly progress of the Project and completion within the projected timeline.
• Provide required services between the Owner, the A/E design team, consultants and the construction contractor(s) as necessary related to the design and/or construction of the Project. The OR shall report to the campus Project Manager and, as authorized, act on behalf of the Owner. The OR is a consultant and not a Minnesota State or State of Minnesota employee. The OR has no authority to enter into any contracts or otherwise legally obligate the State of Minnesota, Minnesota State, or Minnesota State institutions. All approval and signature authority for expenditure of funds rests with the Owner and its duly authorized designee(s). The OR can review and make recommendations but any decisions impacting the project are made by the campus’s delegated project manager.
• Participate in training, when provided by the System Office, to stay current with Owner’s regulatory requirements and project management practices.
• Coordinate major elements of design and/or construction with the campus’ schedules and activities to minimize disruptions.
• Review and have a working knowledge of Owner’s current AIA Contract Agreements, Attachments and Amendments/Change Order documents.
• Abide by Owners purchasing parameters and endeavor to provide open and competitive procurement processes taking into account any procurement targets for supplier diversity.
• Participate in any dispute resolution process if one arises.
• Coordinate the completion and documentation of the Minnesota State B3/SB2030 Guidelines on behalf of the Owner. (https://www.b3mn.org/guidelines/) – if applicable.
### Project Phase Responsibilities:

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<th>PHASE</th>
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<tbody>
<tr>
<td>1.0 Design</td>
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<tr>
<td>1.1</td>
<td>Review the program furnished by the Owner to ascertain the requirements of the Project and arrive at an understanding of the requirements</td>
<td>X</td>
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<td>1.2</td>
<td>Expeditiously review Project Schematic Design, Design Development and Construction Documents – documentation and cost estimates prepared by the A/E design team for conformance with Minnesota State Facilities Design Standards, constructability, code compliance, and advise the Owner and A/E on proposed improvements, selection of materials, and building systems and equipment. Provide thorough comments and recommendations to the Owner. Cross-check plans and specifications for coordination issues. Evaluate and recommend opportunities for Value Engineering</td>
<td>X</td>
<td></td>
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</table>
| 1.3       | Recommend and assist the Owner in hiring of design review consultant(s) services as necessary to assure conformance to Minnesota State Design Standards.  
  * Geotechnical engineering firm  
  * Hazardous material survey and design firm  
  * Commissioning agent  
  * Window/Curtain Wall consultant  
  * Roofing consultant  
  * Security consultant | X    |          |
<p>| 1.4       | Assist the team in obtaining information regarding equity program requirements                   | X    |          |
| 1.5       | Collaborate with A/E on project phasing and schedule                                             | X    |          |
| 1.6       | Review the A/e scope and develop a comprehensive equipment survey and procurement plan for Owner-purchased items not in the A/E scope | X    |          |
| 1.7       | Develop and implement a moving plan for furniture and staff. Collaborate with staff, academic, and construction schedules | X    |          |
| 1.8       | Collaborate with Owner and A/E (and CM if applicable) when planning construction temporary facilities, understanding campus operations | X    |          |
| 1.9       | Assist with the solicitation and evaluation (OR’s can review but are not allowed to vote) of Construction Manager at Risk (CM@r) firms for selection and initiate the contract process | X    |          |
| 1.10      | Facilitate the CM Preconstruction services, including the establishment of the Guaranteed Maximum Price (GMP) and pre-qualifications of subcontractors | X    |          |</p>
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<tr>
<td>2.0 Bidding</td>
<td>2.1 Assist with the preparation of final Bidding Documents; attend pre-bid, bid and post-bid meetings; and assist in the evaluation of bids for construction</td>
<td>X</td>
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<td></td>
<td>2.2 Review insurance, bonds, and submittals; recommend to the Owner issuance of Notice to Proceed (NTP)</td>
<td>X</td>
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<td></td>
<td>2.3 Create construction contract project attachment and facilitate the signing of the contract with the campus and the Vendor. Ensure uploading of all contract procurement and supporting documents and attachments</td>
<td>X</td>
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<tr>
<td></td>
<td>2.4 Lead and coordinate the procurement processes for all Owner purchased items</td>
<td>X</td>
<td></td>
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<tr>
<td>3.0 Construction</td>
<td>3.1 Provide administrative and management services to coordinate scheduled activities to ensure minimal disruption to campus operations</td>
<td>X</td>
<td></td>
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<tr>
<td></td>
<td>3.2 Strive to obtain satisfactory performance from each consultant involved in the project. Recommend a course of action to the Owner when requirements of the contract are not being met</td>
<td>X</td>
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</table>
| | 3.3 Assist the Owner in soliciting proposals for inspection and testing consultant(s) services as necessary to assure conformance to Minnesota State Design Standards, Quality Assurance plan and the Contract Documents. Coordinate and evaluate proposals for services and assist the Project Manager in obtaining Owner purchase orders or contracts for same. Ensure that all required inspection and testing is performed to standards and as scheduled  
- Hazardous material testing  
- Window and curtain wall testing  
- Other testing anticipated | X | |
<p>| | 3.4 Provide a Project Budget Control and Tracking System. This System shall track all Project-related budgets, estimates, encumbrances, contracts and amendments, change orders, purchase orders, invoices and payments and contingencies. The System shall include a one page summary | X | |
| | 3.5 Attend <strong>weekly</strong> construction progress meetings to represent the Owner. Monitor the contractors’ performance and the quality of the construction. The owner anticipates representation on site a minimum of <strong>two</strong> days per week over the course of construction, more for critical construction processes and less when less critical | X | |
| | 3.6 Report to the Owner, System Office, and A/E any nonconformance with the Contract Documents. Review and recommend appropriate corrective actions with the A/E and Owner. Assist the | X | |</p>
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<td>A/E in reviewing corrections to be completed by the construction contractor(s)</td>
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| 3.7   | Coordinate Project work to be performed by the Owner including:  
  - Hazardous material removals  
  - HVAC and other systems building commissioning  
  - Other | X |         |
| 3.8   | Coordinate design and procurement of interior and/or exterior permanent and/or temporary project signage | X |         |
| 3.9   | Coordinate owner moving needs; whether self-performed or outsourced to a vendor | X |         |
| 3.10  | Review any concerns about the initial submittal of the Construction Contractor’s Critical Path Method construction schedule and recommend any corrective action to the Owner and A/E. Monitor construction progress and the construction contractor’s schedule regularly to ensure schedule is meeting milestone dates. Provide Owner activities and Owner occupancy requirements to the Contractor for inclusion in the construction schedule. Review the contractor’s weekly updates as required by contract documents, document any discrepancies and make recommendations to the Owner | X |         |
| 3.11  | Provide construction progress photos documenting the construction of the Project. A minimum of ten (10) photos shall be made per week to document overall construction progress and key details. Special attention shall be given to concealed construction and as-constructed conditions to document construction record information. Progress photo reports shall be submitted to the Owner weekly in a written report with text descriptions of each photo and important features to be noted. Provide the report in electronic format uploaded to e-Builder | X |         |
| 3.12  | Prepare a monthly status report for the Owner and the System Office summarizing at a minimum: key construction activities progress, conformance to the approved Construction Progress Schedule(s), Total Budget Summary/Status report, current or potential problems, recommendations for Owner actions and quality issues. Provide other project information and reports as requested by the Owner and the System Office | X |         |
| 3.13  | Review Request for Proposals, Construction Change Directives, and Change Order requests to ensure conformance to contract documents, quantity, contract time, costs and make recommendations to the Owner | X |         |
| 3.14  | Review applications for payment made by the Contractor (or CM) and note any discrepancies | X |         |
| 3.15  | Coordinate Furniture, Fixtures & Equipment (FF&E) systems:  
  - Existing furniture relocation | X |         |
<table>
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|       | • Assist with defining Owner FF&E needs including possible showroom tours or product evaluation process  
|       | • Developing and implement purchasing strategy for procurement of FF&E that reflects best value for the Project  
|       | • Lead the procurement process for project required FF&E  
|       | • Coordinate installation, potentially in phases |
| 3.16  | Coordinate technology and telecommunications system including:  
|       | • Security  
|       | • Relocation of existing Technology and/or design and purchase of new technology equipment and infrastructure  
|       | • Integrate the needs of campus IT staff and coordinate their schedule and requirements with Contractor’s Critical Path Schedule |
| 3.17  | Insure that all building systems are functional and that the construction contractor(s) obtain Certificate(s) of Occupancy from the officials having jurisdiction prior to the A/E issuing Certificate(s) of Substantial Completion |
| 3.18  | Manage transfer of building operations to Owner. Coordinate and document equipment start-up, orientation, and training |
| 3.19  | Ensure the Owner’s B3 Requirements related to the transfer of Project from Construction to Operations is successfully completed |
| 3.20  | Participate in Project inspection(s) for Substantial Completion(s) and warranty inspections |
| 4.0 Close-Out | |
| 4.1   | Work with A/E to ensure Contractor addresses punch list items and e-BUILDER close-out processes are completed in a timely manner |
| 4.2   | Coordinate and document receipt of warranties, operation and maintenance manuals, and “as-built” documents |
| 4.3   | Review e-BUILDER file to ensure it includes all key project files for archiving |
| 5.0 Warranty | |
| 5.1   | Coordinate Project Final Closeout(s) |
| 5.2   | Participate in Project inspection(s) for Final Completion(s) |
| 5.3   | Coordinate the scheduling of 10-month warranty inspection(s) |
| 6.0 Other | |
| 6.1   | Liaison with campus (or outside) community regarding the project by attending meetings with stakeholders |
| 6.2   | Facilitate the % Percent for Art design process and coordinate Artist selection through final installation |
| 6.3   | Open Houses & Ribbon Cutting coordination |
e-BUILDER RESPONSIBILITIES:

All design and construction projects are required to be fully managed in the Owner’s Enterprise Project Management software system “e-Builder”. Monitor e-Builder processes and assist Owner in facilitating work flows in a timely manner.

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<tr>
<td>7.0 e-BUILDER</td>
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<tr>
<td>7.1</td>
<td>Initiate commitment process for owner required contracts and purchase orders</td>
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</table>
| 7.2 | Ensure important project correspondence and documents are uploaded including:  
- Design and construction meeting minutes  
- Cost estimates by both the A/E and CM, if applicable  
- Design and construction estimates  
- Design phase submittals, reviews and approvals  
- Bidding documents  
- Submittals, including construction schedules, product data, shop drawings, and samples | X | |
| 7.3 | Ensure all bidding history is captured in e-BUILDER include bids received, bid tabulations, evaluations and recommendations for all consultants and contractors, including RFQ’s and sub-contractor qualifications as well as RFB’s and bids collected by the CM | X | |
| 7.4 | When construction contract modifications arise, including Requests For Information (RFIs), Supplemental Instructions (ASIs), Proposal Requests (PRs), Construction Change Directives (CCDs), and Change Orders (COs) review workflows through e-BUILDER on behalf of the Owner and make recommendations | X | |
| 7.5 | Assist the campus with taking timely action on invoices, applications for payment and other financial correspondence | X | |
| 7.6 | Facilitate project substantial completion by checking that the workflow is initiated by the A/E and all necessary forms are there prior to final payment | X | |
| 7.7 | Work with the A/E and Contractor to submit all closeout documents in a timely manner | X | |
| 7.8 | Assist campus and Owner-hired consultants and Contractors navigate the various e-BUILDER processes, referring for additional training when needed | X | |