Master Planning Committee Meeting #12 Notes

Benson Polytechnic High School
May 4, 2017

bassetti architects

PPS

MEETING DETAILS

Meeting Location:

Benson Polytechnic High School,
546 NE 12th Ave, Portland, OR 97232

Attendees:

Portland Public Schools (PPS):
Jen Sohm, Project Manager

Master Planning Committee Members:
Simon Criswell
Kevin B. Clark
Angel Dawson
Brian Gerber
Rob Johns
Dave Ketah
Julie Tonroy
Richard Spies
Irina Phillips

Public
Marv (with Rob Johns)
Leandrea Riggins - PES/Alumni

Design Team
Lorne McConachie, Bassetti Architects
Joe Echeverri, Bassetti Architects
Dianna Montzka, Bassetti Architects

Agenda

6:00 - 6:10	**Introduction & Update**
	Review Agenda
	Process Update
	+ Student Engagement
	+ Steps Forward
6:10 - 7:00	**Future Industry Trends (Small Group Activity)**
10 min	Educational Specification Overview
30 min	Small Group Discussion and Brainstorming
	+ Identify potential trends in the industries related to Benson
	+ Identify trends to include in Ed Spec
10 min	Report Back
7:00 - 7:45	**Design Refinement (Group Activity)**
15 min	Scheme L.1 Review
	Design Approach and Imagery Overview - Historic, Contextual, Juxtaposition
20 min	Image Boards Activity
10 min	Report Back
7:45 - 8:00	**Wrap-Up**
5 min	Subcommittee Report
5 min	Public Comment
5 min	Closing Thoughts & Next Steps

Pre - Design Goals:

Identify the vision, philosophy, and objectives of the school.

Provide a consistent and diverse voice for user groups in the pre - planning phase of the project.

Prioritize the objectives to attain cost certainty for the project moving forward.

Notes Issued Date:

May 16th, 2017

PROJECT UPDATE

Tasks since last MPC

- Minimal modifications to Scheme L resulting in Scheme L.1
- Student information gathering at lunch
- Architecture Jr. class outreach
- Room data sheets and program summary drafts issued to MPC for review
- Educational Specification Draft of CTE and Academic program summary sections completed and sent out for review.

Tasks through May bond

- Expand survey to other partners
- Garner input for Ed Spec development

After bond, if "approved"

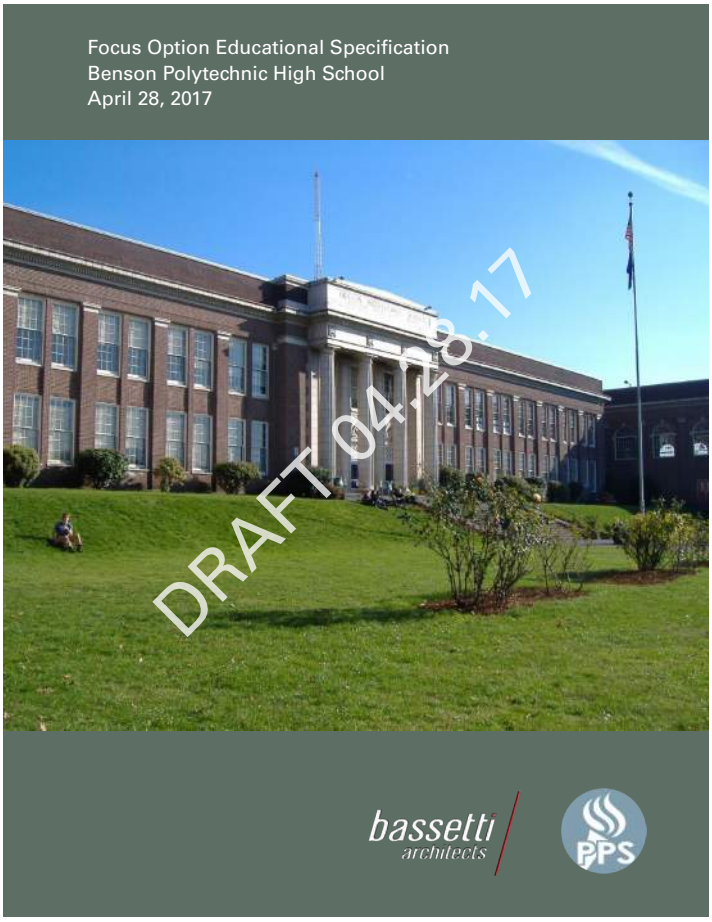
- Key Meetings:
  - Portland Bureau of Transportation (PBOT)
  - Portland Landmarks Commission
  - Portland Bureau of Development Services
- Existing Conditions Investigation
  - Phase II Environmental Report
  - Geotechnical Testing
  - Structural Testing
  - Traffic Impact Report
- Educational Specification Refinement
- Student Facebook Survey

Industry Outreach

- Connecting with industry partners needs to be a grassroots effort
- Subcommittees and/or individuals need to keep PPS informed on Benson's CTE vision as partnerships develop
- The MPC suggested partnership opportunities with Oregon Health and Science University (OHSU), Portland Community College (PCC), and Portland Development Commission (PDC).
- There is a 24 month window of time during the design phase where industry input on the Ed Spec will be considered, but as that window of time goes on, fewer changes can be made.

EDUCATIONAL SPECIFICATION OVERVIEW

A brief summary of the Educational Specification was given to the MPC members and the details of the CTE programs were reviewed on boards around the room.



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ED SPEC ACTIVITY NOTES

In discussing and brainstorming future industry trends, boards were set up around the room with each CTE program summary, their program adjacencies, future trends, and a detailed diagram of their space. MPC members went around the room and added their thoughts on additional adjacencies, future trends, and potential partners or resources. The information collected is reflected in the table below and will be included in the Ed Spec document. Examples of these boards are attached at the end of the document.

Program of Study	Other Program Adjacencies	Future Trends	Potential Partners/Resources/Notes
Design and Applied Arts	+ Construction		+ Allow for project spaces outdoors + Create visual connections to other areas
Architecture	+ Design and Applied Arts + Add urban design, sustainability, fashion product design to the architecture program, or as an extension of the program	+ Alternative energy + Materials +	+ Create flexible partitions between class areas + Create visual connection to other classes + Provide covered outdoor area for models and larger scale projects
Automotive/Aviation		+ Neurotech (Sensor, command, control systems) + Unmanned aerial, terrestrial, orbital platforms + Rail systems + Grid control + 100% electrical vehicles +	+ Explore a partnership with Boeing + Look into Drive Oregon as a potential partner-tie in with solar and solar battery storage + Develop composite technologies and continue to teach basic riveting (Aviation)
Computer Engineering		+ Quantum AI + Hybrid systems (biological and technological systems) + Neurotechnology	+ The Technological University in Willsonville is interested in connecting with Benson HS
Construction	+ Electric	+ Pre-fabricating parts of homes + Construction material lab (CL,LLP, etc.)	
Math Tech			+ The Technological University in Willsonville is interested in developing math programs at PPS and Benson HS
Digital Media	+ Design and Applied Arts		+ Film/Television production could also tie into tech theater in the Auditorium

ED SPEC ACTIVITY NOTES

Additional comments on the Ed Spec

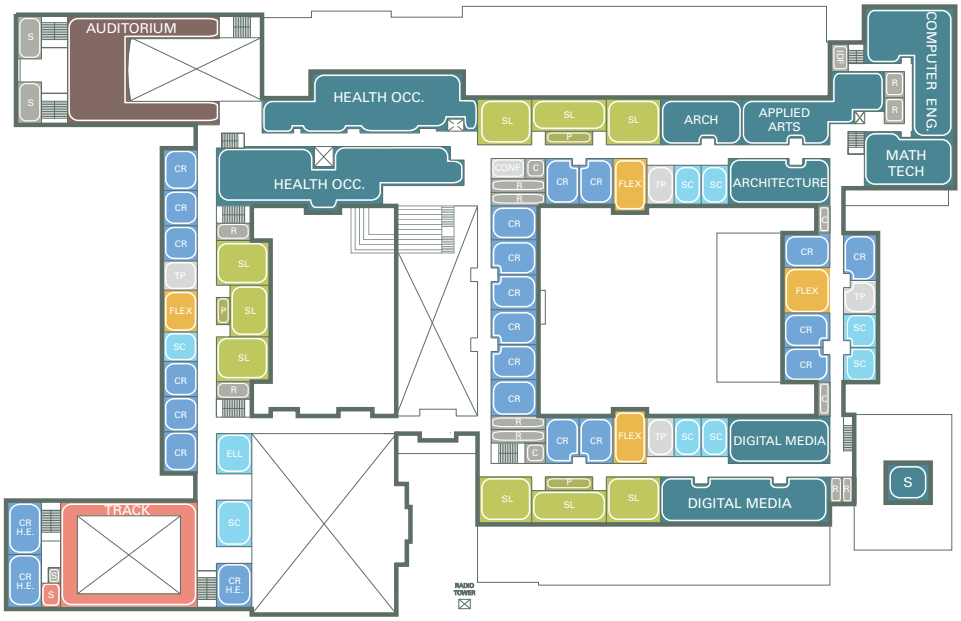
- + Consider greater connectivity between CTE programs.
- + Consider visual and physical connectivity of the CTE programs inside and outside of their designated space. Consider how the wall type can enable or inhibit these connections.
- + A question was raised about IT connectivity throughout the building. Bassetti responded with the intent to use a system that includes a central MDF room with satellite IDF rooms spread throughout the building and a fiber backbone with CAT 6 cables. Wifi will also be provided throughout the building.

Program of Study	Other Program Adjacencies	Future Trends	Potential Partners/Resources/Notes
Electric	+ Maker Space	+ Electric bikes and scooters + Batteries + Electric vehicles charging station	+ Bonneville Environmental Fund + Solar 4R Schools + Contact Todd McConachie for partnership with Portland General Electric.
Engineering		+ Hybrid tech (artificial and biological) + Neurotechnology (Sensor, command, control systems). + Social Robots/Artificial intelligence + Merged Reality systems + Nano/picotechnology + Mota Materials and smart materials	+ Confirm storage needs and amount supplied in the detailed diagram
Health Occupations		+ Bioinformatics + Smart Medicine (Pharmaceuticals, devices, materials) + Theragnostic or Theranostic medicine (i.e technology that diagnoses and treats) + Robotics (surgical and social) + Metamaterials + AI and Quantum AI + Regenerative Medicine + Neuroprosthetics	
Manufacturing	+ Design and Applied Arts Materials Science	+ Nano/Pico sciences + Social robotics, nanobots, etc. + Green energy technologies + Metamaterials + Neurotechnology (Sensor, command, control, etc.)	

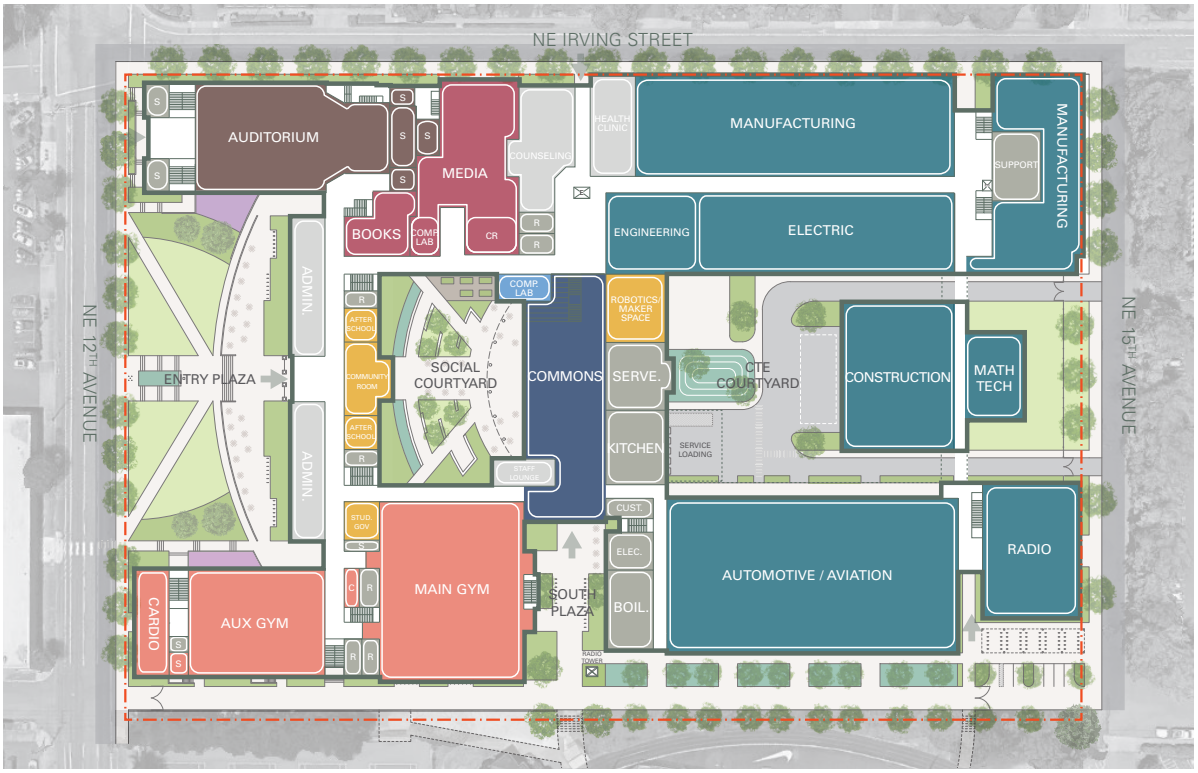
SCHEME L DIAGRAMS AND IMAGERY ACTIVITY

Scheme L.1 was developed after minimal modifications to Scheme L. Scheme L.1 was presented in conjunction with imagery of external facades, internal vertical connections, and landscapes (shown in the next section). The purpose of this activity was to start developing a material and architectural language for the re-design of Benson Tech.

When re-designing a building, a design can take on a historic, contextual, or juxtaposed relationship with the existing building. The imagery boards presented to the MPC showed a variety of these three options. MPC members then gave comments on the type of relationship the new Benson Tech should have with the historic school.



UPPER LEVEL

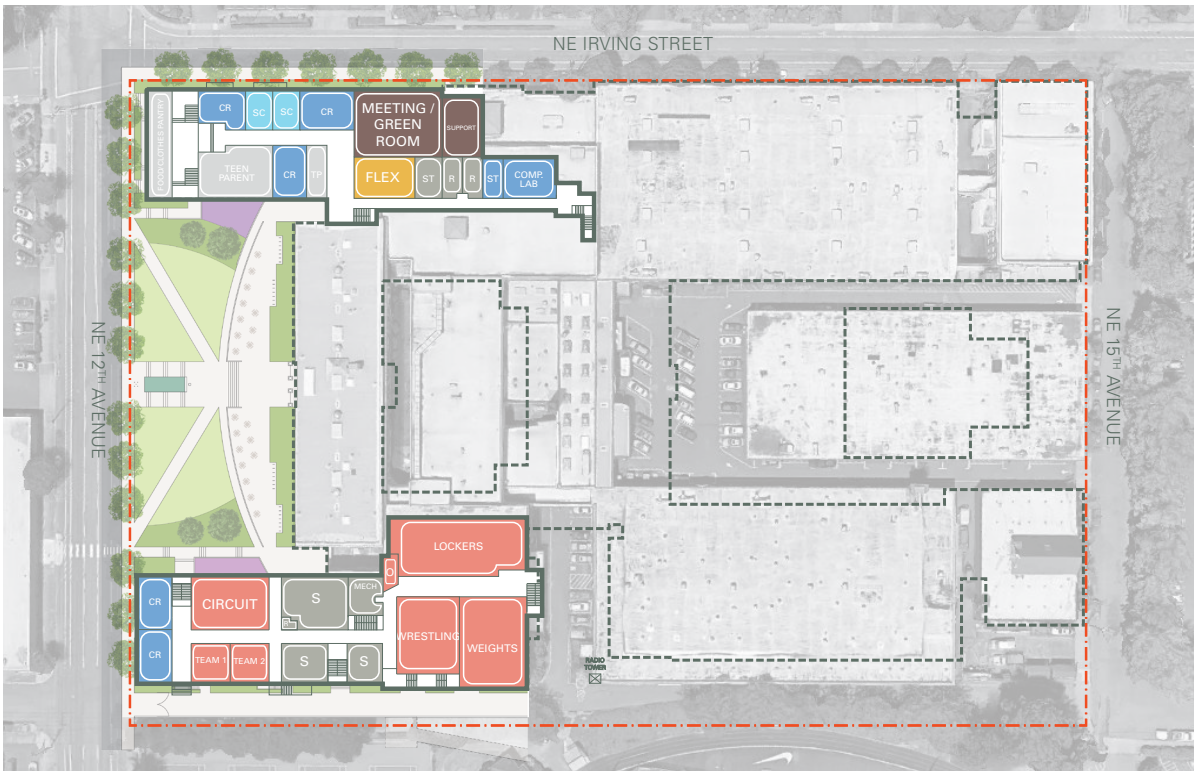


GROUND LEVEL

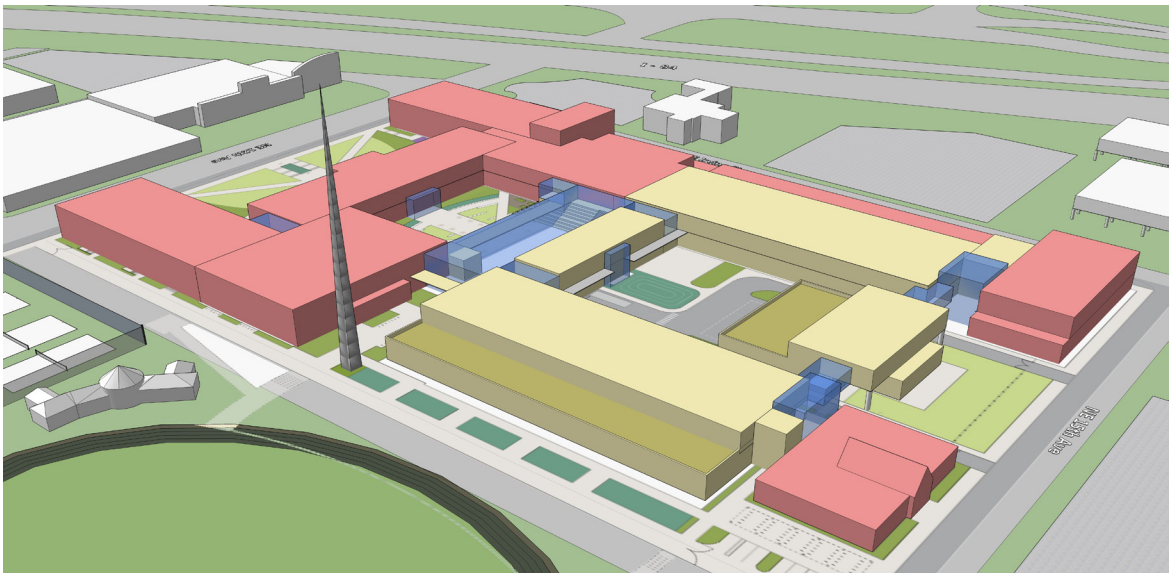
SCHEME L DIAGRAMS

Comments on Scheme L.1

+ Bridge the outdoor roof on the CTE East wing to connect the north and south wings to the outdoor area.
+ Car parking on site may be intermittently available when the Math Tech trailer is not parked on site
+ Connect the upper commons to the southern rooftop
+ Re-organize Architecture program to be one grouping on one side of the hallway
+ Consider acoustics of classrooms above Construction CTE
+ Use rooftops for outdoor space and science labs
+ Push Auto CTE south for more room in the CTE courtyard
+ Alcoves around basement windows should be bigger to maximized daylight

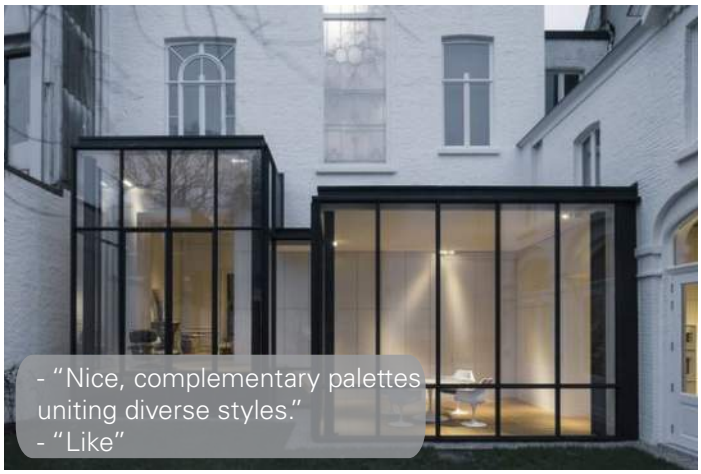


LOWER LEVEL



IMAGERY ACTIVITY - FACADES

The images below were tagged with "likes", with the majority of comments reflecting the desire to have a juxtaposition between contemporary and historic facades. Specific comments are shown on each individual image. One MPC member suggested the Contemporary Jewish Museum by Daniel Libeskind as a precedent. Another MPC member suggested the new engineering building at OSU as a precedent.



IMAGERY ACTIVITY- FACADES

Additional Comments

+ Show a 21st century facade for those driving by. The building should reflect a strong image of sustainability and act as a billboard for a new way of thinking.
+ Iconic architecture is desired in juxtaposition with the historic facade
+ The building should scream creativity and innovation
+ It would be better to seamlessly integrate and juxtapose a new building material rather than mimic the historic facade
+ Support a contemporary look to the building.
+ The historic facade represents the past 100 years, and the new architecture should speak to the next 100 years of Benson Tech.
+ Blend the industrial needs (i.e. ventilation stacks) of the building with the architecture


Using contemporary architecture as a connecting point between two historic buildings is a positive

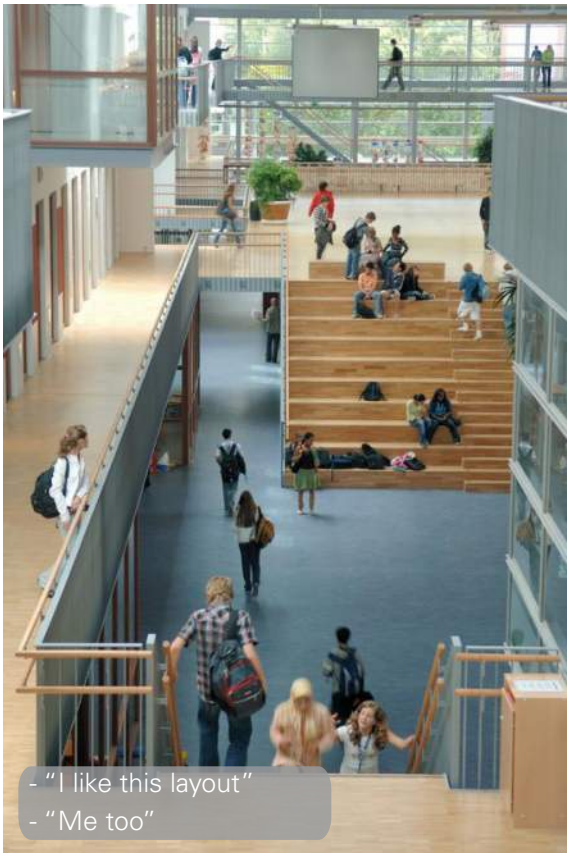

"Historic vs. Contemporary is good"


"Sheltered bike storage area is a positive"

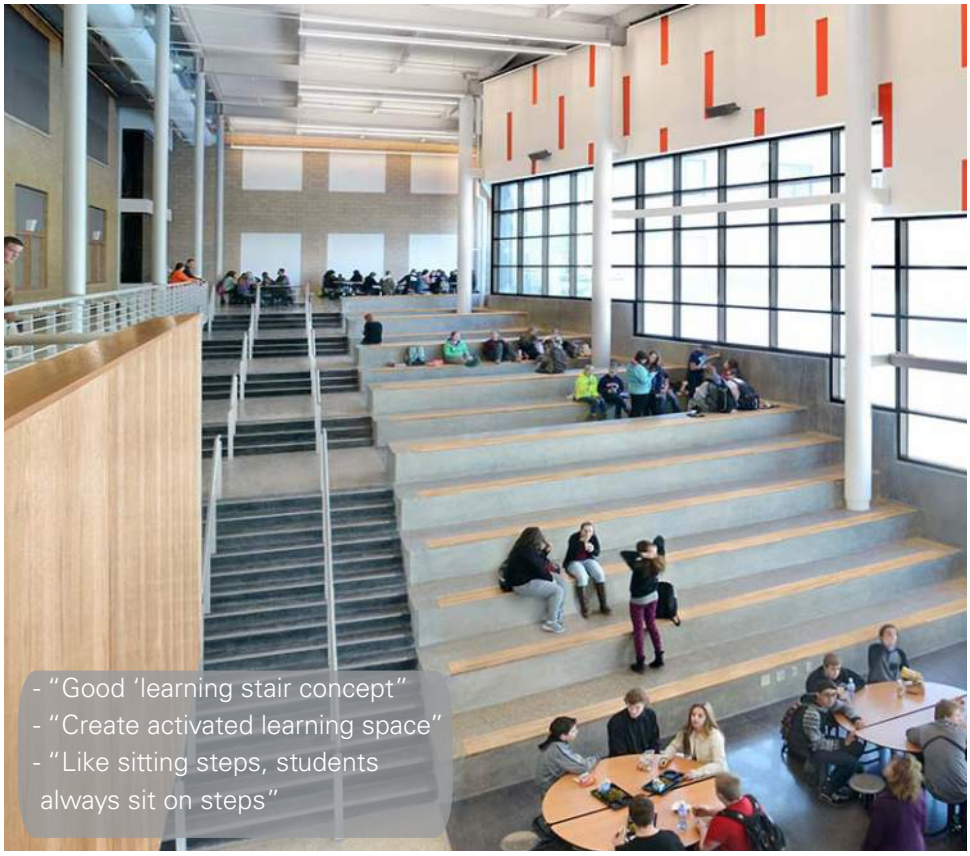

Use this fabric for 2nd floor addition

IMAGERY ACTIVITY- INTERNAL VERTICAL CONNECTIONS

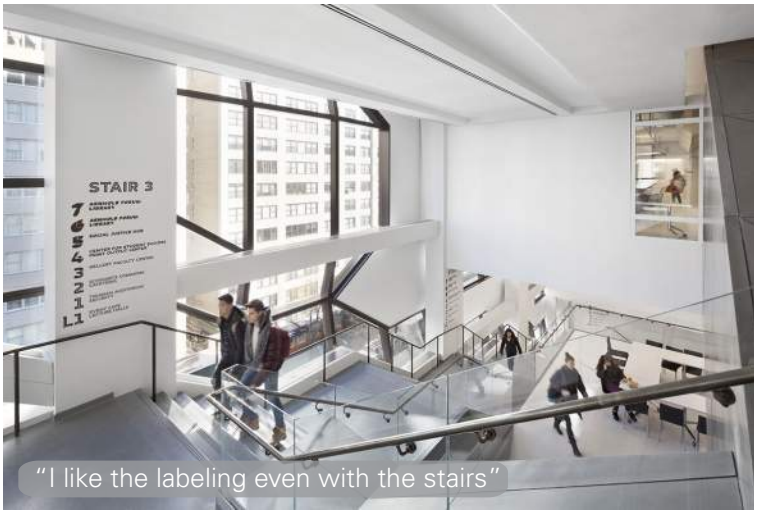
The images below were tagged with "likes" or comments expressing what the individual did or did not like about an image. Ample natural daylight, views out to greenery, and multiple learning stairs are desired.



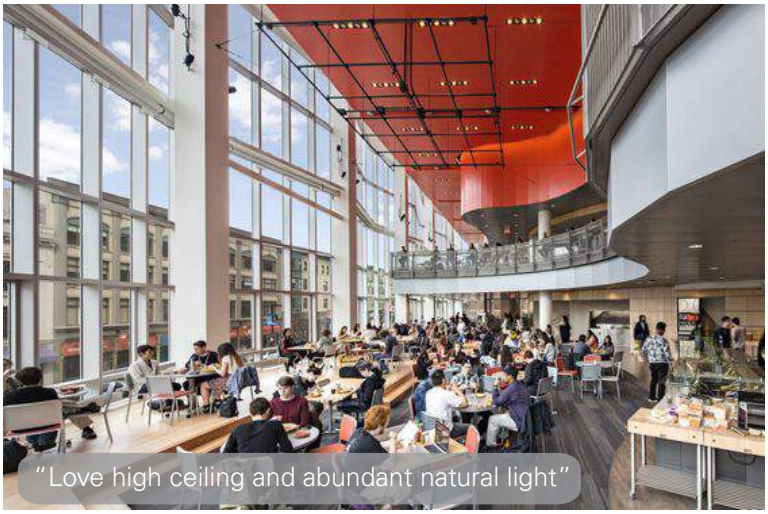
- "I like this layout"
- "Me too"



- "Good 'learning stair concept"
- "Create activated learning space"
- "Like sitting steps, students always sit on steps"



"I like the labeling even with the stairs"

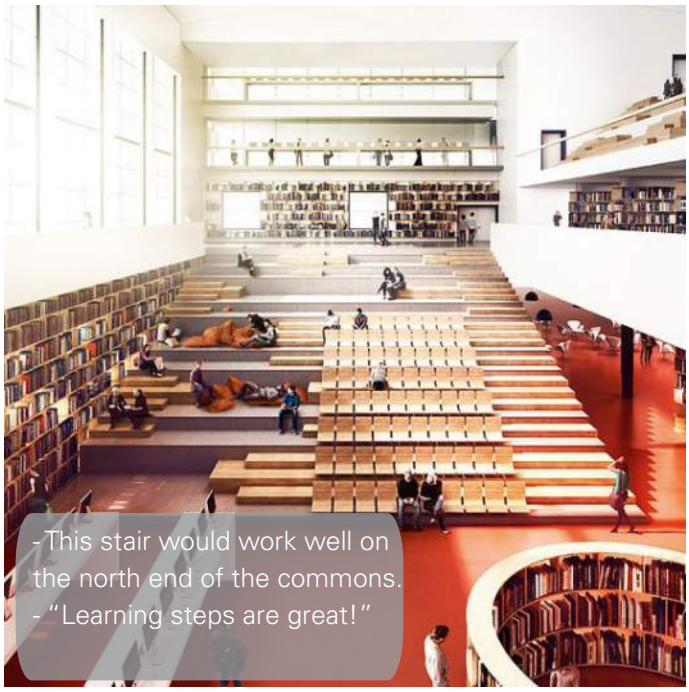


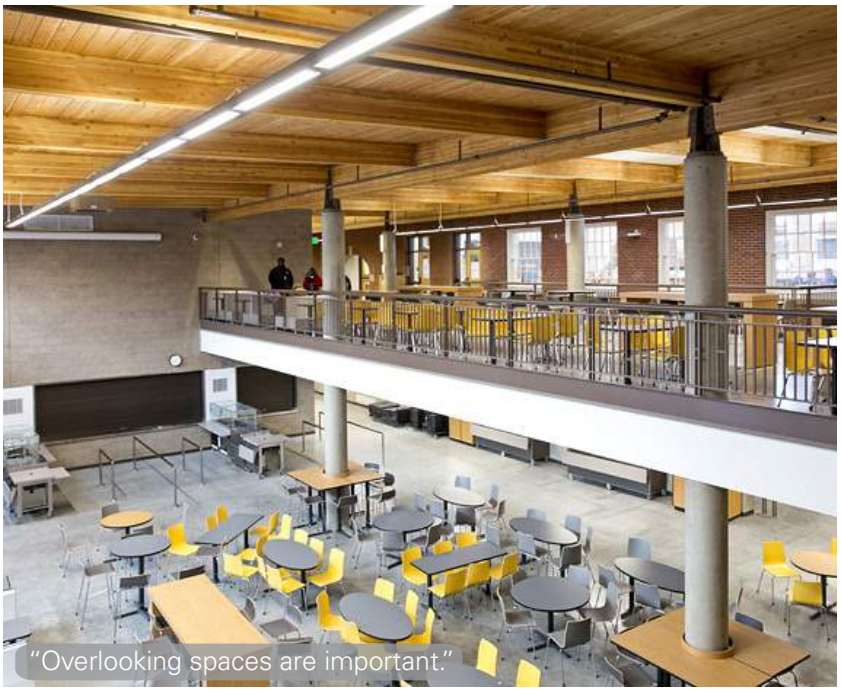
"Love high ceiling and abundant natural light"

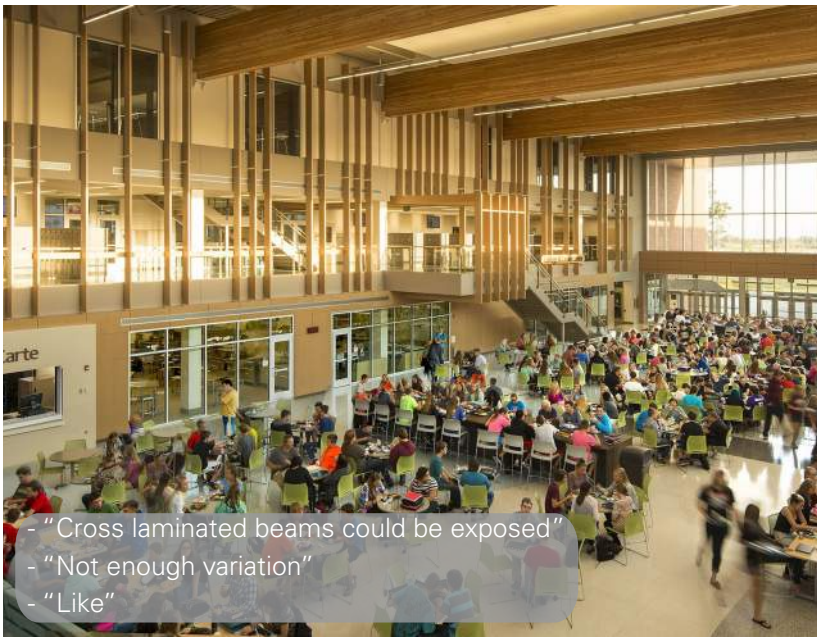
IMAGERY ACTIVITY - INTERNAL VERTICAL CONNECTIONS

Additional Comments

+ Students already use the stairways as seating areas throughout the day and during lunch, so one or multiple learning stairs would be successful in the re-design
+ Permanent wayfinding graphics and signage is desired throughout the school







IMAGERY ACTIVITY - LANDSCAPE

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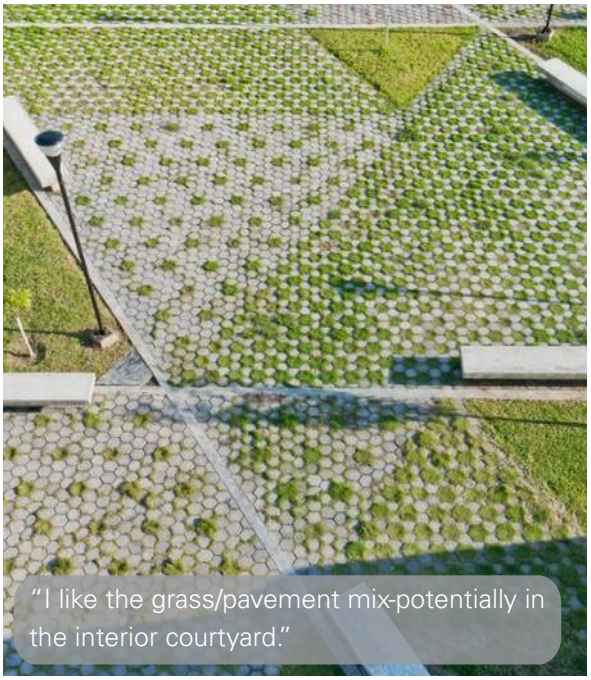
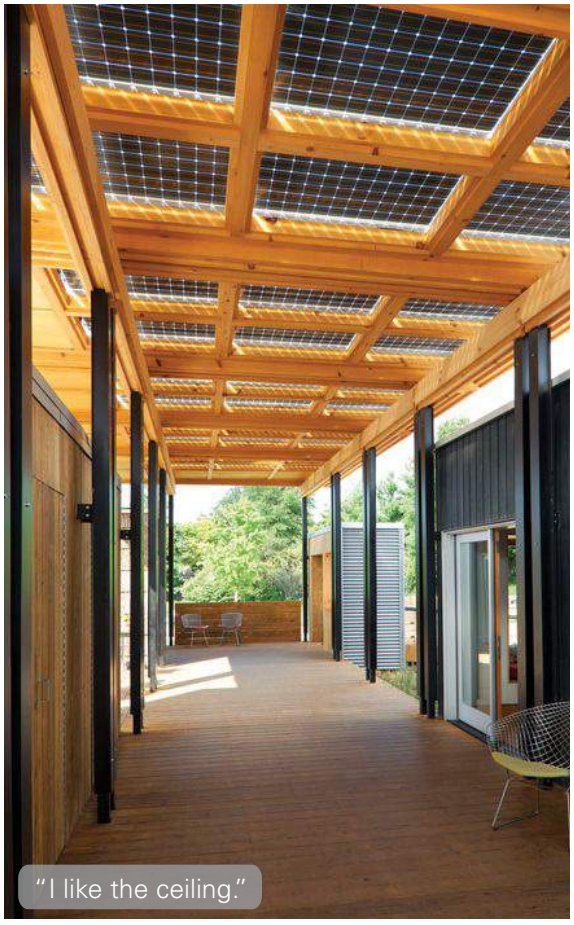
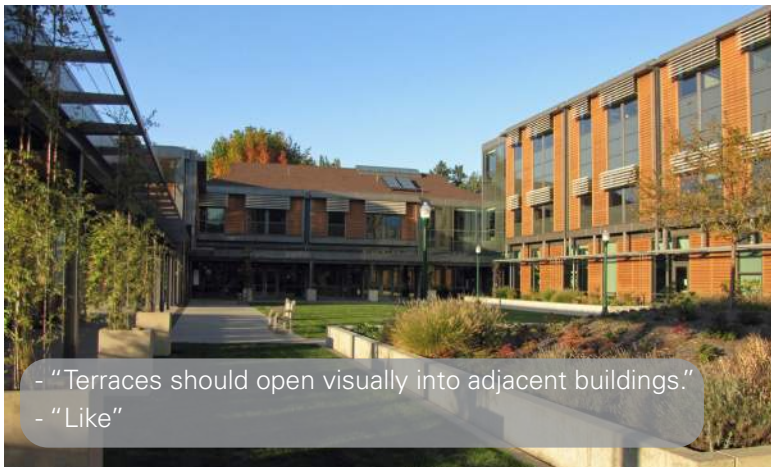




IMAGERY ACTIVITY - LANDSCAPE

Additional Comments

+ Incorporate water and plant life into the landscape and integrate it with the building
+ The building should reflect a strong image of sustainability and act as a billboard for a new way of thinking

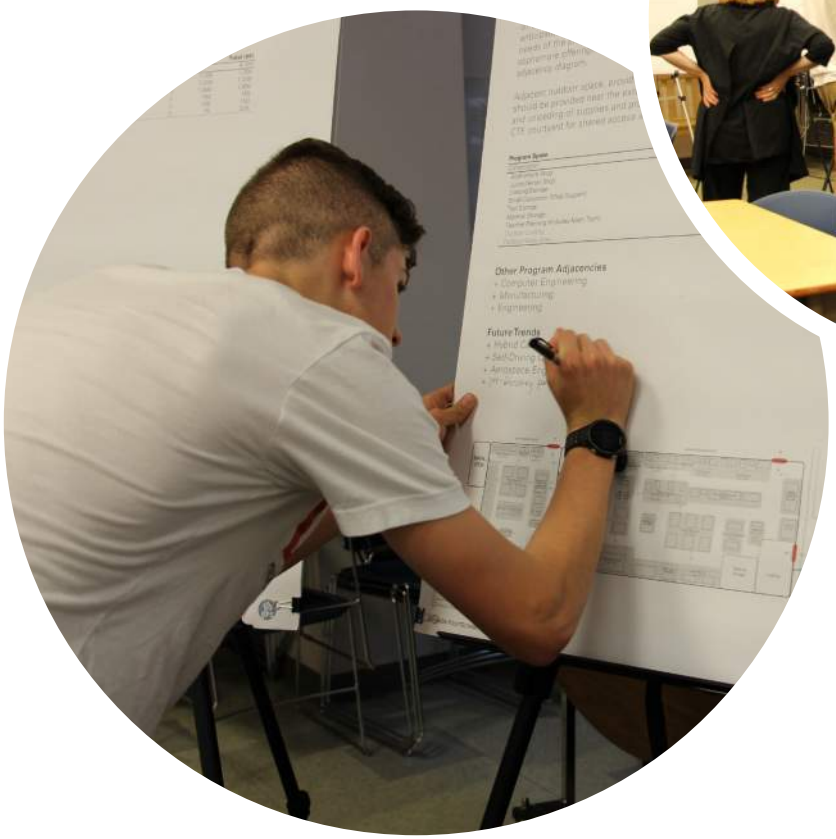


SUBCOMMITTEE REPORT

+ Tie into Jay Keuter (PPS) and coordinate industry outreach efforts
+ Tie into Alumni Foundation and coordinate efforts

PUBLIC COMMENT

No Public Comment



EDUCATIONAL SPECIFICATION BOARDS

ED SPEC SUMMARY / DESIGN & APPLIED ARTS

Summary

The Design & Applied Arts CTE Program requires two lab spaces to support drawing/sketching/painting within a 2D Lab, and sculpting within a 3D Lab. The 3D Lab also needs an adjacent kiln room and access to outdoor space to allow Raku firing. Storage and Teacher Planning should be provided between the two lab spaces so they can be shared, providing easy access to both spaces, and allowing for teacher supervision of the learning spaces.

Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Design and Applied Arts				*3,110*
2D Art Lab	1	1	1,200	1,200
3D Art Lab	1	1	1,500	1,500
Kiln Room		1	100	100
Art Storage Room		1	160	160
Teacher Planning		2	75	150
Outdoor Work Area				500

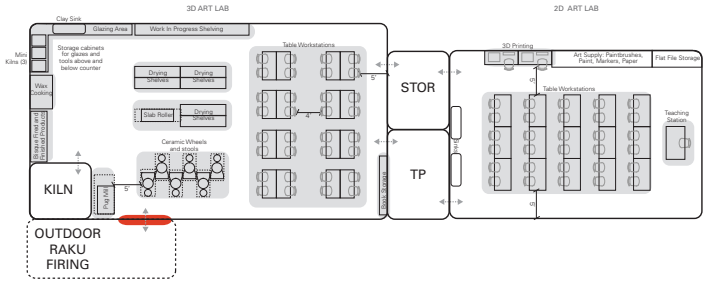
Other Program Adjacencies

+ Manufacturing
+ Digital Media
+ Architecture

Future Trends in the Industry

Due to the need to support a wide range of possibilities for personal expression, the potential trends in Applied Arts are wide and varied. A few examples include:

+ Digital Mixed Media
+ Virtual Reality
+ Kinetic Sculpture (Wood, Metal, etc.)
+



EQUIPMENT FOOTPRINT
EQUIPMENT WORKING AREA
GENERAL EQUIPMENT AREA
COUNTER TOP
RR (REST ROOM)
CR (CLASSROOM)
TP (TEACHER PLANNING)
ROLL-UP DOOR
EOS (ENGINE ON STAND)
RC (ROLLING CART)

Summary

The Architecture CTE program consists of three main lab spaces: a freshman drafting room, a sophomore computer lab, and a junior/senior architecture lab. Students develop drawing, drafting and model making skills in industry relevant software and techniques, and apply these to project designs.

Pin-up space and collaboration space is important for critique and display of student work. Collaboration with other Industry and Engineering Academy programs is also a critical aspect of the adjacency considerations as the drafting skills feed into other programs – most notably Engineering, Construction and Manufacturing. Access to outdoor space is also desired, with visibility to the Construction program work court.

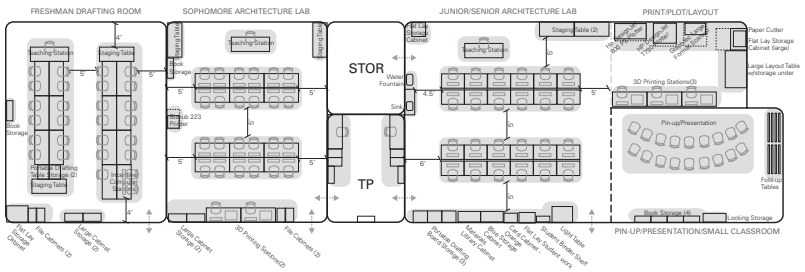
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Architectural Design				*4,360*
Freshman Drafting Classroom	1	1	980	980
Sophomore Architecture Lab	1	1	980	980
Junior/Senior Architecture Lab	1	1	1,200	2,025
Pin-Up/Presentation/Small Classroom		1	600	incl. above
Plot/Print/Layout Room		1	225	incl. above
Storage		1	150	150
Teacher Planning		3	75	225

Other Program Adjacencies

+ Construction
+ Engineering
+ Manufacturing

Future Trends

+ Large format monitors
+ 3D printing and laser printing for model making and project construction
+ Parametric design
+ 3D BIM drafting and rendering
+ Virtual Reality
+



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BENSON POLYTECHNIC HIGH SCHOOL / 2017.05.04

Summary

The Automotive/Aviation CTE program provides hands-on learning opportunities for the automotive and transportation-based industries. Projects include engine technology and rebuild, general and advanced automotive technologies, diesel and hybrid systems, small vehicles, and aviation technologies.

All of the shop spaces need ground-level, exterior access for a clear drive path from one or both ends of the spaces. Furthermore, it is required that the access roads to the entry and exit of the entry points can accommodate the turning radius of various types of cars and trucks.

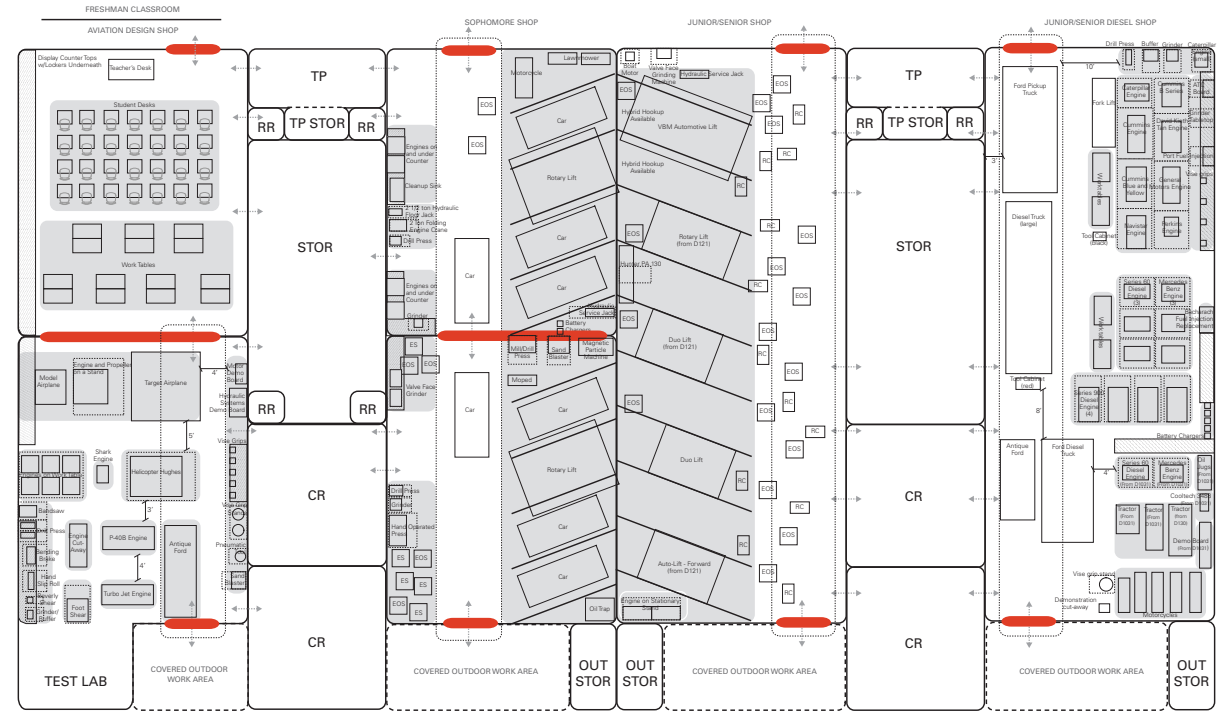
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Automotive & Aviation				*22,160*
Freshman Classroom	1	1	2,000	2,000
Sophomore Shop	1	2	2,000	4,000
Junior/Senior Shop	1	1	4,000	4,000
Junior/Senior - Diesel Shop	1	1	4,000	4,000
Small Classroom (Shop Support)		4	600	2,400
Equipment and Tool Storage		2	1,200	2,400

Other Program Adjacencies

+ Computer Engineering
+ Manufacturing
+ Engineering

Future Trends

+ Hybrid Cars
+ Self-Driving Cars
+ Aerospace Engineering
+



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Summary

The Computer Engineering CTE program instructs students in a variety of computer specialties, including programming, software engineering, and hardware configuration.

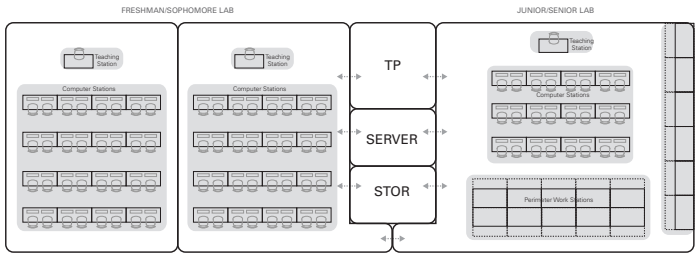
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Computer Engineering				*4,725*
Freshman Classroom	1	1	1,200	1,200
Sophomore Classroom	1	1	1,200	1,200
Junior/Senior Lab	1	1	1,800	1,800
Storage		1	150	150
Server Closet		1	150	150
Teacher Planning		3	75	225

Other Program Adjacencies

+ Electric
+ Manufacturing
+ Engineering
+ Automotive

Future Trends

+ Virtual Reality
+ Artificial Intelligence
+



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BENSON POLYTECHNIC HIGH SCHOOL / 2017.05.04

Summary

The Construction CTE program provides students with hands-on experience in woodworking, cabinetry, rough framing and finish carpentry. Students gain experience in proper tool usage techniques, fabrication techniques, including pre-fabrication. Juniors and seniors gain real world experience constructing projects both on- and off-site. Traditionally, the off-site project has been the construction of the Benson House, however the long term availability of this program is not anticipated, so alternatives must be considered in the planning of the spatial needs of the program. Integration with the Math Tech program for freshman and sophomore offerings is also planned into the program and reflected in the program adjacency diagram.

Adjacent outdoor space, providing areas for work, loading and material storage should be provided near the exterior access doors in shop spaces for easy loading and unloading of supplies and products. This space should also be adjacent to the CTE courtyard for shared access with other CTE programs.

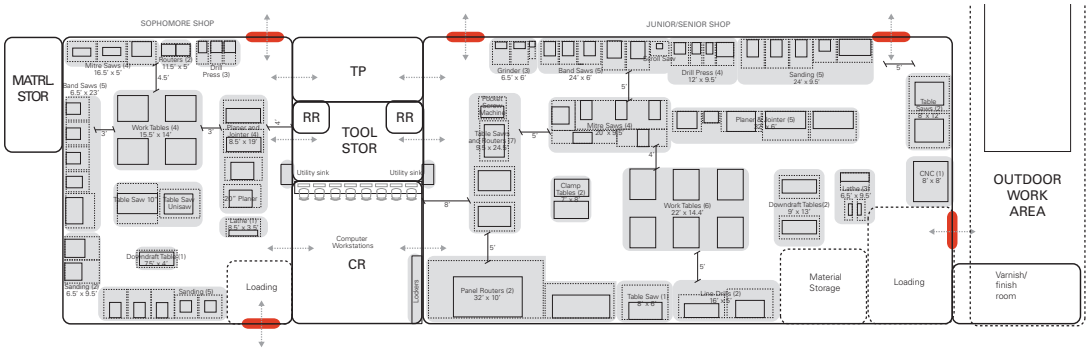
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Construction				*9,275*
Sophomore Shop	1	1	2,000	2,000
Junior/Senior Shop	1	1	4,500	4,500
Loading/Storage		2	200	400
Small Classroom (Shop Support)		1	600	600
Tool Storage		2	400	800
Material Storage		2	300	600
Teacher Planning (includes Math Tech)		5	75	375
Outdoor Loading				1,000
Outdoor Work Area				2,000

Other Program Adjacencies

+ Computer Engineering
+ Manufacturing
+ Engineering

Future Trends

+ Hybrid Cars
+ Self-Driving Cars
+ Aerospace Engineering
+



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Summary

The Math Tech CTE program is composed of two programs:
+ Tech Geometry, where freshman learn project-based math skills through construction activities.
+ Tech Algebra, where sophomores learn project-based math skills through screen printing and business activities.

The Tech Geometry curriculum currently includes building tiny homes for the homeless, but the long term funding and viability of this program is not a given, and they plan to transition into a Habitat for Humanity program that includes building a single-wide trailer home.

The Sophomore Lab is focused on heat press printing and screen printing and provides Benson swag and merchandise for the school, the sports teams, and other clubs and organizations.
Both programs require a proximate classroom space and tool and material storage.

The Math Tech program has a strong desire to be adjacent to the Construction CTE program as they share many tools and materials. A large outdoor work area for a Tech Geometry Shop is required for their 16' x 72' singlewide trailer and 20' x 8' shipping container. Loading and material storage should be directly adjacent to the exterior rolling door for easy loading and unloading of supplies and products.

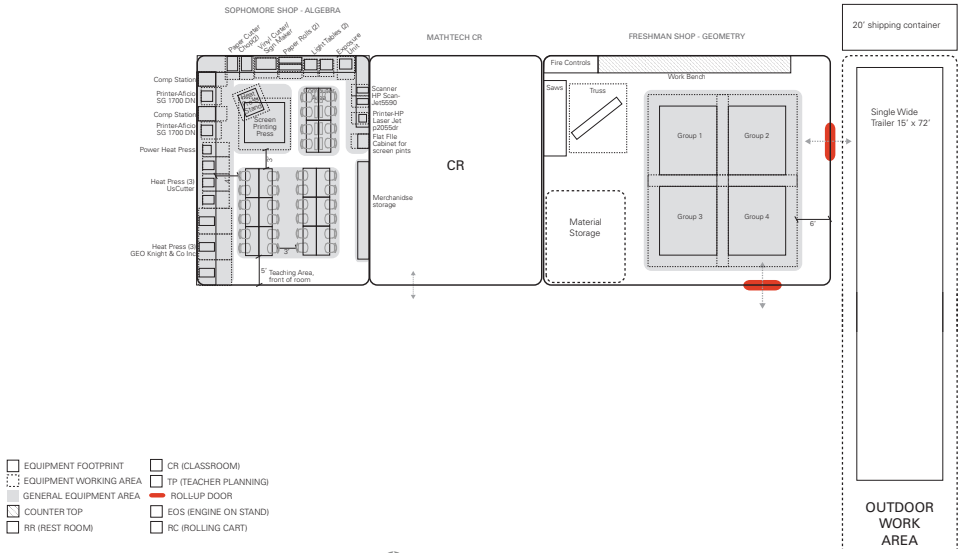
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Construction: Math Technology				*5,000*
Large Classroom	1	1	1,200	1,200
Sophomore Lab - Algebra	1	1	1,200	1,200
Freshman Shop - Geometry	1	1	2,000	2,000
Tool Storage		1	200	200
Material Storage		1	400	400
Outdoor Work Area				750

Other Program Adjacencies

+ Construction
+ Math

Future Trends

+ Habitat for Humanity – Single wide house construction
+



BENSON POLYTECHNIC HIGH SCHOOL / 2017.05.04

Summary

The Digital Media CTE Program exposes students to a production environment working in video production, website graphics and development, and photography. Studio spaces support the production of these subject areas, while computer labs and classrooms support the editing and execution of their projects.

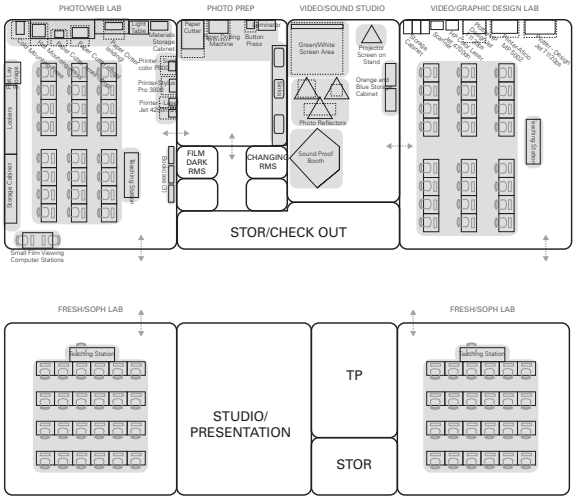
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Digital Media				*7,160*
Freshman Classroom	1	1	850	850
Sophomore Classroom	1	1	850	850
Photo/Web Lab	1	1	1,200	1,500
Printing/Plotting/Layout		1	300	incl. above
Video/Graphic Design Lab	1	1	1,200	1,200
Video/Sound Studio		1	600	600
Photo Prep		1	460	460
Studio/Presentation		1	600	600
Storage		4	200	800
Teacher Planning		4	75	300

Other Program Adjacencies

+ Radio

Future Trends

+ Animation
+ Virtual Reality
+



EQUIPMENT FOOTPRINT
EQUIPMENT WORKING AREA
GENERAL EQUIPMENT AREA
COUNTER TOP
RR (REST ROOM)
CR (CLASSROOM)
TP (TEACHER PLANNING)
ROLL-UP DOOR
EOS (ENGINE ON STAND)
RC (ROLLING CART)

Summary

The Electric CTE program provides students with hands-on electric experience in residential and commercial applications. Students gain experience in equipment and tool safety, and codes and regulations within projects including circuit board wiring, house wiring, security system installation, fire alarm wiring, industrial automation, robotics, and motor control.

Adjacent outdoor space, providing areas for work, loading and material storage should be provided near the exterior access doors in shop spaces for easy loading and unloading of supplies and products. This space should also be adjacent to the CTE courtyard for shared access with other CTE programs.

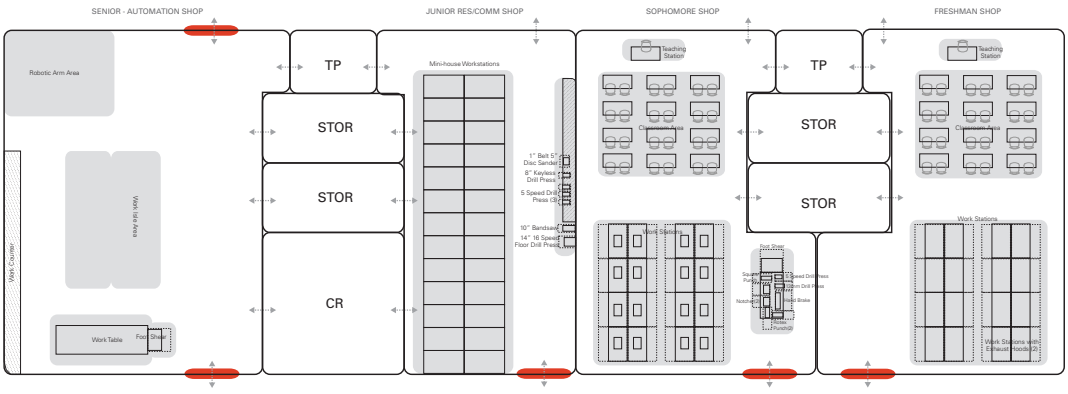
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Electrical				*9,900*
Freshman Shop	1	1	1,800	1,800
Sophomore Shop	1	1	1,800	1,800
Junior - Res/Comm Elec Shop	1	1	1,800	1,800
Senior - Automation Shop	1	1	2,400	2,400
Small Classroom (Shop Support)		1	600	600
Storage		4	300	1,200
Teacher Planning		4	75	300

Other Program Adjacencies

+ Construction
+ Architecture
+ Robotics
+ Computer Engineering

Future Trends

+ Alternative Energy Sources – Solar PV, Wind, Etc.
+ Battery Technology
+



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Summary

The Engineering CTE program is transitioning from a complimentary elective for numerous majors to a full CTE program that can integrate with almost all of the other majors.
Students can engineer and develop a variety of projects. Currently, the focus is in developing skateboard parts, gaining design and problem solving skills through 3D Modeling and 3D Printing. The program includes design, drafting, and fabrication using high tech tools and machinery with a variety of materials including wood, metal, and plastic.

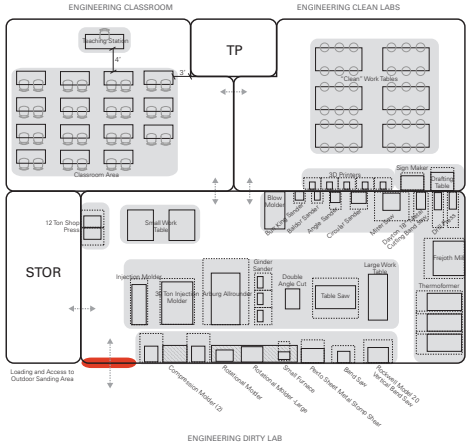
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Engineering				*4,985*
Classroom / Clean Lab	2	2	980	1,960
Dirty Lab	1	1	2,000	2,000
Storage		2	400	800
Teacher Planning		3	75	225

Other Program Adjacencies

+ Manufacturing
+ Robotics
+ Architecture
+ Electrical
+ Digital Media
+ Art

Future Trends

+ High resolution wax and resin castings
+ Next generation CNC and laser cutting machines
+ Biological Materials Science
+



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Summary

The Health Occupations CTE program combines in-school coursework with real-world clinical experience to prepare students for assistant positions in nursing, dentistry, first responding, and medical fields.

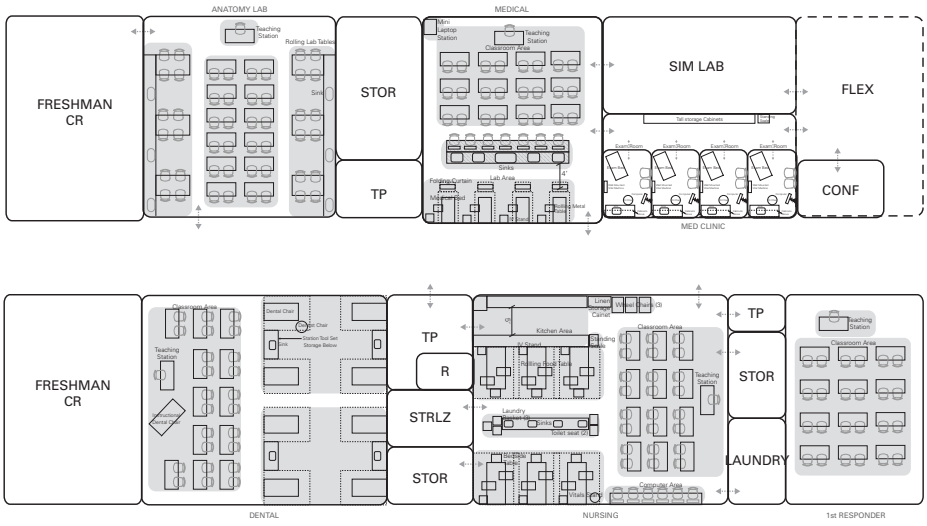
Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Health Occupations				*11,880*
Freshman Classroom	2	2	850	1,700
Anatomy Lab	1	1	1,300	1,300
Anatomy Lab Prep		1	100	100
Nursing Lab	1	1	1,500	1,500
Sterilization Room		1	150	150
Medical Lab	1	1	1,200	1,200
Medical Scenario Clinic		1	750	750
Medical Sim Lab		1	600	600
Dental Lab	1	1	1,500	1,500
First Responder Classroom	1	1	980	980
Storage		4	150	600
Extended Learning Area		1	900	900
Conference Room		1	150	150
Teacher Planning		6	75	450

Other Program Adjacencies

+ Science

Future Trends

+ Handheld, portable x-ray system (Dentistry)
+



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Summary

The Manufacturing CTE program provides students with hands on learning to design and manufacture products. Students work with various materials and learn safety of equipment and tools including lathes, CNC mills, drill presses, grinders, and band saws.

Program Space	Teaching Stations	Quantity	Area (SF)	Total (SF)
Manufacturing				*23,460*
Freshman Shop	1	1	2,500	2,500
Sophomore/Junior - Metals Shop	1	1	5,000	5,000
Senior - Machining Shop	1	1	5,000	5,000
Foundry Shop	1	1	2,592	2,592
Pattern Making Shop	1	1	4,293	4,293
Small Classroom (Shop Support)		2	600	1,200
Storage		4	300	1,200
Teacher Planning		5	75	375
Computer Design Lab		2	600	1,200
Flammable Storage		1	100	100

Other Program Adjacencies

+ Engineering
+ Robotics
+ Architecture
+ Construction
+ Electric

Future Trends

+ 3D Printing
+ Prosthetic Limbs
+