CONTRA COSTA COMMUNITY COLLEGE DISTRICT

DIABLO VALLEY COLLEGE

ENGINEERING TECHNOLOGY BUILDING RENOVATION+ MATH AND ENGINEERING STUDENT CENTER

CRITERIA DOCUMENT

27 SEPTEMBER 2023

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DIABLO VALLEY COLLEGE
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INTRODUCTION

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1.1 EXECUTIVE SUMMARY

The Criteria Documents for the Engineering Technology Building Renovation and new Math and Engineering Student Center (referenced hereafter as the ET Building Renovation/MESC) at Diablo Valley College was commissioned by the Contra Costa Community College District to assess the feasibility of the project, identify the strategic goals, and define the project requirements. The district plans to engage a design-build entity, in a progressive design-build arrangement, to carry out the design and construction of the project based on these criteria.

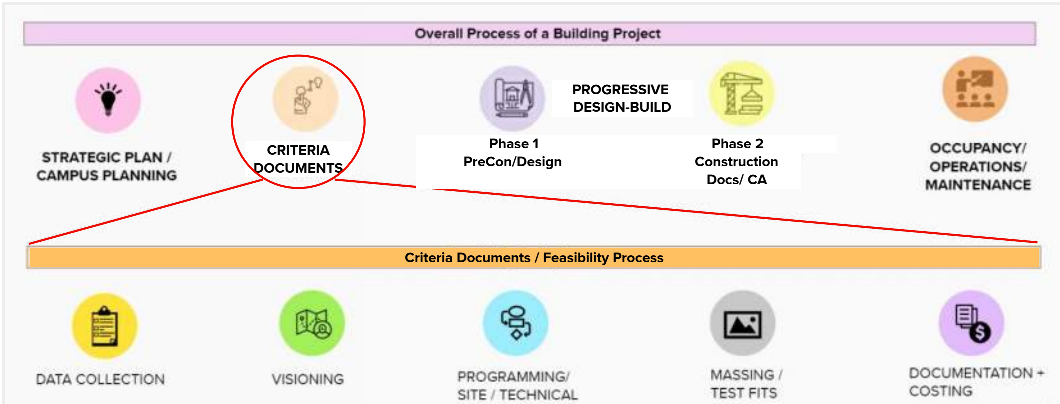
The requirements set forth in this document include the strategic goals for the project, the building program, specific requirements for individual spaces, and detailed narratives of building systems. Through the process of reviewing the program requirements with the project stakeholders, challenges and opportunities were revealed and clarified. The information gathered through this engagement with the stakeholders is of great value to the continued development of the project. Summaries of these engagements are thus included in these documents.

The project is envisioned to be 39,500 gross SF. This will include a renovation of the existing 32,500 SF Engineering Technology (ET) Building, and a new 7,000 facility for the Math and Engineering Student Center (MESC).

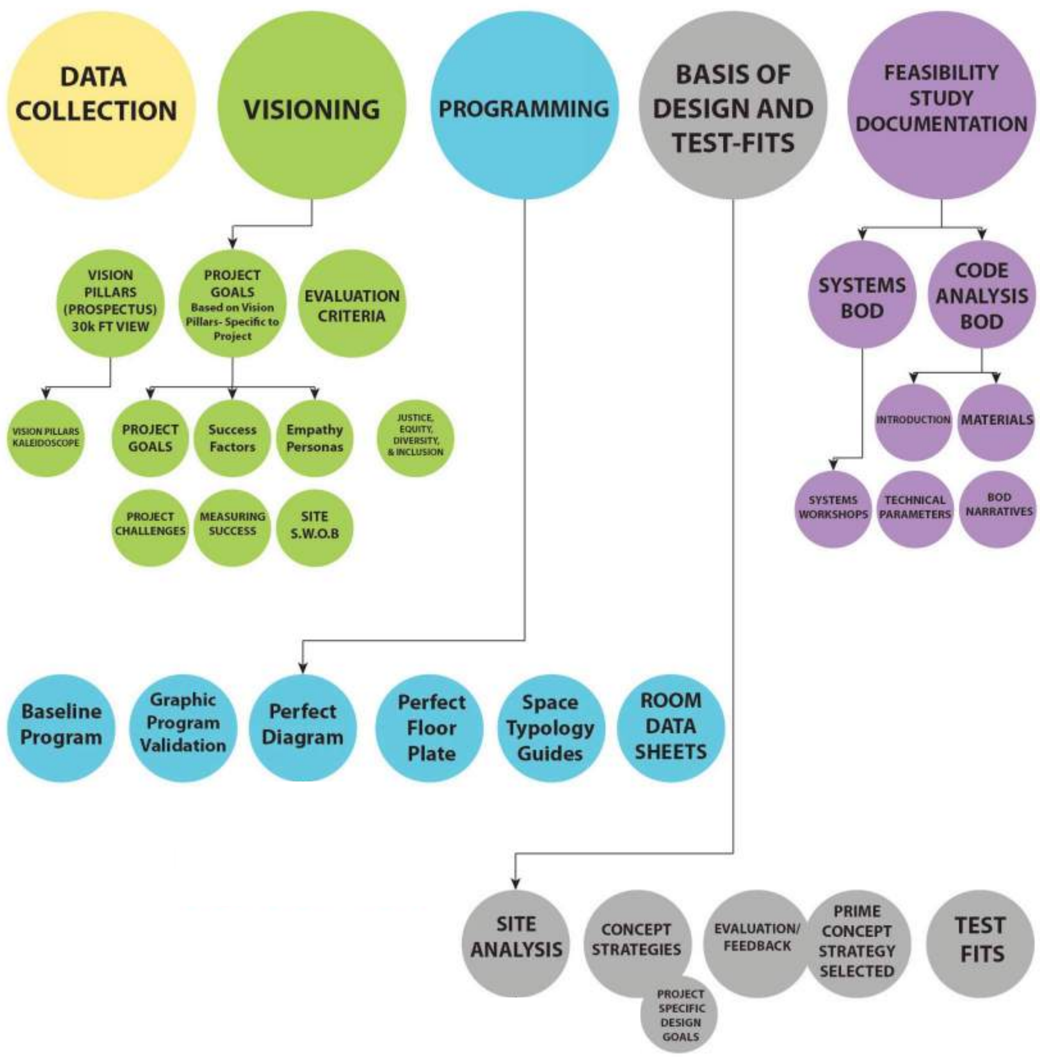
The ET Building was constructed in 1971, and has received only minor alterations to portions of the interior since its construction. Further, the core instructional uses for the building are remarkably similar to what they were when the building was first constructed. The building supports instruction in Architecture, Construction, Engineering, Electronics/Electrical Technology, Engineering Technology, and Industrial Design. The educational programs include transfer-focused programs, vocational instruction, and continued education. Portions of the building are currently supporting an advanced technology training center for the Tesla START program. The architectural configuration and features of the building are representative of the era of its construction, with various opportunities and challenges associated with the building characteristics.

The Math and Engineering Student Center program is currently located in the Learning Center. The district wishes to relocate the MESC to a new facility as part of this project. The mission of the MESC is to provide mathematics-focused support for students engaged in all programs on the DVC campus, by providing a welcoming and supportive environment to develop skills through group study, tutoring, and self-paced study. While there are potential synergies between the Engineering Technology Building programs and the MESC, the MESC is a distinct program, which will see high traffic from students through-out the campus.

The project is envisioned to retain the best features of the existing building, while providing various code-required and functional improvements, including seismic structural upgrades, universal access, substantial improvements in sustainability, support of modern technologies and user comfort and high functioning learning spaces, and other measures that will support student success.



CRITERIA DOCUMENTS PROCESS



1.2 CRITERIA DOCUMENT TEAM

The following individuals participated in the development of the Engineering and Technology Building Criteria Document and were instrumental in shaping the outcome of the study. Their time and commitment are greatly appreciated.

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1.3 SCHEDULE

The Criteria Document was a 6-month process commencing in February 2023 and concluding in August 2023. Following the Criteria Document, the Engineering Technology (ET) Building is anticipated to be delivered via Diablo Valley College's Collaborative Design-Build delivery method.

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02
PROJECT VISION

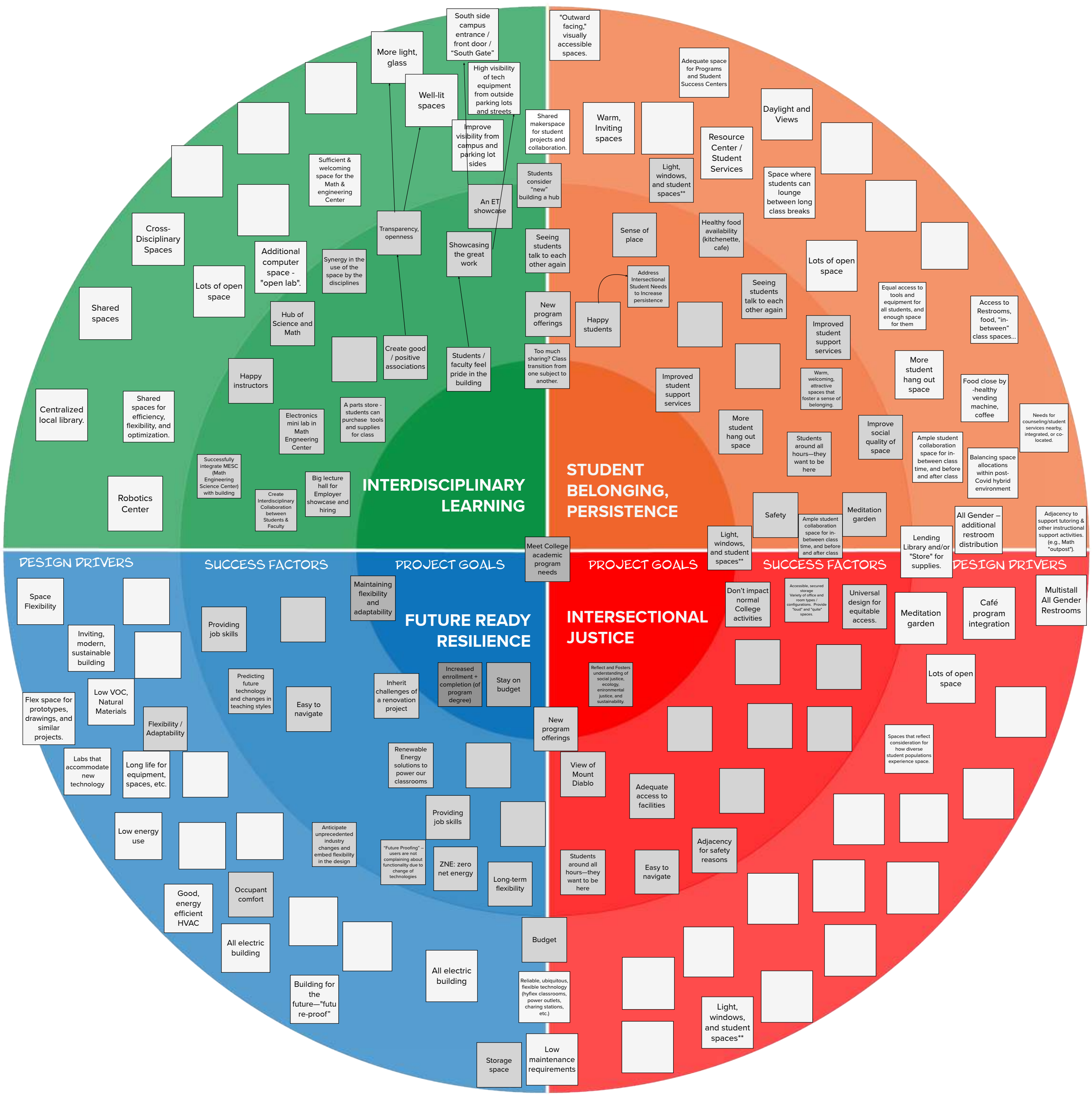
2.1 VISIONING SUMMARY

The Criteria Document process for this project started with a comprehensive strategic visioning process in alignment with Diablo Valley College newly adopted Future Forward Strategic Plan 2021-2026. The Criteria Document consultant team hosted several workshops to define project specific vision pillars, understand the program's goals and challenges, site related issues, success factors, metrics of success and empathy building. The goal of these workshops was to strengthen stakeholder engagement, trust and understanding while also defining project priorities and building consensus. The Diablo Valley College Engineering and Technology Building working group members collectively determined a clear set of evaluation criteria based on the declared vision pillars and project priorities. Subsequently, the evaluation criteria are leveraged to streamline decision making during the concept test fits strategies and constraints – promoting discussion and health debate about advantages and unresolved challenges of each concept.

Based on strategic engagement workshops conducted at the beginning of the Criteria Document process with the working group, the following vision pillars and priorities were derived for the Engineering and Technology project.

- **Champion Social and Environmental Justice -** Reflect and foster understanding of social justice, ecology, environmental justice, and sustainability. Develop human-centered discovery, design, and engineering that aligns with social, economic and environmental values; Applied problem solving with direct relevance to real world challenges with purpose and impact.
- **Cultivate Interdisciplinary Learning -** Foster and ignite curiosity and collaboration to support cross-disciplinary and interdisciplinary thinking, discovery, and innovation. Leverage the STEM/STEAM connections and cross pollination to fuel real world problem solving.
- **Prioritize Student Belonging + Persistence -** Students are met where they are, understanding their lived experience, challenges and barriers to augment their persistence. Create environments that strengthen belonging, affirm dignity and foster intentional, abundant learning resources, and cohorts/communities.
- **Future Ready Resilience** – Students are prepared with a broad set of foundational skills, adaptable for the future and a rapidly changing workforce landscape and living conditions. The future-ready student is equipped with problem-solving, resilience, and holistic wellness skills. Concurrently, the future ready resilient campus is designed to be human centered, flexible and adaptable to the rapidly changing conditions of education and student needs.
- **Future Proofing -** Provide Infrastructure that is flexible and adaptable to support microgrid testing and an evolving industry.

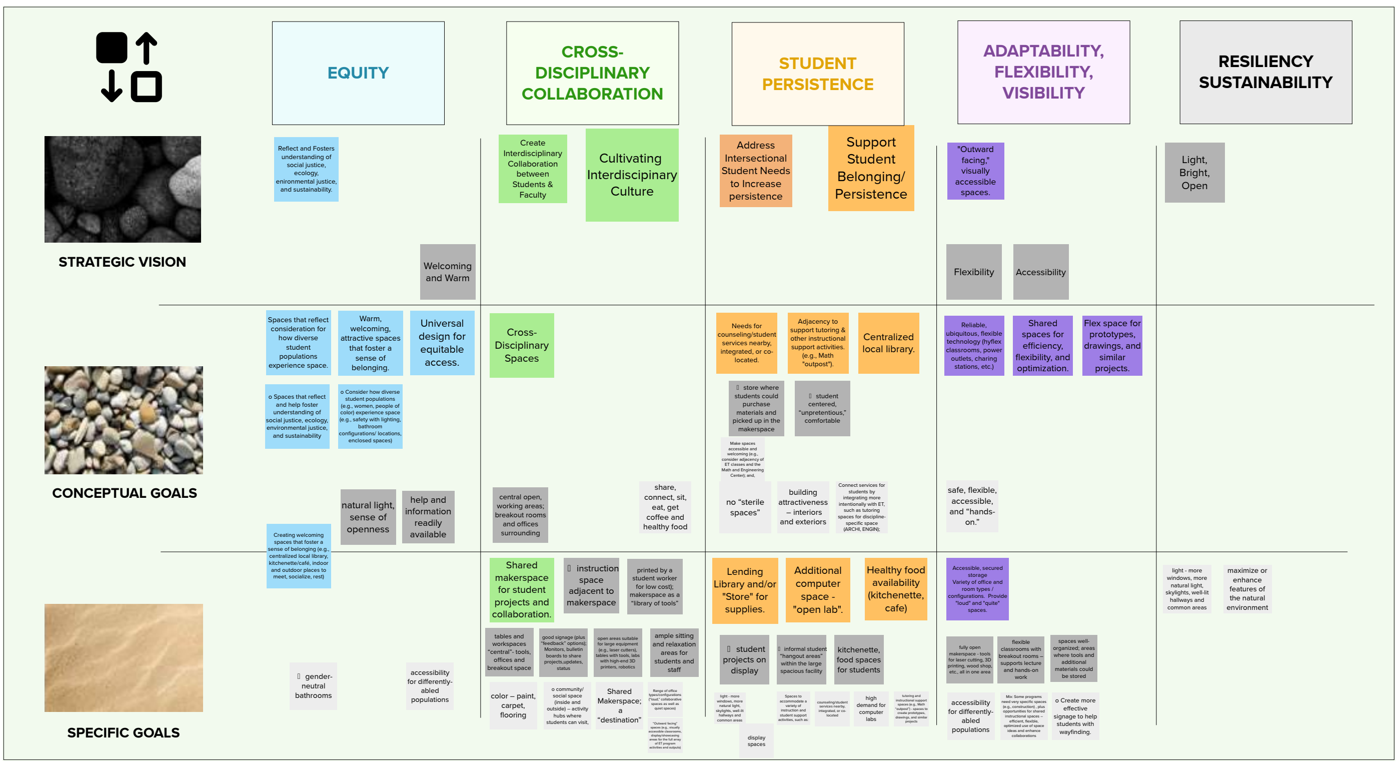
Figure 2.1 - Vision Pillar Strategic Goals



2.2 ALIGNMENT OF PURPOSE

The team started stakeholder meetings by evaluating previous work supporting the Criteria Document effort including 1) Diablo Valley College Phase 1 Investigation of Program Needs and Curated Portfolio of Findings and Planning Principles by Integrated Academic Solutions, LLC, (published September 2022) and the 2022 4CD Districtwide Energy and Sustainability Goals document. The team assessed both documents for common themes: Equity, Interdisciplinary Collaboration, Student Persistence, Future Proofing, and Resiliency/Sustainability. The team further lead stakeholders in an effort of prioritization from the Strategic Vision, to Conceptual Goals, to Project Specific Goals. This provided a spring point to further develop and understanding of project needs.

Figure 2.2



2.3 VISION PILLARS AND SUPPORTING GOALS

The Criteria Document team lead stakeholders through a brainstorming process and further development and refinement of previous goals for the Engineering and Tech building renovation to have a deeper understanding of the opportunities and constraints for the project including the various needs of each discipline currently housed within the facility and future growth or efficiencies that are desired.

Figure 2.3.1

Figure 2.3.2

2.3.1 EXERCISE 1: PROJECT GOALS AND CHALLENGES

PURPOSE

This exercise supported stakeholders in voicing their aspirations and concerns about the project in a crowdsourced format on virtual post-its followed by discussion. The format promotes interdisciplinarity, allows for transparent discussion in a safe forum while maximizing feedback and promoting healthy debate and listening to differing points of view. The exercise was conducted virtually, and participants were asked to populate the board with multiple goals and challenges prior to the discussion.

SUMMARY OF PRIORITIES

Based on the stakeholders feedback, the following emerging themes and priorities were expressed:

Key Goals

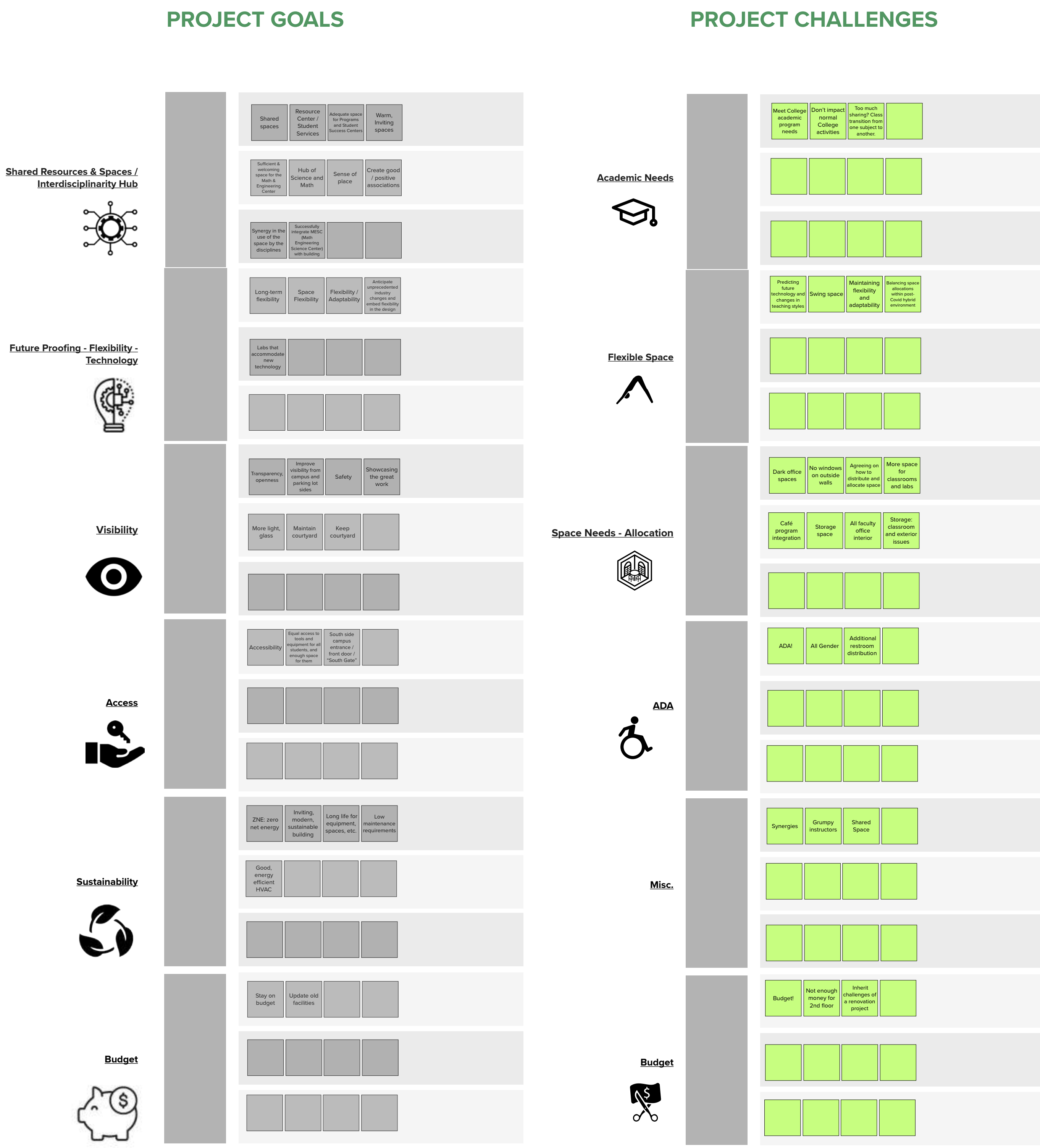
- Support cross disciplinary collaboration between faculty and students
- A desire to upgrade classrooms to have optimized layouts and flexibility to support high functioning instruction.
- Find a welcoming home for the Math and Engineering Student Center
- Upgrade spaces without loosing the character and collegiality of the current structure
- Equitable access to teaching tools and learning resources for all students.

Key Challenges

- Many building infrastructure systems are at the end of their lifespan – roofing, MEP equipment, structural, and a renovation will require funding to repair and upgrade systems to DSA permit standards.
- Many disciplines have needs for additional space or more functional spaces that are not currently available in the current configuration.

There is not enough space for including additional program beyond the current existing functions.

Figure 2.4.2 - Project Goals and Challenges



2.3.2 EXERCISE 2: SUCCESS FACTORS AND MEASURING SUCCESS

PURPOSE

This exercise built upon the established project goals and challenges and asked the working group stakeholders to provide more detailed descriptions of success factors and metrics of success that would begin to shape ideas of physical characteristics of spaces within the program. The success factors and metrics would also be leveraged to make connections between vision pillars, goals/challenge to establish criteria for creating program adjacency priorities and evaluating concept test fit options.

SUMMARY OF PRIORITIES

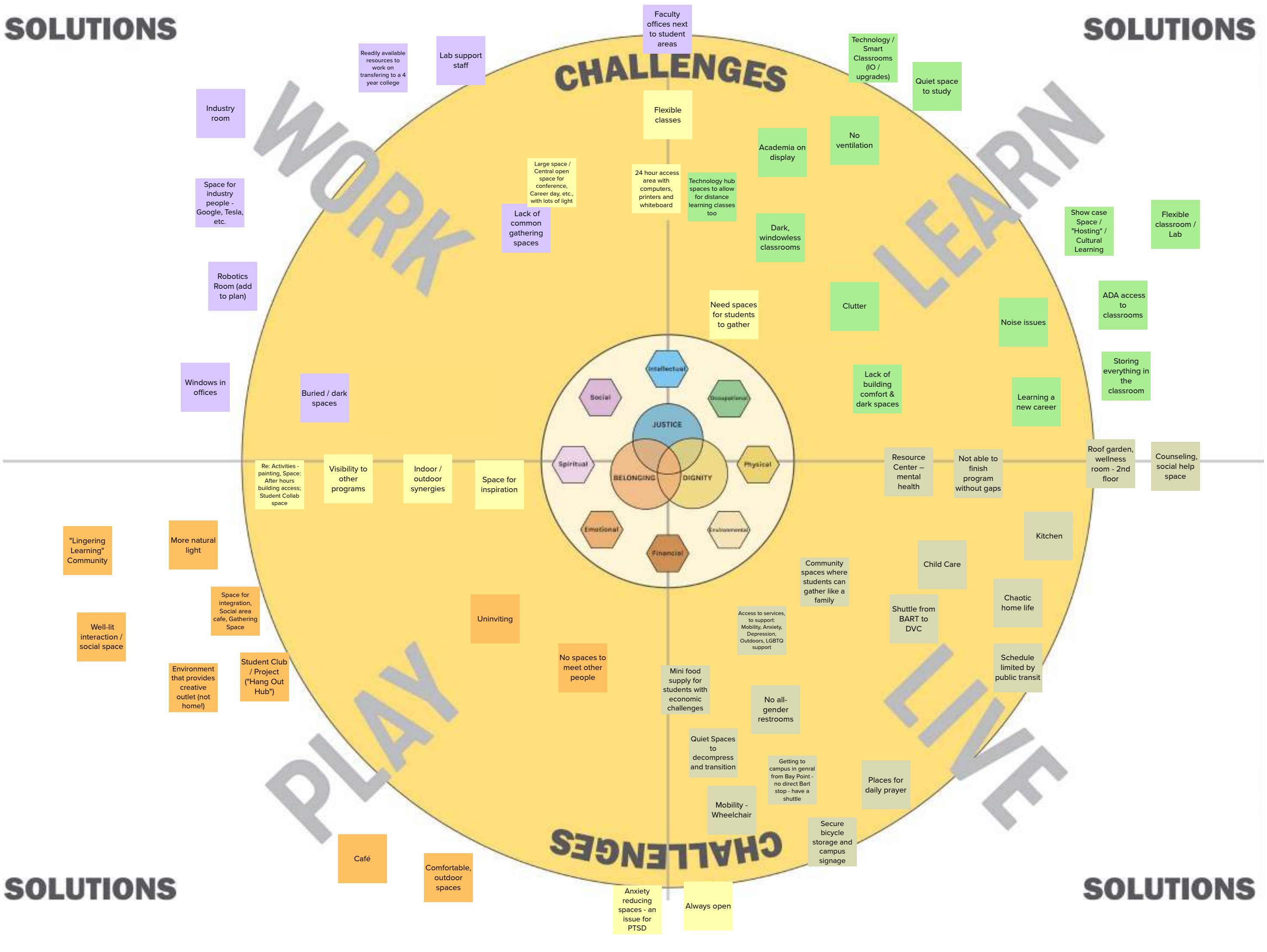
Key project SUCCESS FACTORS for the group include the following:

- Reliable, ubiquitous, flexible technology (hyflex classrooms, power outlets, charging stations, etc.)
- Shared spaces for efficiency, flexibility, and optimization.
- Spaces that reflect consideration for how diverse student populations experience space.
- Adjacency to support tutoring & other instructional support activities. (e.g., Math "outpost").
- Ample student collaboration space for in-between class time, and before and after class
- Increased enrollment + completion (of program degree)

Key project METRICS OF SUCCESS for the group include the following:

- Students / faculty feel pride in the building
- Students around all hours—they want to be here
- Students consider "new" building a hub
- "Future Proofing" – users are not complaining about functionality due to change of technologies

Figure 2.4.3 - Success Factors and Measuring Success



- High efficiency building

2.4 EVALUATION CRITERIA

Based on the feedback of the prior exercises, the team provides examples of evaluation criteria that reflected the vision pillars and success factors brainstorming from all stakeholders. These evaluation criteria were utilized to review concept strategies of optimizing the usage and prioritization of the specific renovation scope of work.

INTERDISCIPLINARY LEARNING

- Creates a highly visible showcase for interdisciplinary learning and threshold/entry from South Gate approach.
- Spaces are versatile/flexible that promote exchange between students and faculty co-curricular and multi modal uses/groups and adaptable over time.
- Design fosters engagement/collaboration between Math, Engineering, Technology, Architecture, Construction and inspires curiosity of the DVC learning community.

STUDENT BELONGING /PERSISTENCE

- HEART SPACE and dedicated student resources - radically welcoming place that support belonging, curiosity and engagement in formal and informal learning spaces.
- Dignified, intentional and integrated resources to support student basic needs - places to study, rest, food access/places to store/warm meals, showers?
- Spaces that promote holistic wellness - ease of navigation, acoustic considerations, natural light and air, views, indoor/outdoor connections.

FUNCTION/ FUTURE READY

- E+T program and adjacencies support flexibility and future teaching/learning needs while durable and easy to adapt/maintain (optimize functions)
- Building as teaching tool - ie., height, orientation and solar exposure, access to fresh air, HVAC, electrical, water management, etc., all in support of sustainability and resilience practices.
- Spaces, organization and circulation that cultivate visual and physical connections to the work/ living laboratory; demonstrates synergies of STEAM - hands on learning.

INTERSECTIONAL JUSTICE

- Accessible to All - universal access to site resources including provisions to support exchange with the larger community (all gender restrooms, mobility)
- Community resources are easy to locate and highly visible areas for public gathering and support - wayfinding, safety, and welcoming.
- Instructional and engagement space foster pride, belonging and dignity for students, faculty and community at large.

Figure 2.4.1 - Evaluation Criteria

INTERDISCIPLINARY LEARNING

1.Creates a highly visible showcase each discipline's strengths, while fostering interdisciplinary learning, leveraging the threshold/entry South Gate approach.

2. Spaces are versatile/flexible that promote exchange between students, faculty co-curricular, industry partners with multimodal uses/groups and adaptable over time.

3. Design fosters engagement/collaboration between STEAM disciplines (Math, Engineering, Technology, Architecture, Construction, etc.) and inspires curiosity of the DVC learning community.

STUDENT BELONGING / PERSISTENCE

7. HEART SPACE and dedicated student resources - radically welcoming place that support belonging, curiosity and engagement in formal and informal learning spaces.

8. Dignified, intentional and integrated resources to support student basic and developmental needs - promoting holistic wellness (mental health).

9. Adequate, intentional access with safety/training (hours of operation) to equipment and maker spaces for fostering applied project learning.

FUNCTION/ FUTURE READY

4. High Flex - Project program and adjacencies support flexibility and future teaching/learning needs while durable and easy to adapt/maintain (optimize functions)

5. Learning on Display - spaces/infrastructure are highly visible teaching tool - (ie., height, orientation and solar exposure, access to fresh air, HVAC, electrical, water management, etc.,) to reinforce applied learning of sustainability and resilience practices.

6. Instructional spaces are well integrated with support resources/spaces (lab tech support) to cultivate connections to the work/living laboratory; demonstrates synergies of STEAM - hands on learning/support.

INTERSECTIONAL JUSTICE

10. Accessible to All - universal design/access prioritized to site resources including provisions to support exchange with the larger community (all gender restrooms, mobility)

11. Community resources are easy to locate and highly visible areas for public gathering and support - wayfinding, safety, and welcoming.

12. Strategic values - Climate Action, Social and Academic Justice are embodied in Instructional and engagement spaces that foster pride, belonging and dignity for students, faculty and community at large.

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03
PROGRAM

3.1 PROGRAM DEVELOPMENT PROCESS

3.1.1 ENGAGEMENT PROCESS FOR PROGRAM DEVELOPMENT

The process for developing the Program for the Engineering Technology Building involved discussions and reviews with the project stakeholders using the following formats:

- Tour of the existing facility with representatives from the different disciplines.
- Focused "User Group" meetings with program directors and representatives from the different disciplines, in order to discuss requirements specific to the disciplines involved.
- Larger "Stakeholder" meetings, with participants representing all disciplines, to address priorities related to shared spaces and resources.
- Project Steering Committee meetings to discuss differences and develop consensus around the strategies for shared spaces and resources.

3.1.1.1 USER GROUP MEETINGS

User Group meetings were organized into three rounds of reviews, generally involving the following groups:

- MESC (Math & Engineering Student Center)
- ARCHI / CONST (Architecture/Construction)
- ELECT / ELTRN / ENGIN (Electrical Technology/Electronics/Engineering)
- ENGTC / IDSGN (Engineering Technology/Industrial Design

Representatives included the program directors, full time faculty, adjunct faculty, and staff. The needs for the Tesla START program were discussed in the ENGTC / IDSGN meetings. The district requested that direct discussions with industry partners like Tesla occur starting in the Design Phase of the project, after the general strategy for the program was established by the DVC representatives.

The meetings were organized around the following objectives:

- Session #1: Understanding existing facilities. How is the space being used? What is working and not working? What required adjacencies? (4/26 – 4/28/2023)
- Session #2: Understanding requirements for equipment and fixtures. (5/25 – 5/31/2023)
- Session #3: Establishing requirements for the new / renovated spaces. (7/10 – 7/12/2023)

The notes for all the user group meetings are available in the Appendix.

Figure 3.1.1.1.1

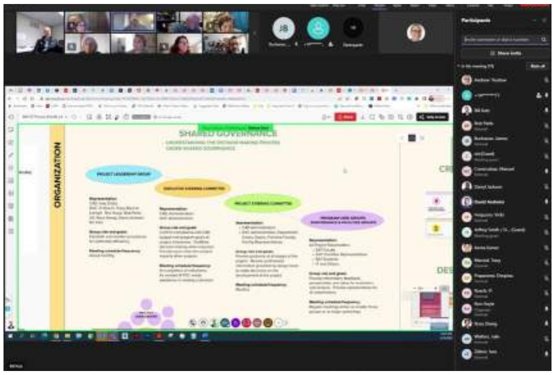


Figure 3.1.1.1.2

3.1.1.2 STAKEHOLDER MEETINGS

Stakeholder meetings were conducted either virtually and/or in person, and included representation from all the User Groups and the Project Steering Committee. The primary purpose of the Stakeholder Meetings was to develop an environment for group consensus building around the shared vision and goals for the project. The project team used MS Mural, an online content sharing and collaboration application, that allows all meeting participants to share comments and content in real time.

These workshops were organized as follows:

- Workshop #1 (Visioning): Refinement of planning principles and identifying project goals and success factors. (3/16/2023)
- Workshop #2 (Visioning): Development of evaluation criteria, to serve as a guides for decision making. (4/19/2023)
- Workshop #3 (Concept): Identifying location of MESC and understanding full impact of desired program adjustments by evaluating some preliminary test fit strategies. (6/28/2023)
- Workshop #4 (Concept): Identifying a selecting specific strategies for modifying the ET Building Program (7/20/2023) .

Figure 3.1.1.2.1

Figure 3.1.1.2.2

3.1.1.3 PROJECT STEERING COMMITTEE MEETINGS

The Project Steering Committee (PSC) is comprised of representatives from the district, the college, and the department. The purpose of this committee is to form consensus and provide direction where required for the development of the program and the project requirements as described in the Criteria Documents. The PSC met with the design team approximately monthly for the duration of the project. Although consensus has not always been reached, the discussions have been beneficial to highlight the various perspectives and to ensure a full exploration of the various challenges.

The meetings were organized as follows:

- Meeting #1: Overview of process (4/19/2023)
- Meeting #2: Establishing Evaluation Criteria and review of program adjacency diagram. (5/12/2023)
- Meeting #3: Diagnostic review of existing spaces and overview of cost alignment, cost forecasting, and overview of strategies for addressing cost risks, and location of the MESC. (6/20/2023)
- Meeting #4: Confirming baseline program and layout strategies for the Criteria Documents. 7/27/2023)

3.1.2 PROGRAMMING PARAMETERS

The project budget and preliminary estimates have resulted in a clear understanding that the ambitions for the project must be limited to the existing 32,500 SF footprint of the ET Building, plus a maximum 7,000 SF new addition for the MESC building. During the process of evaluating options, several concepts for alternatives were discussed that were not adopted.

- Converting adjacent partially enclosed, unconditioned structures into occupiable spaces was discussed for stretching available program space. However, the consultant team believes that budget does not permit for the additional cost associated with life-safety upgrades and energy code upgrades to make these spaces occupiable.
- Constructing the new 7,000 SF space as new build for programs benefiting from high bay space, and locating the MESC into the ET Building. This concept was discussed extensively and reviewed. However, the idea was abandoned because of the additional cost associated with constructing this facility, and because it would position the MESC in a sub-optimal location on campus.
- Constructing the new MESC within the courtyard. This concept was determined to be more expensive than locating the addition north of the building, due to construction-related complexities involved in constructing within an existing building shell. The courtyard is also seen as a beneficial attribute for some of the building programs. Further, the location of the MESC closer to the center of campus is sub-optimal.
- In-filling / enclosing the deep entrance court at the south of the building to gain additional space. The cost of constructing new enclosed space in this location is not significantly different than a new addition, and the cost for such construction is outside the budget for the project.

3.1.3 PROGRAMMING CHALLENGES AND OPPORTUNITIES FOR THE ET BUILDING

Several of the ET disciplines have indicated a need for additional space to support growing program needs, and none have expressed an abundance of space that could be re-purposed for other needs.

3.1.3.1 SPACE CHALLENGES

The following were expressed as additional space needs by various representatives of the department.

- Woodshop (adjacent to 120B) is too small to support the safely manage students with the existing equipment (+200-300 SF required).
- The CNC Room (121) is too small to operate the two pieces of equipment that have recently been purchased and installed in this space (+ 100 SF required).
- Classroom 117 (formerly a drafting room) is too small to support classes of 30 (+300 SF required).
- To support the Tesla START program, a minimum of 2,500 SF is deemed as required to properly support the program (+1,000 SF required). It has been requested that a significant portion of this is high bay space with 14' – 15' vertical clearance.
- The Electrical/Electronics program wants to have at least one space that can support 30 individual stations within the Electrical Systems lab. These stations need to be 4' wide minimum. (+ 400 SF)
- The Electrical/Electronics program representative believe additional facilities are required to support a growing demand for their Electrical Systems lab (+1,000 – 1,400 SF required).
- The Electrical program representatives wish to set up wiring training centers, which would involved 12 – 15 wall-mounted training centers, apx 6' wide. (+800 – 1,000 SF).
- It was noted that scheduling of computer labs can be challenging, and an additional computer lab available in the building (+ 800 SF)

3.1.3.2 STRATEGIES

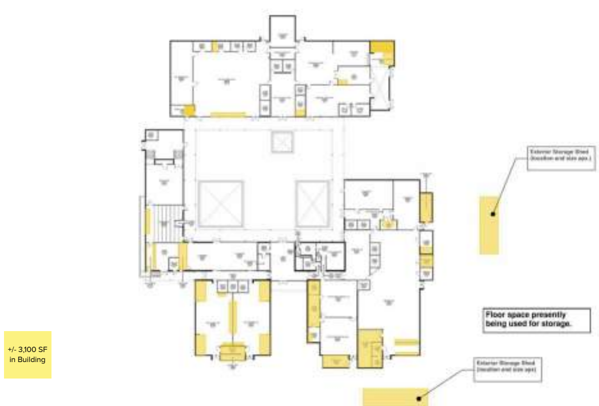
The following strategies were adopted to optimize the functionality of the program and maximize opportunities.

- Identify under-utilized spaces, such that the square footage can be re-purposed for more highly utilized space. A review of spring 2023 enrollment data revealed that several rooms have a very low utilization rate (due to size, location, or proportion, or in-room technology). Rooms 117, 122B, and 125, and 127 all have exceptionally low use utilization in spring 2023, although it must be recognized that room use levels have been historically higher in pre-pandemic years. Having fewer but more highly functional spaces is a core strategy in accommodating other needs.

Figure 3.1.3.1.1 - Low Use Areas

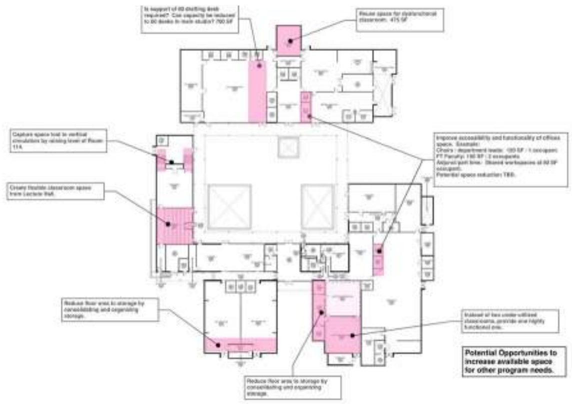
- Flexible spaces through furniture systems: Consider furniture systems that allow classrooms to convert to computer labs.
- Flexible spaces for unique requirements: Some space needs are necessary but with sporadic use. Examples are room 120A Material Testing, which is in full use only a few times per week, and the Tesla motor/hydraulic pump training, which requires access to the pumps for several weeks during a course. To optimize space efficiency, spaces can be configured to support multiple uses so through scheduling they can be fully optimized.
- Storage consolidation: Considerable space within the facility is given over to storage. Some of the storage are for legacy systems of equipment, materials, and displays that are no longer being used. Consolidation of storage will allow for more efficient storage as well as improved storage management.

Figure 3.1.3.1.2 - Storage



- Lecture Hall: This tiered space is popular with the faculty and has provided a specific and beneficial space. However, together with the required accessibility upgrades, this space represents 1,000 SF of space that can be converted into a space for daily use.
- Eliminating multi—leveled spaces at 114: The "sunken" space at 114 provides for a high-ceiling space that is popular and seen as necessary for the Tesla program. However, the stairs and future lift required to traverse the two levels leads to inefficient use of space. Eliminating this change in height will result in 200-300 additional SF of useful space.

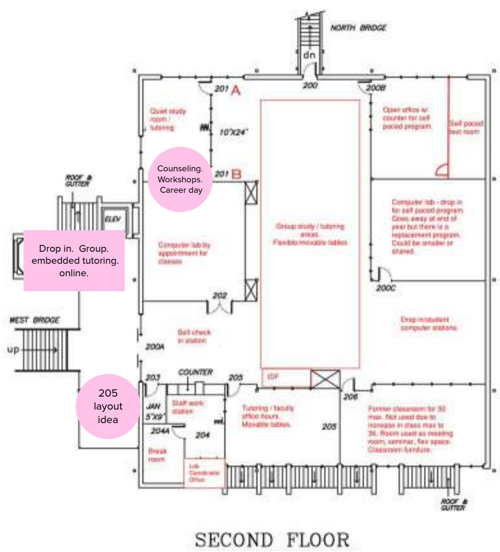
Figure 3.1.3.1.3 - Efficiency Opportunities



3.1.4 PROGRAMMING PROCESS AND FINDINGS FOR MESC

The MESC already has a functional space that is successfully operating. This space has served as a model for the new MESC program. The MESC User Group were thus able to evaluate ideas for program development based on what has worked in the MESC and what has not worked as well.

Figure 3.1.4.1



The most significant changes from the existing MESC to the proposed program are based on observations of the MESC staff and Math Faculty. MESC faculty wish to continue to promote a vibrant and supportive environment for students seeking assistance.

- The Group Study space has been highly successful, but can get crowded at peak periods.
- The tutoring / office hours spaces can be more functional and efficient.
- The computer lab is under-utilized because of its size and capacity.
- The Self-Pace program is no longer funded.
- There are no restroom facilities in the MESC. This will be required, along with adequate server room, electrical and mechanical rooms, etc.

3.2 BUILDING PROGRAMS

3.2.1 BASELINE PROGRAM AND ALTERNATIVES

After seeking input in the final Stakeholder meeting on specific programming strategies, the PSC was presented with four "composite" strategies to use as the basis for prioritizing the program elements for the Criteria Documents. There was difference of opinion within the PSC as to the best strategy for the program to be included in the Criteria Documents. A "baseline program" was thus selected to represent a starting point for the moving forward in the the conceptual design phases, and alternate program considerations from the other three composites will need to be considered during the early design phases. Broadly described, the Baseline Program promotes the growth of unique program spaces at the expense of general assignment classrooms, whereas the Alternate Program emphasizes more generic classroom space.

3.2.1.1 FEATURES OF BASELINE PROGRAM

The Baseline Program is based on Option D, presented in the PSC Meeting of 7/27/2023. This is further described in Section 5. Highlights of the program are as follows:

- The program provides 2,500 SF reserved for all associated Tesla programs in one wing of the building, and this in turn displaces the existing tiered Lecture Hall. A choice will have to be made in the subsequent design phase as to whether to retain the depressed floor area / high ceiling height area, or maximize space efficiency.
- The program provides 1,400 SF dedicated to space that is large enough to flex-function as a wiring training center, and also as a Computer Lab or Electronics Lab when not used as a wiring training center.
- Classroom 117 is expanded to be just large enough to support 30 students in a traditional chair/tablet arm arrangement.
- Materials Testing is expanded so the lecture space can also support other classes when not being used for Materials Testing.
- The woodshop does not expand in size. A reduction of equipment in this space would thus be necessary.

3.2.1.2 ALTERNATE PROGRAM CONSIDERATIONS

Various alternatives were considered for the programming, which may still warrant continues analysis during the early design phases for the project:

- The Lecture Hall may be retained and made ADA and CBC Chapter 11 – compliant, with the inclusion of a dedicated lift. The lowest level may also need to be raised to the lowest seating tier level. The Lecture Hall is highly valued by the faculty, and wish to retain a space that can support 40+ students if possible.
- Adding a lift for the Lecture Hall 112 will result in a reduction of the Tesla Training Center 114. It is also possible that the Tesla training center will require its own, independent lift to provide

access between the two floor levels of the Tesla center. The DBE team will be encouraged to engage an accessibility consultant, and/or engage in preliminary discussions with the DSA about accessibility requirements for the Lecture Hall 112 and Tesla Training room 114.

- In lieu of a 1500 SF flex space for wiring training and computer lab, two additional small classrooms may be provided.
- In the Alternate Program, Materials Testing may be reduced to being suitable for lab-work and testing only. Lectures would occur in an adjacent space. However, this allows the Wood shop expanded to allow for more equipment to function in the space.
- Consider converting 119 into a space that can support classes.

3.2.2 BASELINE PROGRAM FOR THE MESC

The MESC program include the following features:

- The group study area is increased to support 70 students at a time, instead of the present 60.
- The Self-Pace program areas are no longer required. However, this saved space is replaced by the need for additional unassigned spaces such as restrooms, IDF rooms, and suitable mechanical and electrical rooms.
- The current program assumes separate gendered restrooms, a single-stall unisex restroom and a lactation room/wellness room. The DBE team shall confirm these requirements as part of the design phase.
- The computer lab is sized for 36 stations, so it can support standard class sizes.
- An improved and functional staff workspace is included in the program.
- Tutoring / Office Hours space is slightly expanded to allow for multiple simultaneous sessions, which can be used by MESC as well as other faculty.
- Consider opportunities to flex the computer lab and the multi-purpose space for use by ET programs

3.2.3 PROGRAM REPRESENTATION

3.2.3.1 TABULAR REPRESENTATION OF PROGRAM

The following list is a representation of the program adjustments between the current, existing space allocation and the baseline program.

BUILDING PROGRAM - EXISTING ET BUILDING

	AREA (SF)	NOTES
SUMMARY		
TOTAL GROSS AREA	**32,400**	Excludes non-conditioned/enclosed spaces
TOTAL NET AREA	**30,326**	Includes Assignable and Non-Assignable
TOTAL EXTERIOR SPACES	**15,432**	Paved, unconditioned spaces.

SPACE	ROOM #	AREA (SF)	DISCIPLINE	NOTES
ASSIGNABLE SPACES		**26,632**		(82% Efficiency)
General Assignment Spaces		**5,540**		
Classroom	117	475	GEN ASSGN	
Classroom	125	875	GEN ASSGN	
Classroom	125E	875	GEN ASSGN	
Classroom	122A	880	GEN ASSGN	
Classroom	122B	790	GEN ASSGN	
CAD / Computer Lab	116A	880	ARCHI, ENGIN	
Computer Lab	124A	765	ENGTC, ENGIN, IDSGN	
Specialized Instructional Spaces		**16,585**		
Combination Studio / CAD Lab	103/108	1,240	ARCHI, ENGIN, IDSGN	
Elec Systems Lab	107	1,544	ELECT, START	Includes storage areas. Instructional area apx 1,000 SF.
Elec Systems Lab	105	1,544	ELECT, ELTRN, ENGIN	Includes storage areas. Instructional area apx 1,000 SF.
Lecture Hall	112	875	ALL	Includes projection booth
Tesla Training Center	114	1,760	START	Includes space for Tesla office, interior storage, and stairs
Drafting Studio	116	3,012	ARCHI, ENGIN	
Construction Lab	120B	1,100	ARCHI, CONST	
Materials and Testing	120A	1,260	CONST, ENGIN	Includes Optical, Polishing
Eng Tech Macine Lab	123	4,250	ENGTC, IDSGN	Space includes 123A Foundry, 123B Instr, 123C Grinding
Program Support & Storage		**2,577**		
3D Print & Laser Cut	118	180	ARCHI, CONST	
Wood Shop		560	ARCHI, CONST	
CNC	121	370	ARCHI, CONST	Includes wood storage
Survey Equipment	115	40	ENGIN / CONST	Area of storage combined with Elec / IDF
Tool Room	106	212	ELECT, ELTRN	Incl. 106A Repair Room. Used for storage and *ad hoc* office.
Prep Room	109	130	ELECT, ELTRN	
Elec Storage	111	155	ELECT, ELTRN	Also lower level entrance for Lecture Hall
Machine Lab Tool Room	126	415	ENGTC	Used as storage
Paint Room / Storage	127	160	ENGTC	Used for storage. Includes 127A
Office (Storage)	125A	105	ARCHI	Used for storage, ARCHI
Office (Storage)	125B	250	ELECT	Used for storage
Offices - Existing		**1,930**		
FT - ARCHI	119A	101	ARCHI	
FT - ARCHI	119D	100	ARCHI	
Lab Manager - Arch/Const	116C	122	ARCHI, CONST	used partially for storage
FT - CONST	116D	120	CONST	used partially for storage
PT - CONST	119E	100	CONST	
PT - ENG	116E	80	ENGIN	
PT - ENG	116F	80	ENGIN	
FT - ENGIN	119C	102	ENGING	
FT - ENGIN	119F	68	ENGIN	
FT - ENGIN	119G	135	ENGIN	used partially for storage
FT - ELECT	104B	82	ELECT, ELTRN	
PT - ELECT	104A	82	ELECT, ELTRN	
PT - ELECT	104C	82	ELECT, ELTRN	
FT - ENGTC/IDSGN	124 D	80	ENGTC	
PT - IDSGN	124A	76	IDSGN	
PT - IDSGN	124B	78	IDSGN	
PT - ENGTC	124E	80	ENGTC	
PT - ENGTC V-Assist	124C	80	IDSGN, ENGTC	
START program	114A	76	START	
Front Office	100A	86	ALL	
Mail / Printing	102	120	ALL	
NON-ASSIGNABLE SPACES		**3,694**		
Social Spaces - Non-Assignable		**2,252**		
Lobby	100	670		
Gallery / Event	119	668		
Circulation		914		
Building Support - Non-Assignable		**1,442**		
Mechanical	110	322		
Janitor	110A	75		
Janitor	128B	13		
Restroom - M	128D	128		
Restroom - W	128D	154		
Locker Room / Shower	128	414		
Elec	122C	103		
IDF	115	120		
IDF	125C	113		
Unconditioned / Covered Space		**15,432**		
North Bldg Exterior Yard	U1	880	CONST, ARCHI	Incl. wood storage, conc mixer, dust collector, compressor.
E Storage Yard	122D	205		
S Storage Yard	U2	182	ENGTC	
Front Court		1,415		
Courtyard		12,750		

BUILDING PROGRAM - BASELINE ET BUILDING

		AREA (SF)		NOTES
SUMMARY				
TOTAL GROSS AREA		**32,400**		Excludes non-conditioned/enclosed spaces
TOTAL NET AREA		**29,563**		Includes Assignable and Non-Assignable
TOTAL EXTERIOR SPACES		**15,552**		Paved, unconditioned spaces.

SPACE	ROOM #	AREA (SF)	DISCIPLINE	NOTES
ASSIGNABLE SPACES		**25,000**		(76% Efficiency)
General Assignment Spaces		**4,250**		
Classroom	117	650	GEN ASSGN	
Classroom				
Classroom				
Classroom	122A	880	GEN ASSGN	
Classroom / Computer Lab Flex	122B	860	GEN ASSGN	
CAD / Computer Lab	116A	900	GEN ASSGN	
Comp Lab		960		Space flexes as ELECT Wiring training center.
Specialized Instructional Spaces		**17,333**		
Combination Studio / CAD Lab	103/108	1,240	ARCHI, ENGIN, IDSGN	
Elec Systems Lab	107	1,544	ELECT, START	Includes storage areas. Instructional area apx 1,500 SF, arranged for 30 stations
Elec Systems Lab	105	1,544	ELECT, ELTRN, ENGIN	Includes storage areas. Instructional area apx 1,100 SF, 15 stations
Lecture Hall				
Tesla Training Center	114	2,575	START	Includes space for Tesla office, expanded space for motorized training.
Drafting Studio	116	2,600	ARCHI, ENGIN	Apx 70 desks
Construction Lab	120B	1,000	ARCHI, CONST	
Materials and Testing	120A	1,400	CONST, ENGIN	Includes Optical, Polishing
Eng Tech Macine Lab	123	4,930	ENGTC, IDSGN	Includes all associated storage and support spaces
Wiring training center		500		Combined with Computer Lab above for reduced SF.
Program Support & Storage		**1,707**		
3D Print & Laser Cut	118	290	ARCHI, CONST	
Wood Shop		560	ARCHI, CONST	
CNC	121	440	ARCHI, CONST	Includes wood storage
Survey Equipment	115	50	ENGIN / CONST	Area of storage combined with Elec / IDF
Elect Storage Room	106	212	ELECT, ELTRN	
Elec Storage	111	155	ELECT, ELTRN	
Offices - Existing		**1,710**		
Office		100	ARCHI	FT Faculty
Office		100	ARCHI	FT Faculty
Office		100	ARCHI, CONST	FT Lab Manager FT
Office		100	CONST	FT Faculty
Office		100	ARCHI	Future FT Faculty
Shared Office Work Space		200	CONST, ARCH, ENGIN	4 Workstations plus lockers (ARCHI, CONST, ENGIN)
Office		100	ENGIN	FT Faculty
Office		100	ENGIN	FT Faculty
Office		100	ENGING	FT Faculty
Office		100	GEN	Pre-Apprenticehip Program
Office		100	ELECT, ELTRN	FT Faculty
Shared Office Work Space		150	ELECT, ELTRN	2 Workstations plus lockers
Office		100	ENGTC/IDSGN	FT Faculty
Shared Office Work Space		180	ENGTC/IDSGN	3 Workstations plus lockers
Mail / Printing		80		
NON-ASSIGNABLE SPACES		**4,563**		
Social Spaces - Non-Assignable		**2,838**		
Lobby	100	670		
Gallery / Event	119	668		
Circulation		1,500		
Building Support - Non-Assignable		**1,725**		
Mechanical		500		
Janitor		75		
Janitor		50		
Restroom - M		300		
Restroom - W		300		
Restroom - AG		80		
Lactation / Wellness Room		80		
Elec		100		
IDF		120		
IDF		120		
Unconditioned / Covered Space		**15,552**		
North Bldg Exterior Yard	U1	1,000	CONST, ARCHI	Incl. wood storage, conc mixer, dust collector, compressor.
E Storage Yard	122D	205		
S Storage Yard	U2	182	ENGTC	
Front Court		1,415		
Courtyard		12,750		

BUILDING PROGRAM - EXISTING MESC

		AREA (SF)		NOTES
SUMMARY				
TOTAL GROSS AREA		**7,000**		Excludes non-conditioned/enclosed spaces
TOTAL NET AREA		**6,565**		Includes Assignable and Non-Assignable
SPACE	**ROOM #**	**AREA (SF)**	**DISCIPLINE**	**NOTES**
ASSIGNABLE SPACES		**6,365**		(91% Efficiency)
MESC Assignment Spaces		**5,230**		
Check-In / Entrance	200A	515	MESC	
Group Study Area	200	1,950	MESC	
Quiet Study Area	201	365	MESC	
Drop-In Computer Area	200	625	MESC	
Tutoring / Office Hours	205	500	MESC	
Computer Lab	202	635	MESC	
Classroom / Flex Space	206	640	MESC	
Offices		**395**		
Staff Work Area / Offices	204	285	MESC	
Staff Break Area	204A	110	MESC	Shared with Electrical
Discontinued Program Areas		**740**		
Self-Pace Office and Test Center	200B	180	MESC	
Computer Lab #2	200C	560	MESC	
NON-ASSIGNABLE SPACES		**200**		
Circulation		**50**		
Circulation		50		
Building Support - Non-Assignable		**150**		
Mechanical / Electical		50		
Janitor		45		
Restroom - M				
Restroom - W				
IDF		55		

BUILDING PROGRAM - BASELINE MESC

		AREA (SF)		NOTES
SUMMARY				
TOTAL GROSS AREA		**7,020**		Excludes non-conditioned/enclosed spaces
TOTAL NET AREA		**6,500**		Includes Assignable and Non-Assignable
SPACE		**AREA (SF)**	**DISCIPLINE**	**NOTES**
ASSIGNABLE SPACES		**5,420**		(77% Efficiency)
MESC Assignment Spaces		**5,030**		
Check-In / Entrance		310	MESC	
Group Study Area		1,900	MESC	
Quiet Study Area		500	MESC	
Drop-In Computer Area		320	MESC	
Tutoring / Office Hours		600	MESC	
Computer Lab		700	MESC	
Classroom / Flex Space		700	MESC	
Offices		**390**		
Staff Work Area / Offices	204	270	MESC	
Staff Break Area	204A	120	MESC	
Discontinued Program Areas		**-**		
Self-Pace Office and Test Center	200B	-	MESC	
Computer Lab #2	200C	-	MESC	
NON-ASSIGNABLE SPACES		**1,080**		
Circulation		**100**		
Circulation		100		
Building Support - Non-Assignable		**980**		
Mechanical / Electical		110		
Janitor		60		
Restroom - M (2WC / 2 UR)		280		
Restroom - W (4 WC)		280		
Restroom - All Gender		80		
Wellness / Lactation		70		
IDF		100		

3.2.3.1 GRAPHIC REPRESENTATION OF PROGRAM

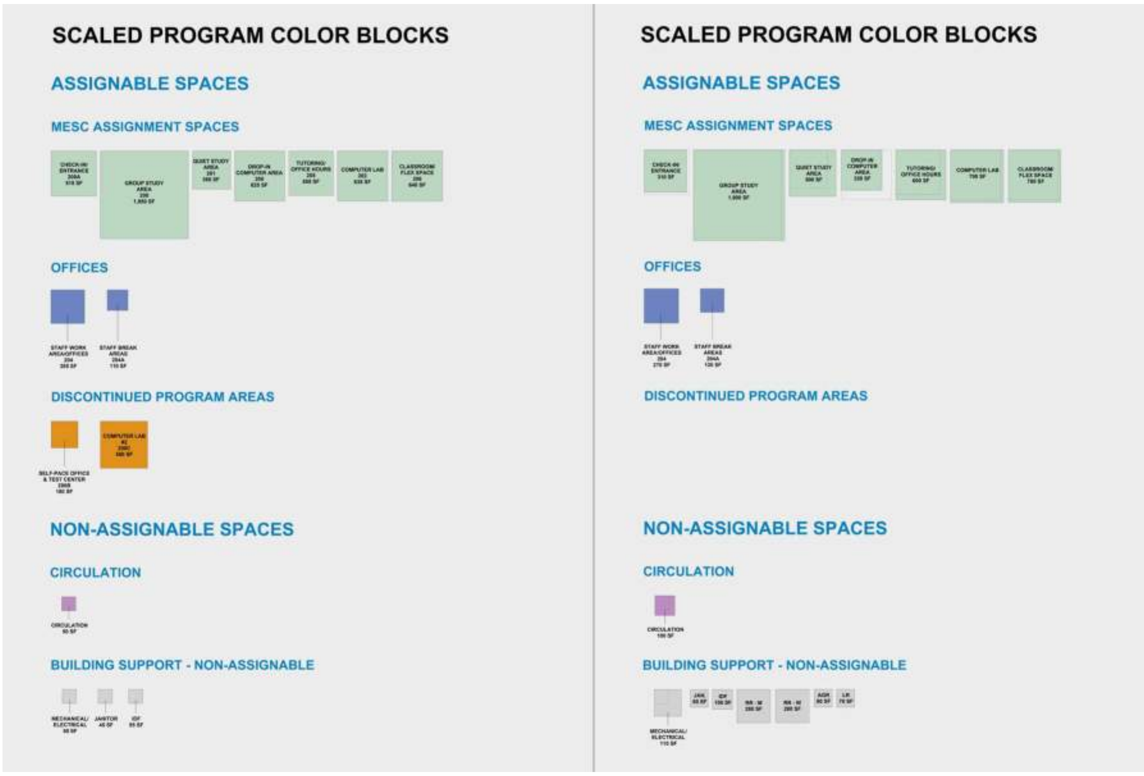
The graphic representation of the program shows a comparison between the current, existing space allocation and the baseline program. Space are represented to demonstrate allocation of program spaces, and do not represent actual shapes of the spaces.

Figure 3.2.3.1

3.2.3.2 GRAPHIC REPRESENTATION OF PROGRAM - MESC

The graphic representation of the program shows a comparison between the current, existing space allocation and the baseline program. Space are represented to demonstrate allocation of program spaces, and do not represent actual shapes of the spaces.

Figure 3.2.3.2



3.3 PROGRAM ADJACENCIES

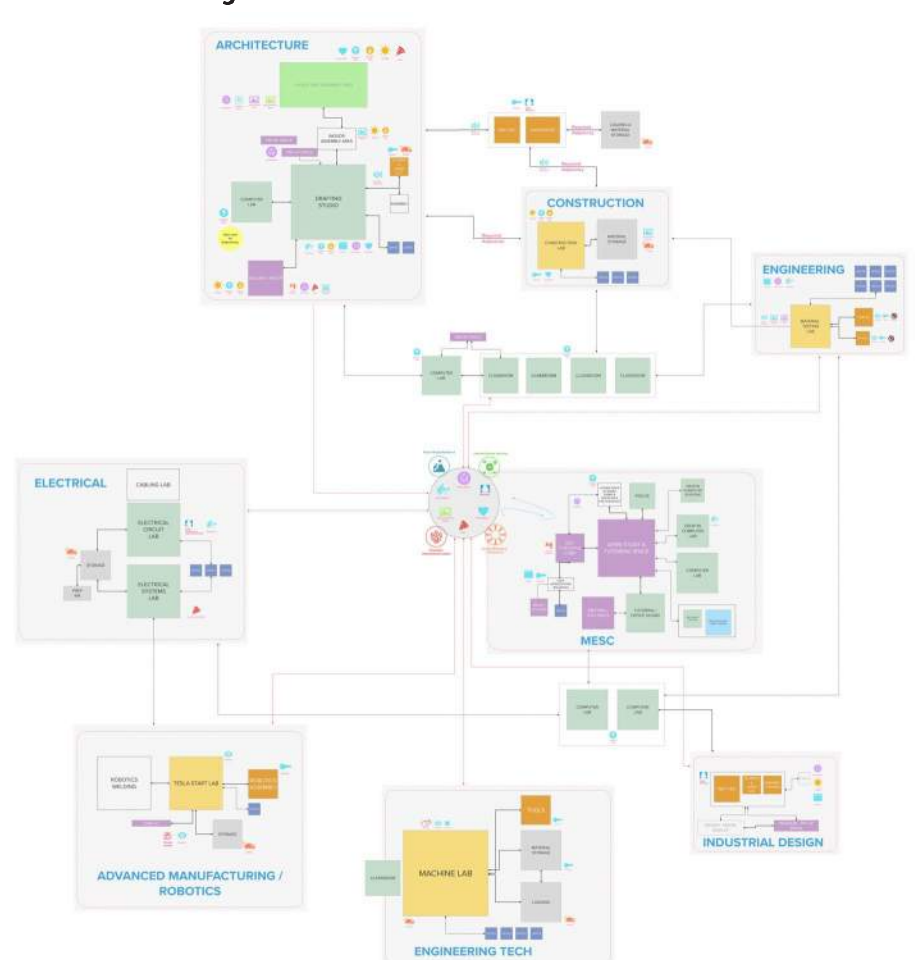
Through a workshop exercise stakeholders asked to participate in development of an idealized "diagram" without consideration of constrains, such as existing conditions. The principal prompts for consideration were the following:

- Arrival Sequence for different user types and purposes.
- Required functional connections between spaces.
- Access to the exterior.
- Acoustical separations.
- Daylighting.
- Social interactions/gathering.

The resultant "Perfect Diagram" yielded adjacency relationships bearing a strong resemblance to the existing facility with the following differences:

- Shared and direct access to all classrooms and computer labs.
- Greater social interactivity and social gathering, possibly with the MESC being a node for social interactions.

Figure 3.3 - "Perfect Diagram"




HAAS
TM 2P

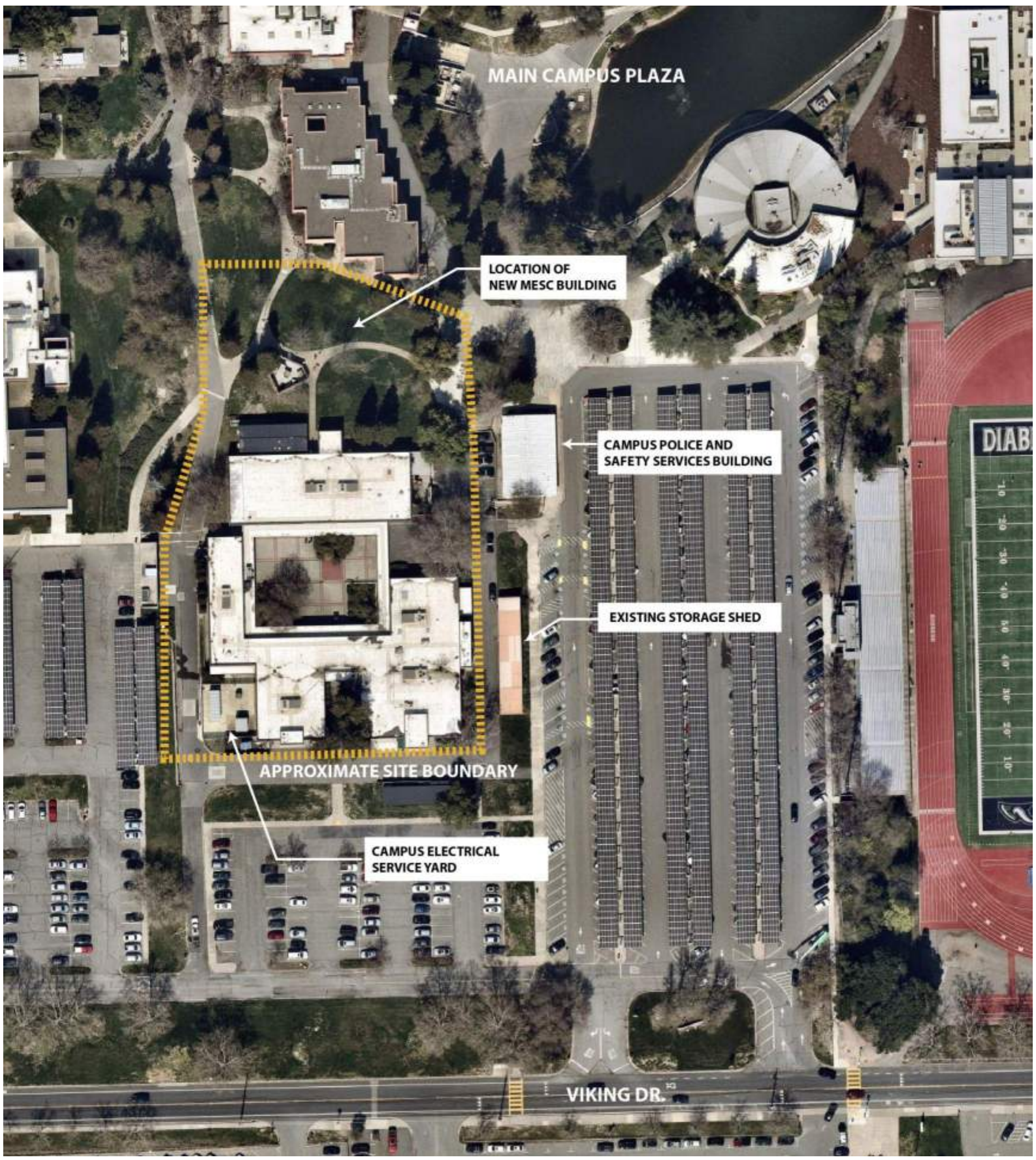
04
DESIGN CONSIDERATIONS AND TEST FITS

4.1 SITE ANALYSIS

4.1.1 SITE LOCATION AND CONTEXT

The project site is situated on the southern perimeter of Diablo Valley College (DVC) campus. It is enclosed by the Math Building to the north, east side of the vehicular lane to the east, the north side of the vehicular lane to the south, and the west side of the vehicular lane to the west. The current area is occupied by the Engineering Technology (ET) building, which comprises northern and southern segments separated by an open-air courtyard in the center. Adjacent to the site's eastern side is the campus Police and Safety Services building. Additionally, there are two storage sheds to the east and south of the building that are outside the project boundary.

Figure 4.1.1 - Engineering and Technology Building Site Aerial Photograph

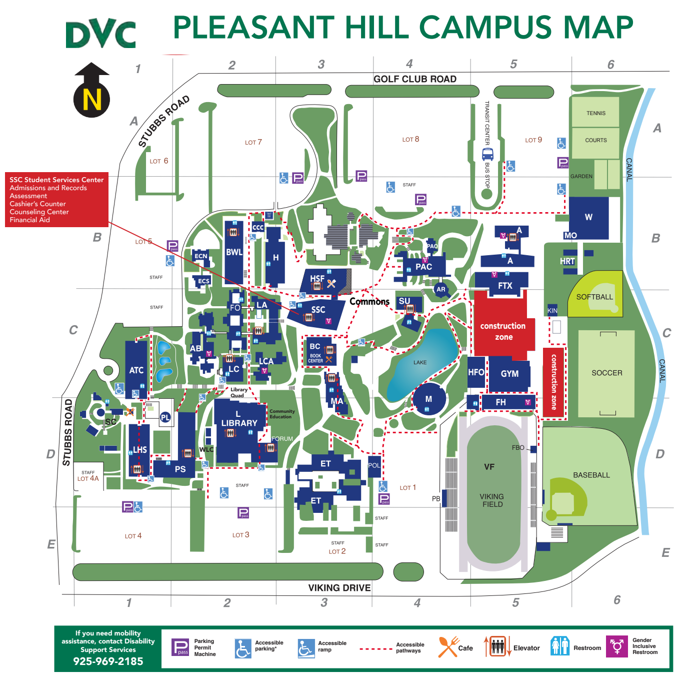


4.1.2 EXISTING ADA PATHS

The DVC Campus has a comprehensive campus-wide accessible pathway system, including access to public transit. The ET Renovation will continue this accessible pathway to the south of the ET building. The new renovation site work should provide accessible paths to all building entrances, and should strive to expand the accessible pathway to encompass walkways and parking areas to the south of the ET building.

There are existing storage sheds to the east, south, and west of the ET building. Renovation of these storage sheds are not considered part of the ET Renovation project in this Criteria Document. If renovation of these sheds be included, and if it is intended they should be accessed by students and faculty, then the accessible pathways will need to be extended to these storage areas.

Figure 4.1.2 - Campus Map



4.1.3 EXISTING SITE UTILITIES

The existing ET building site is bordered on all sides with existing utilities. These existing underground utilities include high voltage electrical, sanitary, water, irrigation, data and gas lines, and the presence of these utilities may result in the need to relocate some of these utilities, depending on the shape and location of the MESC Building. Refer to section 5.3 for more detail.

An electrical equipment yard to the north of the ET building contains a transformer and switch.

4.1.4 LOCATION OF NEW MESC BUILDING

The new 7,000 SF MESC Building shall be located between the ET Building and the Math Building, either as an addition to the ET Building or as a stand-alone building, as determined to be most efficient in costs. There are advantages and disadvantages to both approaches.

If constructed as a stand-alone building, it will be possible to position the building to minimize relocation of existing utilities. However, a stand-alone building will require separate utility connections, constrain the proportions of the building, and trigger requirements for PV panels, and result in an increase in the boundary of site work.

If constructed as an addition to the MESC, than the DBE will need to consider the cost of relocating utilities and the seismic separation between the MESC and the renovated ET Building, but may avoid installation of PV panels and may share a mechanical plant with the ET Builing.

For purposes of the Criteria Document and for feasibility cost modeling, the assumption has been made that the MESC is a stand-alone facility located to avoid disruption of existing utilities. But the DBE should continue investigation of both approaches as part of the design phase for the project.

Figure 4.1.4.1- MESC as a Stand-Alone Building

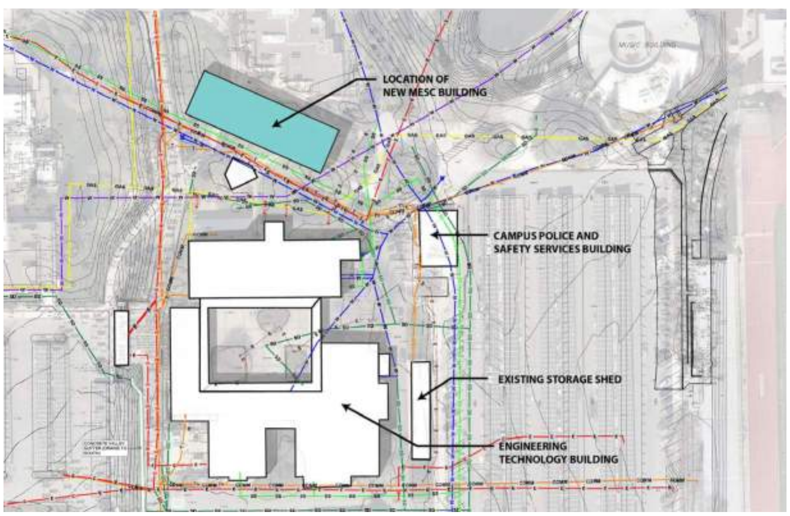
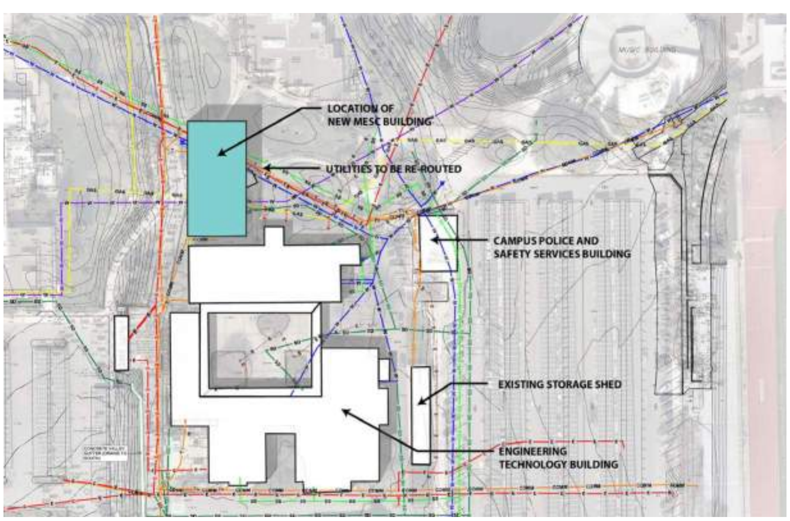


Figure 4.1.4.2 - MESC as an Addition



4.2 EXISTING SPACE ASSESSMENT - ET BUILDING

The following is an assessment and description of existing spaces within the ET Building, along with recommendations, considerations, and requirements for these spaces as part of the renovation project.

Figure 4.2 - Existing Building Plan

4.2.1 100 LOBBY

The entrance lobby contains seating areas and a few temp work stations for students between classes.

- The space is small, though well proportioned.
- Consider removing ceiling to increase sense of height, or providing new ceiling system to replace the acrylic ceiling system with a new ceiling system to upgrade the appearance (slat system, acoustic panels, etc).
- The existing orange exposed duct registers will be removed as part of the HVAC replacement program.

Figure 4.2.1.1

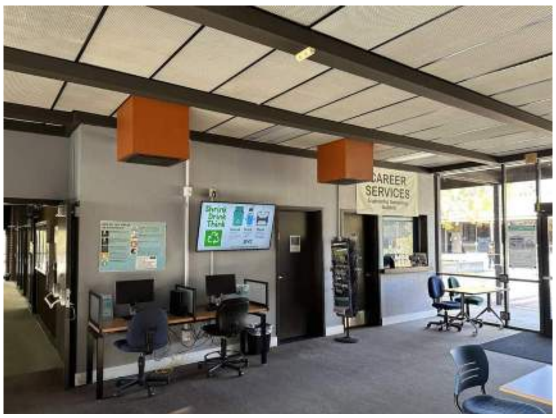
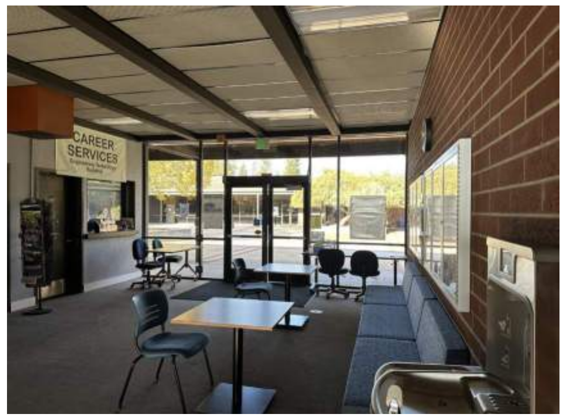


Figure 4.2.1.2



4.2.2 103 / 108, COMBINED STUDIO / COMPUTER LAB (ARCHI, ENGIN, IDSGN)

This is now a singular space, formed by removing an operable partition. This space was previously a conference and seminar space. The current configuration is two sets of ganged work tables, one with CAD stations and one without.

- This configuration works well with certain classes that benefit from the ability of students to go back and forth between analog model building and drawings, vs computer-generated content.
- The space is acknowledged to be a little narrow, but just wide enough to work for its use.
- Glare has been cited as an issue, as well as limits to screen viewing. Consider the application of mechanized or manual shades.
- The interior partition is glazed. This has the benefit of allowing natural light into the Hallway and for providing an open feel, but also results in a “fishbowl” effect. Consider application of partial solid partition, or clerestory application on the hall side, to minimize distractions.
- At exterior glazing, consider application of film and/or solid panel to minimize distractions and glare, while allowing for over-head and intermittent clear glazed areas.
- Partitions, doors, and glazing systems have been added over time with interior renovation. Consider replacing all with new for consistency.
- The adjacent Prep Room 109 is currently utilized for inefficient storage. Consider using this space as expansion for 108.
- Maximize use of opaque walls for marker board, chalkboard, and/or pin-up board.

Figure 4.2.2.1

Figure 4.2.2.2

4.2.3 105 / 107 ELECTRICAL SYSTEMS LAB (ELECT, ELTRN, ENGIN)

This space is used for instruction in electrical circuitry and consists of testing modules for testing of electrical circuitry. The room includes storage systems within the room supporting various current and legacy systems, equipment, and material for the instruction of electrical and electronics systems.

- There are 13 - 15 student stations in each room, each 6' wide, and consisting of a PC and electrical testing equipment. In some courses, students are doubled up at stations to provide for 30 students.
- Monitors have been added to the rooms to augment the central projected image. Dual projection systems should be considered to provide good visual coverage in these rooms.
- There are several carts and portable testing kits in the room which are stored throughout the room. See attached equipment list for dimensions and prioritization of this equipment. Storage systems need to be consolidated and optimized.
- There are various demonstration examples mounted on the walls. These shall be retained unless specifically indicated by department faculty that they can be removed.
- Design of new space shall include at least one space designed to accommodate 30 4' wide student stations (in lieu of 15 6' wide stations). 4' wide stations are the minimum considered suitable for these stations due to the testing equipment which occupies approximate 20" w/ of desk space. Discussions have included the concept of raising the testing equipment on a shelf off of the desk surface, allowing for a desk with less depth than the current 30" per station.
- The spaces lack direct access to natural light, and the space is not easily visible from the main corridor. Natural light has not been a high priority with the Electrical/Electronics program faculty, however, opportunities to provide natural light include:
    - Addition of skylights / north-facing monitors.
    - Moving the spaces to the north so adjacent to Hallway 104. This will allow for borrowed natural light form the hallway as well as providing great visibility of the classes.

- Faculty have requested that, whenever feasible, the electrical infrastructure of the renovated building can be used for lab and demonstration purposes. Examples include remote meter read-outs of Volts/Amps/kVA from various building systems (HVAC, lighting, shop equipment) that students can reference.
- ELECT/ELTRN faculty wish to employ 15 x training modules apx 6' wide, for training in cabling. This may require an additional space to accommodate 90 lineal feet of training modules.

Figure 4.2.3.1

Figure 4.2.3.2

4.2.4 106 TOOL ROOM / 106A REPAIR ROOM (ELECT, ELTRN, ENGIN)

This is supporting space for 105 and 107, effectively now used for small parts storage. A portion of Repair Room 106A is occupied as an ad hoc office by the ELECT/ELTRN lab technician.

- Although the space is cramped and difficult to manoeuver, the faculty and staff like the way the storage is working.
- The space is unsuitable for office space, even temp office space, and is not ADA-compliant. Consider relocating this office space with other offices space areas / work room.

Figure 4.2.4.1

Figure 4.2.4.2

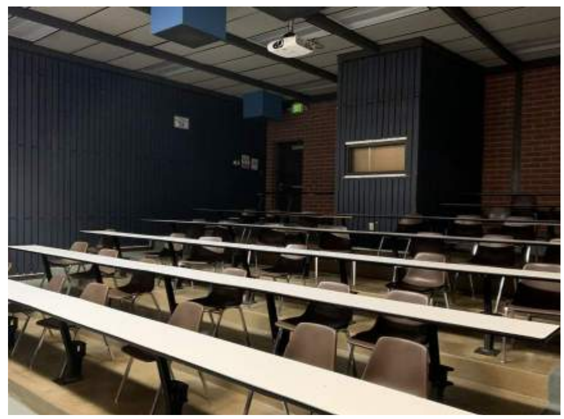
4.2.5 112 LECTURE HALL (GENERAL)

The Lecture Hall is used on an occasional basis by all programs for lectures, special events, and meet and greets with industry representatives.

- The space is not ADA-compliant, nor CBC Chapter 11 compliant. A solution to make the space ADA-compliant will involve adding a lift outside of the lecture hall, with a clear path from the top of the lecture hall to the lower level, and the lower level may need to be raised to the level of the lowest seating tier in order to provide accessible seating at the lower level.
- The projection booth may be eliminated to allow for additional seating.
- The proposed baseline program involves eliminating the Lecture Hall as a tiered space, and replacing this with a functional room at ground level in order to maximize usable space.
- Faculty have noted that this space had seen considerably greater use in the past, and may again in the future, for classes of 40+ students and special events.

Figure 4.2.5.1

Figure 4.2.5.2



4.2.6 114 TESLA TRAINING CENTER (ENGTC)

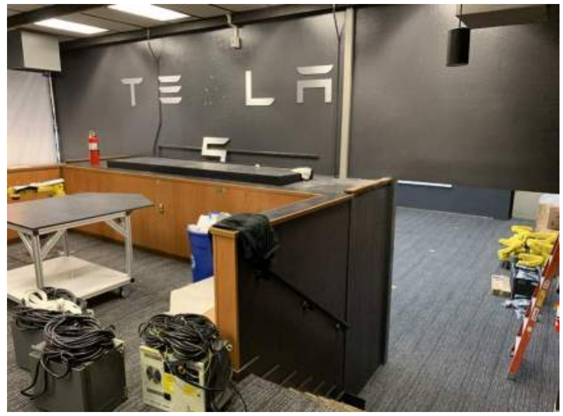
This space is used to support the START training center for maintenance of robotic equipment. The space is on two levels, with an upper "at grade" level and another level 4' below grade, resulting in a higher ceiling height.

- The two levels of the space connect two sets of stairs. Access to the lower space is currently not ADA-compliant. To provide a path to ADA compliance, a mechanized lift will be required between these two levels. This lift can displace one of the stairs.
- Lower Level: This space has been remodeled recently to support the robotics training center, with students paired with robotics stations. The current configuration does not support a class of 30 students.
- The space has recently been provided with trenches for floor-based power.
- The lower level results in greater clear ceiling height to under-side of structure. This higher space is very popular with the ET faculty due it's high volume ceilings. However, as it comes at the cost of floor area (lift, stairs, plus clearance at top and bottom), and this trade-off needs to be considered during the design phase of the project.

- Upper Level: And office space (114A) currently exists in this space and is required for the Tesla program. With stair / lift clearance, two opposing entrances, and the office, the upper space is not efficient. It is currently used to support display and auxiliary aspects for the Tesla START program but cannot support 30 student classes.
- The proposed baseline program involves raising the lowest level to the ground level. This eliminates the high clearance ceiling but provides more efficient use of floor area.

Figure 4.2.6.1

Figure 4.2.6.2



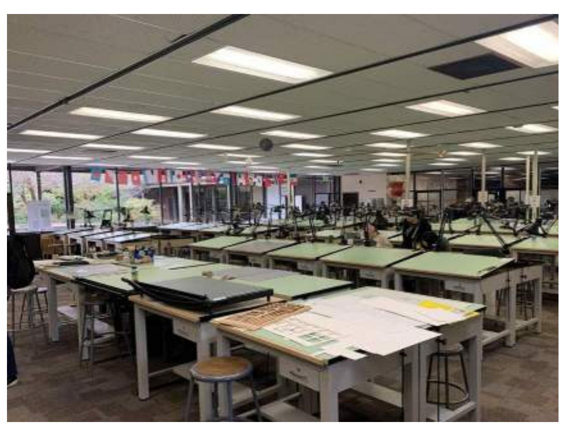
4.2.7 116 DRAFTING STUDIO (ARCHI, ENGIN)

This space used to support mechanical drawing, model building, and as hub for architectural program.

- Preserve as close to 80 drafting desks as possible. Preserve same type of drafting desks / similar layout. However, the total amount of desk space available may have to be reduced to accommodate other program changes. The stated minimum is 70 drafting stations.
- Consider opening ceiling to skylight space above.
- Active social center for students.
- Proximity / visual connection to 116A Cad Lab essential.
- Proximity / visual connection to 3D Print & Laser Cut (currently 118)
- Storage lockers for students. DBE shall evaluate storage requirements with user groups.

Figure 4.2.7.1

Figure 4.2.7.2



4.2.8 116A CAD LAB (ARCHI, ENGIN)

This space is used in conjunction with 116, primarily for instruction in 3D modeling.

- Space is long and narrow but works ok for instructional processes in this studio. Consider making space. 2 – 3 ft wider.
- Distribution of marker boards and monitors works well for this space. Consider having monitors tilt downward.
- Consider benefits & challenges with providing a direct connection to the lab (from the south) that would allow non-architecture programs to use the lab without having to go through 116 to access the space.
- Visual proximity to 116 Drafting Studio is important to maintain.

Figure 4.2.8.1

Figure 4.2.8.2

4.2.9 117 CLASSROOM (GENERAL ASSIGNMENT)

This space is used as a small classroom and does not support a class of 30 students. This space is also used as auxiliary pin-up space by the Architecture.

- Consider increasing size of space by extending into space currently designated as 3D Print & Laser Cut. This will result in a space that is still too narrow to support a classroom consistent with DVC Standards but deemed useful by the faculty.
- Space should be furnished with Chairs with Table arms to accommodate 30 students.
- This space currently has no access to natural light. Consider providing skylights and/or new windows to bring natural light into this space.
- Access to this space is only through 116 and 120B.
- Consider removing suspended ceiling and opening to truss / deck above.

Figure 4.2.9.1

Figure 4.2.9.2

4.2.10 118 3D PRINT & LASER CUT (ARCHI)

This space supports the activities of the Architecture Program. Space was previously a room for reprographics.

- Space is fairly tightly constrained but works adequately according to the Program lead.
- Provisions need to be made for Accessibility / ADA compliance at equipment and workstations.
- Current configuration/space limits growth for additional laser cutting and/or 3D printing.

Figure 4.2.10.1

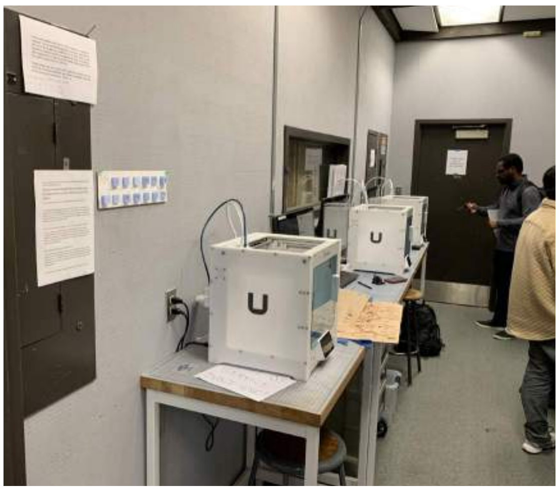
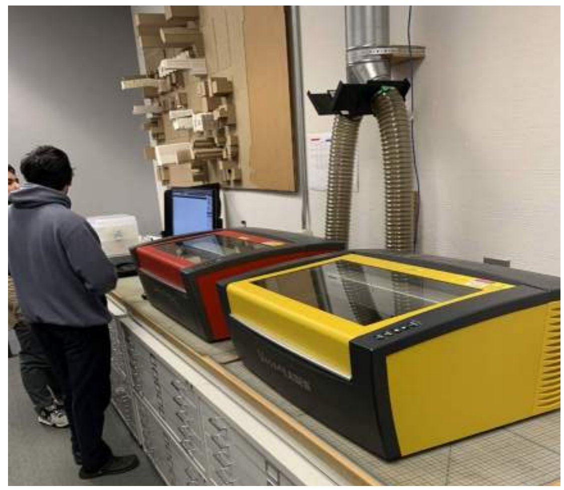


Figure 4.2.10.2



4.2.11 119 GALLERY / EVENT SPACE (ARCHI)

The space is used for formal project reviews for the architecture programs, which typically occur twice per semester. This space also supports social engagement for students and for faculty sharing the general area.

- Some offices from other programs open directly into this area. Due to weekly use for pin-ups and occasional model-building activity in this space, the adjacency is sub-optimal for the occupants in these offices.
- The ARCHI program lead envisions opportunities for expanded library / resource.
- The space also serves as a gallery of student work.

Figure 4.2.11.1

Figure 4.2.11.2

4.2.12 120A MATERIALS TESTING (ENGIN / CONST)

Note: The faculty involved with the use of this space was not available to review the requirements. DBE must establish requirements with end users.

This space is used primarily by the Engineering program for courses in testing of materials. Students access the exterior yard to mix concrete, and test concrete samples in the lab, along with other materials. The space consists of a instructional space component, as well as a testing laboratory component, with direct access to a room dedicated to polishing and a separate room dedicated for optics. This space is also used as auxiliary pin-up space for Architecture program reviews.

- The space is too small to support 30 student class size and needs to increase in size if maintained. The space between existing lab benches is also too narrow by today's standards.
- Student benches should be lab grade, and bench tops and sizes need to be confirmed with the Engineering faculty.
- Space should be furnished with Chairs with Table arms to accommodate 30 students.
- The need for the large exhaust hood should be confirmed. Faculty have noted that this is infrequently used. If exhaust is required, consider dedicated snorkels and / or focused exhaust in order minimize hood size and energy use.
- Direct physical and visual access required to Polishing and Optical rooms. Consider re-arranging spaces to provide better visual access into these spaces.
- Direct connection to the exterior and a small concrete mixing area is required. Exterior storage required for concrete materials.
- This space has a low utilization rate. Discussions have been had with faculty about holding lectures in an adjacent space (for example, Construction) and using this space only for the testing / lab work, and thus possibly reduce the area required.
- Optical Room: Separate room to provide low-dust environment. Space is primarily used for microscopes. Faculty requests better visibility with main Materials Testing space.
- Polishing: Separate room to contain more messy and noisy operations involving polishing testing samples. Includes a sink and fume hood. Faculty requests better visibility with main Materials Testing space.

Figure 4.2.12.1

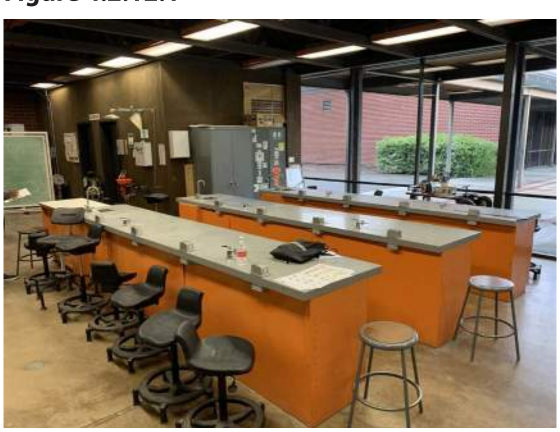


Figure 4.2.12.2

4.2.13 120B CONSTRUCTION (CONST / ARCHI)

This space is used to support training in Construction Management. Students will use the adjacent wood-shop to develop familiarity with the tools of the construction trade.

- This space is also used with frequency by the Architecture and Engineering departments.
- The current space is configured with square tables that are not configured to support a 30 student class which the district has identified as a minimum class size. The large square tables have been popular with use by the Architecture program. To achieve 30 student stations within a similar foot-print, longer linear work-bench style tables may be required.
- This space does not have direct access to natural light. Consider adding skylights / north facing mon-itors to provide additional natural light. Consider removing existing ACT ceiling to create a greater feel of openness.
- Direct access to the woodshop is required. However, the current arrangement to the woodshop has no separation, and this is unsatisfactory because the woodshop cannot be used while classes are occurring in 120B. The Construction program manager would like to see a large sliding or oper-able partition to separate woodshop from 120B so the two can be opened into a contiguous space or separated as per need. The operable/sliding partition will need to be considered with a suitable sound rating (55 STC or higher) for this to be a practical solution.
- Storage around the room includes examples of construction assemblies collected over the years with previous instructors. Confirm the display and storage requirements with the current Construction program lead.
- Woodshop: The woodshop is primarily used as a supporting space for faculty to prepare materials for courses, and for occasional student use when constructing models. The woodshop is not large enough to safely operate all the equipment within the space and can probably support 4-5 users at one time. The dust collection system is antiquated and must be updated for modern dust collection standards. Direct access to the loading / storage area is required. Right-sizing the woodshop to the space contained within will involve one or more of three strategies:
    - Reduce equipment to what can be safely operated in the space.
    - Expand the size of the woodshop.
    - Provide for an operable partition, to allow running length for occasional use if certain equipment (table saw, planer, etc.)

Figure 4.2.13.1

Figure 4.2.13.2

Figure 4.2.13.3

Figure 4.2.13.4

4.2.14 121 DRY CNC LAB (ARCHI, CONST)

This space contains two CNC machines for dry CNC machining, plus associated workstations and storage.

- Length of room is inadequate for the two CNC machines (1x 3-axis, 1x 5-axis). Additional width would also make space easier to use.
- The 3-axis machine is used more frequently than the 5-axis machine.
- Direct access to loading area is desired by faculty / staff.
- Acoustic isolation is important. The machines are very loud.
- New in-room storage system and wood storage caddies have been developed in this room. These systems should be retained or replicated.

Figure 4.2.14.1

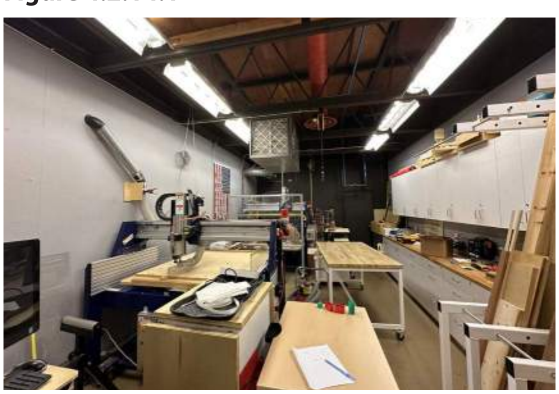


Figure 4.2.14.2

4.2.15 122A CLASSROOM (GENERAL ASSIGNMENT)

General purpose classroom.

- The classroom has good natural light due to its proximity to the courtyard. This space is presently used primarily by the ARCHI and CONST programs.
- The classroom can be optimized with better proportions. It is currently furnished with chairs and tables.
- The Architectural department prefers the arrangement in this room of blackboard on one wall, pin-up board on an opposite wall, and whiteboard with screen/monitor at the front. The blackboard is necessary for live demonstrations of technical drawing in rooms where architectural instruction occurs.

Figure 4.2.14.1

Figure 4.2.14.2

4.2.16 122B CLASSROOM (GENERAL ASSIGNMENT)

General purpose classroom.

- This room is poorly proportioned and lacks natural light, and is used infrequently. Consider providing natural light through skylights or by providing borrowed light via a corridor.
- Re-proportion the space to be more consistent with DVC classroom standards.

4.2.17 123 MACHINE LAB (ENGTC / IDSGN)

This large space houses machinery, primarily modern CNC machines, for use by the IDSGN and EGTC program.

- The space is to be adapted towards advanced technology systems. The program lead has arranged for additional state-of-the-art CNC machines to replace many of the older manual mills and lathes. The exact layout of the new equipment must be worked out in the project design phases.
- The space currently consists of industrial metal working machines as well as 3D printers and laser cutters that support the IDSGN program.
- Additional natural light and visibility are desirable. Consider the use of skylights and adding glazing at the stucco exterior wall areas.

- The ENGTC program lead would like more height than the 10' to bottom of structure. Visually the apparent height can be made greater with the contribution of lighter color schemes and the introduction of skylights. Increasing the height of the actual structure, however, was determined to be outside the bounds of the budget of the project. Should the DBE team determine this is feasible structurally and for cost, this decision can be revisited.
- A niche just north of Tool Room 126 is configured as an instructional area with student workstation benches, whiteboard, and monitor. This space is used for instruction before students are sent off to the machines to work on projects. The space is currently occupied with hydraulic pumps that are associated with the Tesla program which interfere with the usefulness of the space. This instructional space needs to be considered with the space planning of the Machine Lab.
- The Machine Lab includes a highly organized storage system with under-counter / drawer storage. This system should be retained in the new design. A large full-height storage system can be abandoned.
- A storage space to the south of the room is used to store tall metals. Such storage of long metal elements is required for this space.
- 123A Foundry: A foundry is no longer required. The current space has been re-purposed for a 3D printer baths, which are essential and require the baths, a sink and storage for cleaning agents. These do not have to be located in a separate room.
- 123B Instruments: This room currently contains old and new equipment for measuring. The CMM equipment is important (and associated cabinet-type storage), but a dedicated space is not critical.
- 123C Grinding: This room is no longer critical for the program.

Figure 4.2.17.1

Figure 4.2.17.2

Figure 4.2.17.3

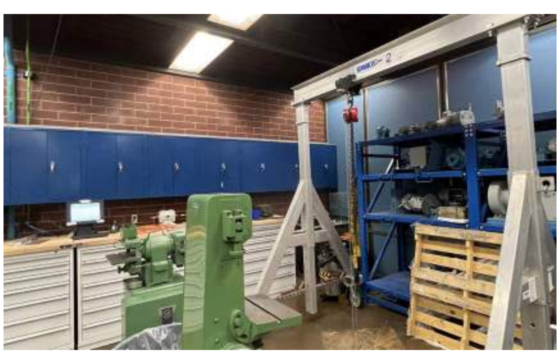


Figure 4.2.17.4

4.2.18 126 TOOL ROOM, 127A STORAGE, 127 PAINT (ENGTC / IDSGN)

This space is currently used for storage.

- Storage can be consolidated with 126, 127A and 127B to make more efficient (with reduced area). A specific tool room is not required.
- Recommendation is to abandon this space and relocate the IDSGN classes to a room that is more suitable.
- A paint room is no longer required, but a moveable paint booth is required. This can be located in a storage area and wheeled out for use when needed.

Figure 4.2.18.1

Figure 4.2.18.2

4.2.19 124A COMPUTER LAB (ENGTC / ENGIN)

This lab occupies what was previously a lobby. It is the principal computer lab for the IDSGN program.

- The space is awkwardly situated amidst circulation paths, with access into the room at four corners. The room is narrow as well.
- The Baseline program calls for this space being removed, with classes moving to other spaces.

Figure 4.2.19.1

Figure 4.2.19.2

4.2.20 125 CLASSROOM (GENERAL ASSIGNMENT)

General purpose classroom. This classroom occupies a space previously part of the Machine Lab.

- The space is adequately sized and proportioned for a class size of 30.
- This space has no access to natural light. Consider providing natural light via borrowed-light strategies or by providing skylights.
- The Baseline program calls for this space being removed along with 127, and replaced with a single larger computer lab/ cable wiring center.

Figure 4.2.20.1

Figure 4.2.20.2

4.2.21 127 CLASSROOM (GENERAL ASSIGNMENT)

General purpose classroom. This classroom occupies a space previously part of the Machine Lab.

- The space is adequately sized and proportioned for a class size of 30.
- This space has no access to natural light. Consider providing natural light via borrowed-light strategies or by providing skylights.
- Access to this space is through 125. For this reason, it is difficult to schedule both classrooms for simultaneous use.
- The Baseline program calls for this space being removed along with 125, and replaced with a single larger computer lab/ cable wiring center.

Figure 4.2.21.1

Figure 4.2.21.2

4.2.22 128 / 129 RESTROOMS / LOCKER ROOMS / JANITOR

The existing restrooms are too small to be ADA compliant, and an uneven distribution of restroom and locker facilities are available for Men and Women.

- The entire interior of the restroom / lockers core should be demolished and replaced with a new layout occupying the same core to provide equal facilities for Men and Women, plus an all-gender facility.
- Consider leaving the brick shell of the restroom/locker area, and reconfiguring for new layouts satisfying current codes.
- Consider a shower facility in this core area in order to meet LEED Gold.
- Consider inclusion of a Lactation room.

4.2.23 OFFICES (GENERAL)

The building consist of original (1971) and non-original offices. Original offices are interesting features with character, which may be preserved where appropriate for the planning of the building. However, it may be necessary to replace all offices in order to create aesthetic and functional uniformity with all offices. The non-original offices are of inferior quality and should be removed and replaced.

- The following attributes apply to the original office spaces.
  - o The offices consist of aluminum, glazed systems with sliding doors, with stainless steel glazing stops. Interior, blue curtains provide privacy.
  - o Sliding doors rely on mechanical lock sets.
- Ceilings, lighting, flooring should be replaced in all offices.
- Office are distributed throughout the building in small groups. In general, the ET faculty prefer this approach to distributed offices, vs centralized offices.

Figure 4.2.23.1

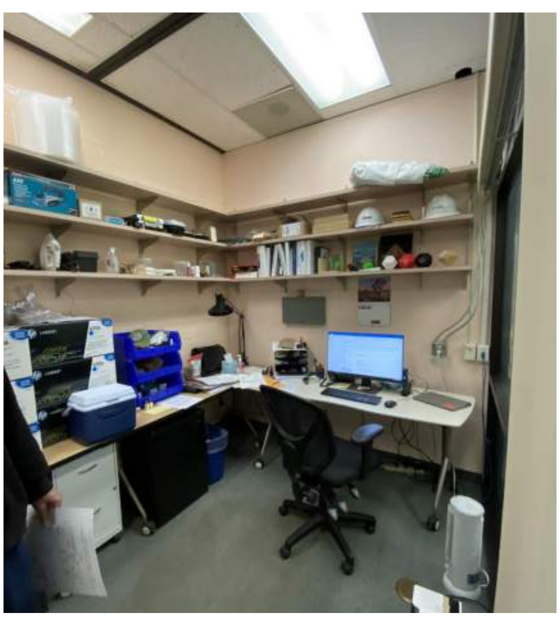


Figure 4.2.23.2

4.2.24 122D EAST STORAGE YARD (ENGTC)

General un-conditioned, fully enclosed storage.

- This space is under- utilized and can be utilized for other purposes. Possible location for new electrical service room.

4.2.25 U2 SOUTH STORAGE YARD (ENGTC)

General un-conditioned, fully enclosed storage.

- This space is not well utilized and can be utilized for other purposes, or demolished. Possible location for future IDF room, if conditioned.

4.2.26 U1 NORTH STORAGE YARD (ARCHI/CONST/ENGIN)

General un-conditioned, partially covered storage.

- Heavy utilized storage providing material storage for the woodshop, CNC Room, and Material testing.
- Space includes dust collection system and air compressor, both of which should likely get larger.
- Space includes materials and equipment for concrete mixing in small quantities.
- Faculty and staff have indicated that space could be more useful if slightly larger.
- Consider larger portion covered.

4.2.27 REMOTE EAST STORAGE YARD ("CATHOUSE")

Covered outdoor storage area (Not considered part of Project Scope).

- Used as over-flow, large materials storage.
- Space is partially ineffectively used to store antiquated equipment.
- Faculty / Staff have asked about converting these into conditioned spaces. It has been noted that the project budget is unlikely to support this. However, the DBE may revisit this with the user groups if an excess in budget allows for conversion of this space into occupied space.
- It is recommended that the DVC ET team conduct an inventory of what is in the space, and what items can be discarded.

Figure 4.2.27.1

4.2.28 REMOTE SOUTH STORAGE YARD

Covered outdoor storage area (Not considered part of Project Scope).

- Used as over-flow, large materials storage, mostly supporting programs in the south building.
- Space management has been an issue, as the space currently houses many legacy stored items.
- It is recommended that the DVC ET team conduct an inventory of what is in the space, and what items can be discarded.

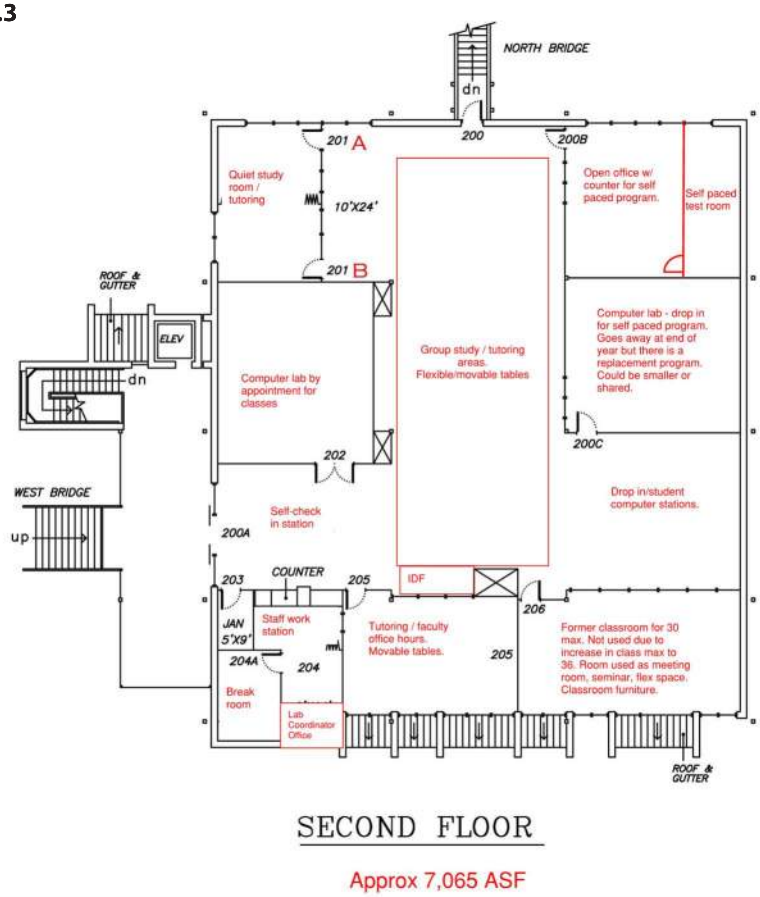
For Server Rooms, Electrical Rooms, and Mechanical Rooms, see associated Design Narratives (Section 5) for requirements.

Figure 4.2.28.1

4.3 MESC–EXISTING SPACE ASSESSMENT AND REQUIREMENTS

The following is an assessment and description of existing spaces of the existing MESC, with notes related to requested changes and improvements when spaces are relocated as part of new MESC building.

Figure 4.3



4.3.2 200A CHECK-IN / LOBBY

The entrance lobby contains seating areas and a few temp workstations for students between classes.

- Lounge seating area should be more "social" than "doctor's waiting room" model.
- MESC is trying to promote welcoming student-centric space. Space is not 100% tutoring-only space, but a place where students feel comfortable being in a supportive environment.
- Hang-out space where students can wait for colleagues and appointments.
- MESC wishes to promote board game rental program, and provide places for students to check out and play board games. Having a space for this outside of the Group Study area would help prevent that space from getting chaotic.
- A space should be set aside for textbook rentals. Textbooks are rented out and checked out with staff.
- Tutor coordinator should have visibility to the open study area if possible.
- 8 lockers would be adequate for tutors and staff.

4.3.1 200 GROUP STUDY AREA

Open space for individual and group study, and group tutoring. The space includes flexible furniture that allows for impromptu group study arrangements

- The existing furniture and moveable whiteboard strategy works well for the program.
- Intent is to create a vibrant, welcoming space for students to feel comfortable to receive support for their math and engineering courses. The space also provides an opportunity to relax and find a comfortable space on campus between classes.
- Food is allowed in the MESC. Finishes should account for this.
- Ensure some lounge seating is available for students.
- Currently facility supports 60 student stations. Due to peak visitations around mid-terms and final exams, the MESC team would like to accommodate 70-80 stations if possible.
- Good Wi-fi through-out.

Figure 4.3.1.1

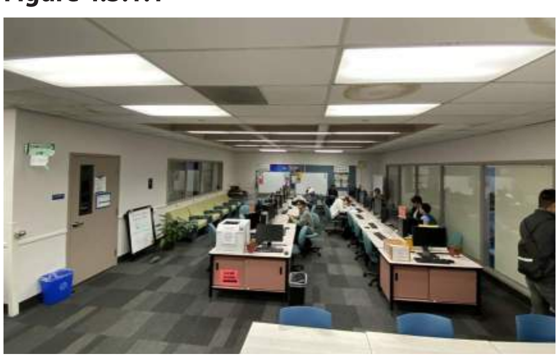
Figure 4.3.1.2

4.3.3 200 DROP-IN COMPUTER AREA

Open computer stations for student use.

- Should be open to group study space on at least one side, with good visibility into the space.
- MESC needs to incorporate a printer for free printing services (possibly 2x printers).
- Existing workstation sizes work well. Can match sizes of existing.
- Provide minimum of 24 stations.

Figure 4.3.1.1



4.3.4 200B SELF-PACE PROGRAM OFFICES AND TEST ROOM

These existing spaces are dedicated to a self-paced program that is no longer funded, and the space is not a requirement in the new MESC.

4.3.5 201 QUIET STUDY ROOM

This space is for students who wish to work alone in a quieter environment.

- Existing quiet study area lacks good visibility to the space and has poor lighting. MESC group believes it is under utilized for these reasons.
- Provide a minimum of 20 stations, as semi-private study carols.
- Maintain direct visual connection and adjacency to the group study area.

4.3.6 202 COMPUTER LAB

This is a reservable space, managed through the Math department, for assignment to classes for special projects.

- There are currently two labs in the MESC. Neither are large enough. A single, larger lab will be more beneficial to the MESC. Existing spaces are also not being utilized often due to the type fo software available on the machines.
- Space requires 36 stations minimum.
- Space should be an enclosed space.

4.3.7 204 STAFF WORK AREA

This space supports the administrative staff running the MESC.

- Existing space has inadequate space for workstations and office space.
- The existing break room is also the electrical room for the MESC. A separate break room is necessary to support tutors and staff.
- Work stations requirements: (2) at front desk. (Program assistants / tutor coordinators). (1) for Faculty Lead, (1) for Pedagogy Lead. 3 workstations in staff work area should be adequate since all staff is not on-site full time.
- Tutor coordinator should have visibility to the open study area and check in area.
- Space must be directly adjacent to check-in / entrance area.
- 8 lockers for tutors and staff.

4.3.8 205 TUTORING / OFFICE HOURS

This space is used as a space for tutors to provide one-on-one or group tutoring sessions, and as a place for Math faculty to conduct office hour support.

- The existing space is a single room, which can make it more difficult to have multiple sessions.

- MESC group wishes to maintain balance between ability to support multiple sessions, while maintaining an open, shared environment. A resultant strategy is to provide three distinct group study table areas, with dividers in between that provide whiteboard space, while still preserving openness within the room. These divider white boards could be mounted on glass partitions or open frames.
- Visibility and adjacency to the group study space is important.

4.3.9 206 SMALL CLASSROOM / FLEX SPACE

The existing classroom space can support 30 students, but it is too small for the 36 student class sizes of the Math department.

- Capacity, desired but not necessarily required support 36 student class. Space will accommodate student groups, events, department meetings, presentations, small events. 20 -25 capacity should be sufficient.
- Technology in the room should support remote learning.
- The space should be considered for possible use by the ET building as flex classroom space.

4.3.10 RESTROOMS / LACTATION / JANITOR

There are no restrooms in the current MESC. Restrooms will be a requirement for the new MESC.

- Provide gendered restrooms based on occupancy, and a minimum of one all-gender facility.
- Review with MESC requirements for a lactation / wellness room.
- Provide janitorial space adjacent to restrooms.

For Server Rooms, Electrical Rooms, and Mechanical Rooms, see associated Design Narratives (Section 5) for requirements.

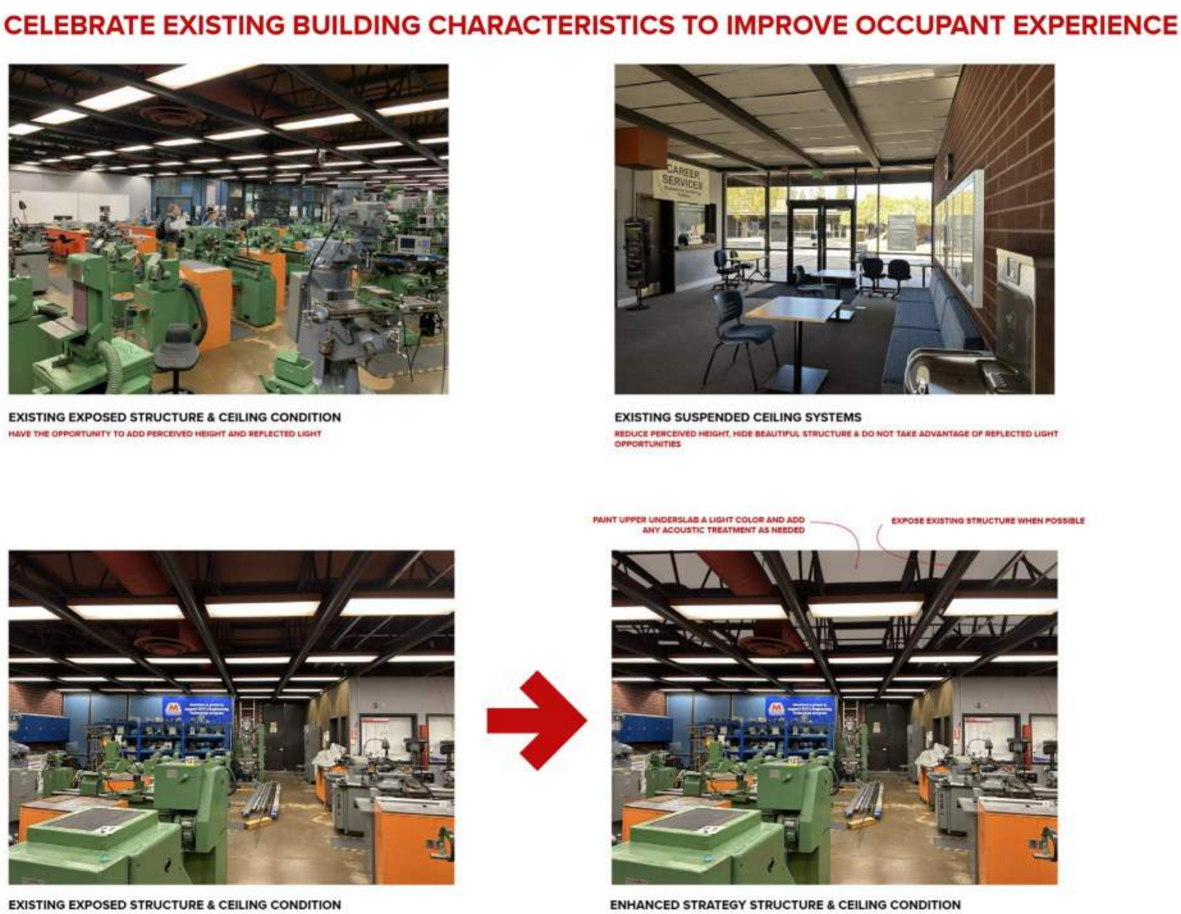
4.4 GUIDELINES FOR ADDRESSING IMPROVEMENT OF EXISTING SPACES

While the existing building is expected to have an extensive renovation, the building has a series of characteristics that can be improved and enhanced to create successful learning environments that are flexible, comfortable and inviting. The following items are suggestions on strategies to take advantage of the existing building attributes to create cost effective outcomes.

4.4.1 CEILING CONDITIONS

The existing building has a dynamic truss structure that is currently exposed in some spaces and hidden in others that have a suspended ceiling below. It is recommended to look to maximize the concept of exposing the truss structures combined with painting the ceiling above (bottom of slab) a light color. This can help to make spaces feel less compressed, allow natural light to reflect off of the upper ceiling and celebrate the structural design of the building. Acoustical panels will be required on under-side of decking to meeting acoustical requirements.

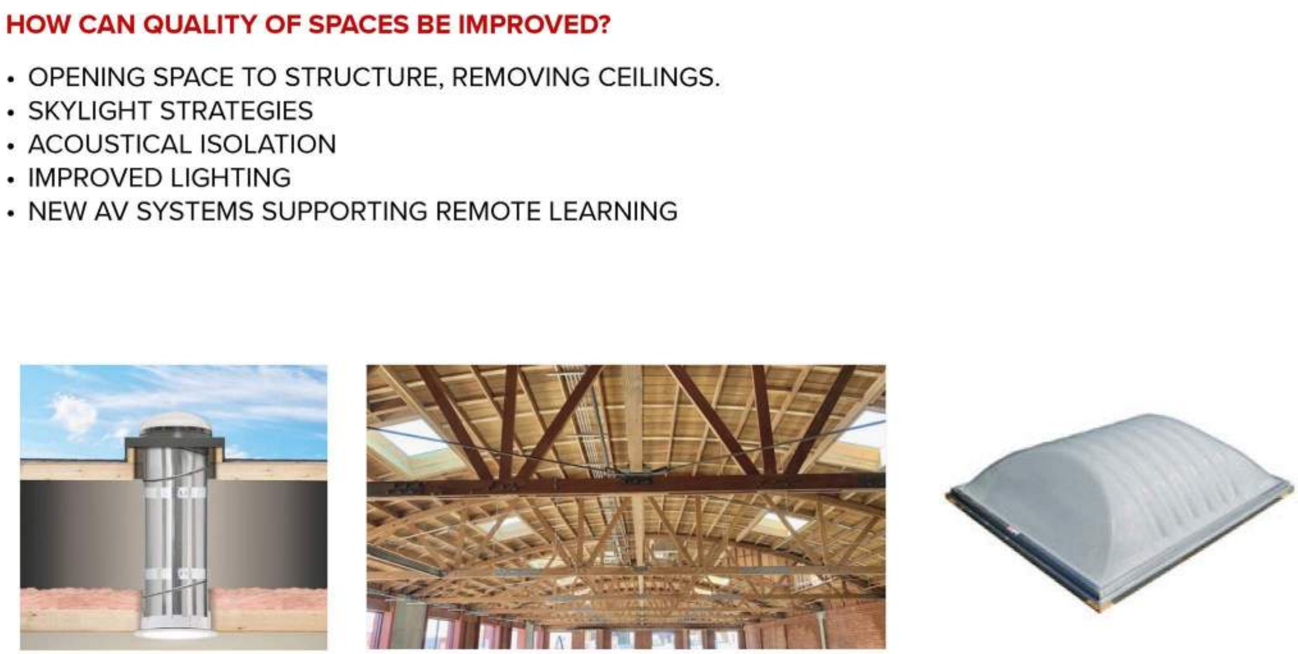
Figure 4.4.1



4.4.2 NATURAL AND ARTIFICIAL LIGHTING

Suspended lighting can be designed to work with the exposed building structure and be coordinated with the needed utilities including any exposed wiring, ducting, and piping. Exposing and celebrating these building systems seems to be aligned with the Engineering & Technology Building's curriculum. Adding strategic skylights could help bring more natural light deeper into some spaces that are not able to take advantage of light coming in from the existing courtyard. These skylights could be in the form of actual glazed openings, tubular skylights (Solatube type), or recessed lighting with natural light simulating systems.

Figure 4.4.2



4.4.3 EXTERIOR GLAZING

The existing building is an internally focused courtyard arrangement that provides the majority of its access to natural light from the center. While it creates a shared sense of community and focus toward the central area, it has limited access to daylight at the outer perimeter. While maximizing access to these perimeter openings is a good strategy, there may be a need to add additional strategic openings. This should be studied as the final renovation layout is determined. These additions can create a more campus-connected building as well as help solve natural light needs to spaces off the central courtyard.

Modifications to the courtyard glazing have the potential to increase the direct connection to the shared central area. Cost may limit the quantity of changes to the glazing. Adjustments to select courtyard glazing can create a stronger connection to the shared area and promote an inside-outside learning environment.

Figure 4.4.3.1

Figure 4.4.3.2

4.4.4 TRANSPARENCY

When walking through the existing building spaces, there is a theme of transparency reinforced through the many interior glass walls in the building. This transparency allows the limited natural light from the courtyard to reach deeper into the existing spaces. It also helps create a feeling of connected community and visibility. Many of the glass-enclosed offices continue this theme. It is recommended that any renovation solutions consider these characteristics to reinforce the benefits of the transparency and the effect on creating connected community, visibility and safety and access to shared natural light.

Figure 4.4.4.1

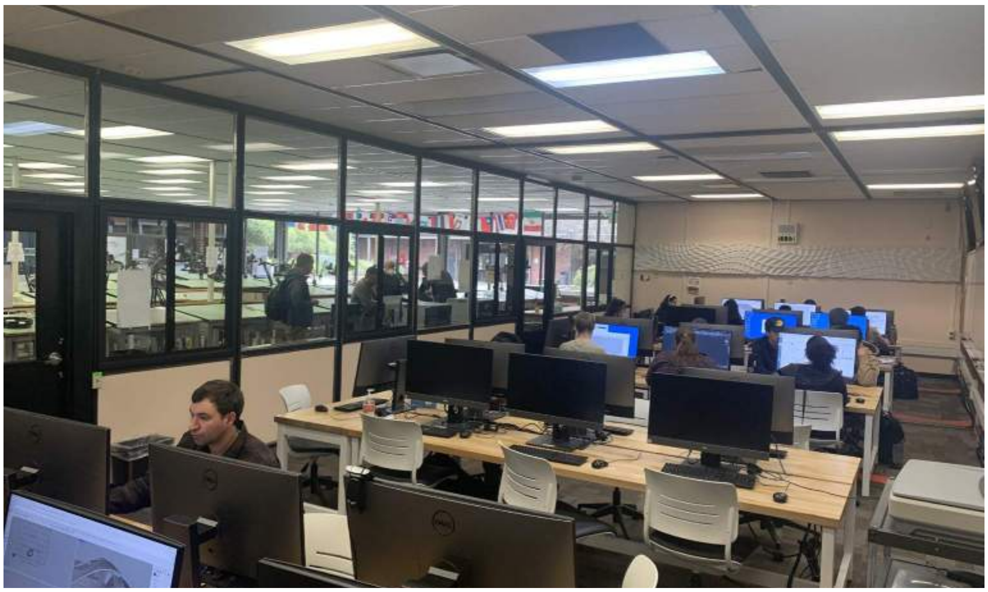


Figure 4.4.4.2

4.4.5 SOUND TRANSMISSION

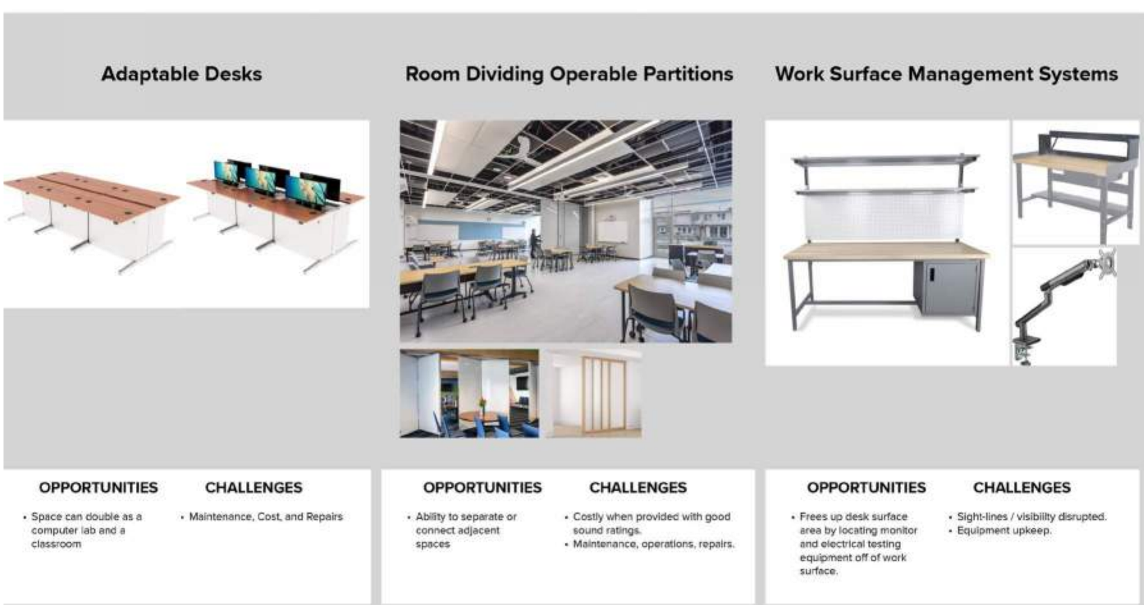
Some of the activities in the building create a good amount of noise that should be controlled to avoid disruption to nearby spaces. Space adjacencies should account for these concerns. New wall construction details should also be focused on control of sound when needed.

Figure 4.4.5.1 - CNC Machine

4.4.6 FURNITURE SOLUTIONS

Strategic furniture selection has the ability to solve some of the programmatic needs for the evolving curriculum. The renovation project has a set interior area set by the existing building footprint. The selected furniture has the potential to help with some of the concerns coming out of the criteria documents effort including shared use and storage. Flexible and adaptable furniture can help make work surfaces usable for multiple tasks. This can create spaces that can be shared by different groups. Interior furniture can also help resolve some of the existing building's storage capacity concerns without encroaching into teaching spaces. Operable partitions between spaces, while costly, can create flexible rooms to adapt to multiple uses. Use of these can be considered if the budget permits.

Figure 4.4.6 - Multi-Purpose Flexible Systems



4.5 TEST-FIT PLAN STRATEGIES FOR ET BUILDING

4.5.1 PROCESS

In order to find consensus on a general program test-fit layout in the existing Engineering & Technology Building, the Criteria Document team presented three options for each wing of the existing building. After gathering initial stakeholder responses, four composite plans were created and presented for review and comment.

4.5.2 SELECTED COMPOSITE PLANS

Based on feedback on reviews of test fits strategies, four composite layouts (Options A-D) with associated impacts to program were reviewed with Project Steering Committee on July 27, 2023. Composite Layout Option D was selected as the basis for the Baseline Program. Of the other options, Option A was the most frequently mentioned alternative and is provided here for reference. The other options are provided in the Appendix as part of the meeting notes.

4.5.3 SUMMARY CHARACTERISTICS FOR COMPOSITE LAYOUT D (BASELINE)

- Layout provides for additional specialty, technical spaces to support ENGTC, ELECT, and ENGIN programs.
- Layout includes fewer general assignment classroom spaces and computer labs and would result in need to leverage general classrooms outside of the ET building.
- Overall building storage challenges remain.

Figure 4.5.3.1 - Composite Layout D with Stakeholder Comments

North Building Wing Opportunities & Challenges for Composite Layout D

- Opportunities
    - Woodshop, CNC and MT all have access to exterior yard and loading.
    - computer lab has been expanded to improve flexibility.
    - Materials testing lab is larger and sized to support lecture space.
    - Classroom 117 has been expanded to improve functionality.
    - Modified classroom 117 is still small by campus standards.
- Challenges
    - The wood shop is not increased in size. CNA room is only modestly larger.
    - Access to classroom 117 remains off of other teaching spaces. No direct access.
    - Access to computer lab remains off of the Architecture Studio. No direct access.

Southwest Building Wing Opportunities & Challenges for Composite Layout D

- Opportunities
    - Increased accessibility by raising floor level in sunken spaces.
    - Increased space for Tesla programs.
    - Increased visibility to ELECT spaces.
    - Optimize efficiency by making use of flex space when not used for wiring training.
    - ELECT spaces are reconfigured for optimal use.
    - Dedicated space provided for Tesla motor/pump training.
    - Space provided for a 30 - station ELECT Systems Lab.
- Challenges
    - High bay space has been removed
    - Stepped Lecture Hall space has been removed.
    - Flex Space could get cluttered / messy.
    - Potential scheduling challenges around flex space.
    - ELECT offices were moved away from related labs and displace general building central offices.

Southeast Building Wing Opportunities & Challenges for Composite Layout D

- Opportunities
    - Creates right-sized classrooms and computer labs.
    - Layout creates more natural light access through secondary glazed entrances.

- Challenges
    - Classroom count in this wing is reduced.

4.5.4 SUMMARY CHARACTERISTICS FOR COMPOSITE LAYOUT A (ALTERNATE LAYOUT)

- Layout maximizes quantity of general assignment classroom spaces and computer labs.
- Layout has the greatest ability to expand existing programs.
- Layout does not provide expansion for Tesla START or for ELECT programs.
- Overall building storage challenges remain.
- Minimized natural light access to some spaces that are away from the courtyard should be addressed in some way (shared light, skylights, ceiling treatment etc.).

North Building Wing Opportunities & Challenges for Composite Layout A

- Opportunities
    - Woodshop, CNC and MT all have access to exterior yard and loading.
    - The computer lab has been expanded to improve flexibility.
    - Woodshop has been expanded in size.
    - Classroom 117 has been expanded to improve functionality.
- Challenges
    - Access to classroom 117 remains off of other teaching spaces. No direct access.
    - Modified classroom 117 is still small by campus standards.
    - Access to computer lab remains off of the Architecture Studio. No direct access.
    - MT space can function as a lab but it is not large enough for additional lecture functionality.

Southwest Building Wing Opportunities & Challenges for Composite Layout A

- Opportunities
    - Lecture Hall space is preserved and lift added for accessibility.
    - Increased visibility to ELECT spaces.
    - Optimize efficiency by making use of flex space when not used for wiring training.
    - ELECT spaces are reconfigured for optimal use.
    - Space provided for a 30 - station ELECT Systems Lab.
    - Tesla space remains a high-bay space.
- Challenges
    - Flex Space could get cluttered / messy.

- o Potential scheduling challenges around flex space.
- o ELECT offices were moved away from related labs and displace general building central offices.
- o Two lifts are required for access to lower Tesla space and the Lecture Hall. This will reduce the Tesla spaces to accommodate.

Southeast Building Wing Opportunities & Challenges for Composite Layout A

- Opportunities
  - o Two small classrooms can flex into one larger space for occasional use with the addition of an operable partition.
  - o Layout creates more natural light access through secondary glazed entrances.
  - o Creates right-sized classrooms and computer labs.
- Challenges
  - o Installation, operational and maintenance costs related to an operable partition.

Figure 4.5.6 - Composite Layout A with Stakeholder Comments

05

BASIS OF DESIGN AND SYSTEMS APPROACH

5.1 RESILIENCY & SUSTAINABILITY

The consulting team met with the 4CD representatives to define the applicability of the 2022 4CD Sustainability goals for the project. The notes from these meetings are available in the Appendix for information and background.

- **Category #1 - Greenhouse Gas Reduction.** Project shall be fully electric. To extent allowed by code, PV panels on parking structures can be allotted to meet PV requirements for the existing structure. See Electrical in Section 5 for more detail.
- **Category #2 - Renewable Energy:** See Mechanical in Section 5 for EUI goals. Provide sub-metering of electrical by load type (plug, HVAC, etc.)
- **Category #3 - LEED:** LEED Gold, certified minimum. Target including NZE-related LEED credits
- **Category #4 - Transportation:** No enclosed bike lockers. Provide bike facilities as required by CBC Title 24.
- **Category #5 - Waste:** 3-stream, exterior and interior waste bins with signage.
- **Category #6 - Procurement:** Comply as required for to meet LEED Gold.
- **Category #7a - Water Reduction / Stormwater:** Provide stormwater mitigation for 7,000 SF addition, or any other non- pervious areas. The existing retention lake on campus may be used for retention. Mitigation may also be "offset" by mitigating existing parking surfaces elsewhere on campus. Provide water meters for potable and reclaimed water.
- **Category #7b - Water Reduction / Reclaimed Water:** Existing campus reclaimed water is suitable for toilet flushing. Due to issues of reliability of system, a holding tank / by-pass system may be required. See plumbing narrative.
- **Category #7c - Domestic Water:** Provide domestic water reduction as determined by LEED and CBC

5.2 LANDSCAPE ARCHITECTURE

The landscape architecture design of the remodeled ET (Engineering Technology) building shall offer a beautiful, safe, accessible, and welcoming environment closely supporting the student academic life at this building—along with the wellness and comfort of students on campus. It should complement and reinforce the architectural character of the new buildings and will be cohesive with the Diablo Valley College campus, one hundred acres of gently rolling hills in view of Mt. Diablo, and the Diablo Valley community. The term 'landscape' includes all non-building and non-vehicular paving portions of the site and planting areas. Planting will be provided throughout the site along building faces and the courtyards. Refer to the civil engineering narrative for further discussion on infrastructure, grading, retaining walls, materials, water requirements, and other aspects of the landscape.

Site circulation, views, and vistas for students, visitors, and staff, enhanced accessibility, access to green and respite open space, and a holistic approach around site life-cycle management shall be vital elements of the site plan. The site plan should prioritize the safety of all users and maximize the visual and physical connection to nature. Access to all public portions of the site and building shall be provided in compliance with applicable codes. The landscape shall guide and reinforce site circulation and provide clear, defined view corridors with minimal conflict between vehicles and pedestrians. The design should also include sustainable and environmentally responsible features to the greatest extent possible to meet CalGreen Code requirements and LEED gold credits. The landscape shall be compliant with ADA standards for accessible design, Water Efficient Landscape Ordinance (AB1881), as well as any other applicable governmental jurisdiction requirements that may apply to this site.

5.2.1 CONCEPTUAL DESIGN

The landscape design for the site should work in concert with the building and existing landscape to establish a unique presence on campus for housing and follow the overarching goals for the site:

- Equitable access, safety, and comfort throughout the site
- Designing spaces that teach = express sustainable features
- Interior/exterior / community engagement
- Opportunities for outdoor respite and healing
- Preservation of existing valued trees, views, and connections.

Figure 5.2.1.1 - Existing Entryway

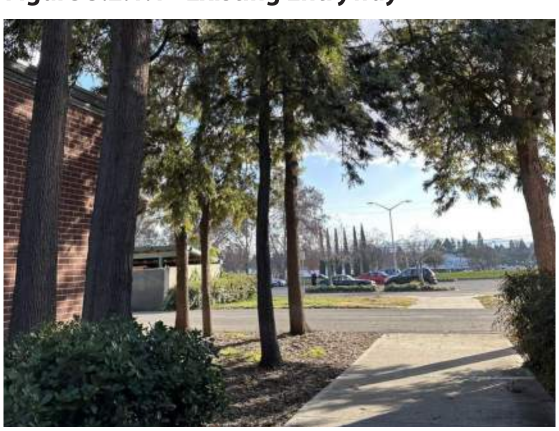
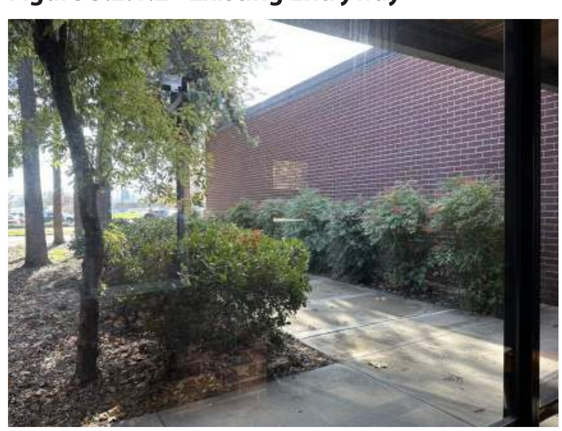


Figure 5.2.1.2 - Existing Entryway



Site design concept should aim to respond to site-specific goals of blending the building and the pedestrian experience into the existing landscape as seamlessly as possible—creating a weaving of sustainability and environmental understanding by design through compassion, collaboration, and connection to complement the tapestry of the Diablo Valley College Campus. The landscape design should also support student activities that may take place outside the new academic structure.

The following are key site components :

Courtyard:

- The courtyard is at the center of the Engineering Technology building and would be considered a multifunctional open space. Consider design elements that help to enhance this visually crucial focal point and help to support various uses.
- The courtyard could have exterior furniture, seat walls, and planting supporting social gatherings, learning, and health promotion. The organization of this space should support both social connections and individual activity.
- The courtyard planters impose a green presence, cast shade, and serve as seating edge. Regular maintenance and updating on ground planting are recommended. Consult an arborist to get an advice on the health of trees, watering, pruning, and general maintenance.

Figure 5.2.1.3 - Existing Courtyard

Figure 5.2.1.3 - Existing Courtyard

Streetscape:

- Consider adding planting strips to sidewalks along adjacent roadways to create a buffer between pedestrians and adjacent parking lots.

Existing trees:

- Retain as many healthy tree specimens on site as possible.
- Provide contingencies for tree protection during construction.

The safety of students, visitors, and staff is the top priority in landscape design. The final design should consider the following goals:

1. A simple and clean planting palette will use a limited number of native species to meet the function of the landscape.
2. The landscape will be designed to be cohesive with the surrounding area and reflect the campus's unique culture and character.
3. The landscape will complement the architectural character of the building.
4. The design will provide various landscape areas that respond to the site's intended use. Higher intensity landscape and hardscape should be considered carefully considering the utility easement area. Secondary landscape zones in key view areas, such as street frontage and building perimeter, will provide visual interest.
5. Accessible pedestrian paving will be provided at all public entries, emphasizing a pedestrian connection between the existing campus, parking, and the new building.
6. The design will provide enjoyable exterior spaces for students, visitors, and staff, including seating areas with pleasant views.
7. The design will provide aesthetically pleasing landscape views from the building windows and use tree and shrub planting to screen unwanted views.
8. Clear views will be maintained throughout the landscape areas for security and to provide defined pedestrian access.
9. With biophilic design interventions, the planting design will provide visual relief using shape and color, plant form, leaf color, and texture in critical areas.
10. Unless needed explicitly for screening, trees will be pruned up to provide a minimum of 7' from the ground to the underside of the canopy.
11. The design will utilize trees and other plantings to help mitigate the climate as required to adhere to CalGreen for code-compliant shade requirements.
12. Where used, planting areas will use shrubs, perennials, and groundcovers that will remain low to maintain clear views throughout.

5.2.2 HARDSCAPE

The exterior hardscape shall be designed to be code-compliant and meet the functional needs of the site and the building. Materials and design shall be durable, long-lasting, complementary to the building, lobby interior, and greater campus, and provide clear and defined access. The hardscape will also conform to the existing master plan and guidelines.

1. The design should provide code-compliant accessible concrete sidewalks and/or modular paving from public streets and accessible drop-off space for entries to the new building. Pedestrian walkways will be designed to minimize crossings between pedestrians and vehicles. Vehicular paving may be modified to reinforce pedestrian use at the drop-off areas. Plantings shall be low in those areas to

allow for visibility.

2. Some sidewalks and paving areas may be designed to slope toward the planting areas instead of the curb and gutter to direct storm and irrigation run-off into planting areas instead of the storm drain.
3. Sidewalks shall be poured in place of concrete with saw-cut joints. If used, Integral color selection will match the greater campus.

5.2.3 FURNISHING

Site furnishings, where used, should complement the campus context and the architectural style of the new building and conform to the overall master plan and guidelines. Site furnishings such as benches, trash receptacles, and bike racks will be in critical areas to be used by employees and students.

1. End-of-life and responsible disposal should be considered in selecting all furnishings. Fairtrade and ethically made products (sweatshop free) should be prioritized.
2. All bench furnishings shall incorporate a back and arms to meet accessibility code requirements or local guidelines.
3. Consider moveable furnishings in gathering spaces. The final quantity and types of flexible seating should be coordinated with forthcoming campus standards.
4. Outdoor lighting shall be International Dark Sky (IDA) compliant. Select lighting products certified to minimize glare, reduce light trespass, and help protect the night sky.
5. Moveable tables and chairs may be considered in the courtyard for flexible seating.
6. Bike parking shall be incorporated in highly visible, accessible locations near entries at the new facility under state or local codes. The final quantity and types of bike parking should be coordinated with the campus standards.
7. Waste bins shall be 3-stream waste system bins, compatible with district requirements.

5.2.4 PLANTING

The planting plan shall provide for a practical and functional landscape that meets the needs of the buildings, promotes safety, and uses relatively low water. Planting may frame and help to differentiate various exterior user spaces. Planting should complement the existing landscape while enhancing the character of the new building and reflecting the essence of the campus. The plant palette should respond to site elements, such as wind, and plant material should be placed in such a way as to help mitigate areas that are uncomfortable due to climate. Plants will be chosen to perform well, require the least ongoing maintenance, and conform to the forthcoming master plan and guidelines.

1. Plant species appropriate for the climate, the site, and ease of maintenance will be utilized.
2. Plants will be selected and spaced at the time of planting to be appropriate for their intended

use and size at maturity. Selected plant species will provide for:

a. A safe site with clear views.

b. Reduction in maintenance hours associated with pruning.

c. Better health of the plants.

d. Reduction in the generation of green waste.

3. Consider a palette of drought-tolerant / low-water using plants to reduce irrigation demand.

4. Maximize using California native plants that are resilient to climate-related stressors and promote pollinator health. Using native plants minimizes or eliminates the need for synthetic fertilizers and pesticides.

5. Planting will be designed in hydrozones of similar water needs. The irrigation will be designed to comply with the planting hydrozones. Hydrozones will be based on plant water needs, sun exposure, slope, and soil conditions.

6. Select plants that are compatible with the characteristics of the reclaimed water.

7. Trees will be planted away from light poles. The optimal lighting location will be coordinated with tree locations.

8. All planted landscape areas are to be covered with a minimum of 3" of bark mulch and, if flow-through planters are required, will have a 3" lift of la paz stones 3" in diameter.

9. Plants shall be installed at sizes appropriate for the intended use and typical planting techniques.

10. Trees will be planted at a minimum 24" box size with staking such as the hidden platypus deadman guying system below the surface, similar to: https://platipus.us/wp-content/uploads/2018/05/Platipus-Brochure-Tree-USA.pdf

11. If used, focal point trees will be planted at 48" box size with staking or guying.

12. If used, specimen trees will be planted at 60" -72" box size with staking or guying.

13. If used, shrubs will be planted from 5-gallon and 1-gallon size containers and spaced as needed based on their mature size – typically 4' – 6' on center.

14. If used, groundcover will be planted from 1-gallon containers and spaced as needed based on their mature size – typically 24" – 48" on center.

15. After mass grading and prior to planting, a soil fertility test shall be performed from two-to-three areas of the site. Soil amendments, fertilizers, and the ratio of mixture with the native soil shall be installed per the recommendations of that report.

16. The landscape may include edible fruits, berries, and medicinal plants strategically.

17. The landscape should reflect regenerative soil practices, beneficial plans, and pest

relationships and should be maintained with no chemical herbicides.

18. The landscape will facilitate healthy insect and pollinator relationships.

5.2.5 IRRIGATION

The permanent irrigation system shall be designed for long-term function with quality components and ease of maintenance. Irrigation is to apply the optimal amount of water based on the needs of the plants. Plants will be placed in hydrozones based on their water use requirements, and the irrigation will be designed specific for those hydrozones.

1. All Irrigation shall utilize campus reclaimed water system.
2. Planting will be designed to meet the requirements of the city and the state-mandated Water Efficient Landscape Ordinance (WELO - AB 1881). This ordinance limits the amount of irrigation water used based on site-specific calculations to determine the maximum water allowance and minimum irrigation efficiencies.
3. Irrigation will be predominately drip emitters or bubblers at each plant for shrub and groundcover areas.
4. Irrigation will be designed for no overspray onto the hardscape.
5. The irrigation controller will be a smart controller that will automatically self-adjust based on real-time weather updates (via a cellular update from the manufacturer or on-site weather station) or soil moisture sensors. The model and manufacturer are to match existing controllers and allow for integration into the sitewide irrigation system.
6. Quick couplers and isolation gate valves will be placed throughout the landscape areas per the direction of district staff.
7. All piping, including drip tubing, is to be buried and not placed on the surface of the soil. Only emission devices, such as emitters or the top of pop-up sprinklers, shall be on the surface.
8. If there is no drip irrigation in courtyard planters, add a drip line UNDER the 3” cover of mulch with stakes at 3’ on center.

5.2.6 DRAINAGE

All landscape areas to effectively drain and/or serve as stormwater run-off filtration and storage areas. Bioswales will be incorporated throughout the site where possible. Drainage shall also conform to the campus master plan. Refer to the civil engineering narrative for further drainage and stormwater management discussion.

1. All landscape areas not designed for stormwater filtration or storage shall have swales and/or drainage catch basins to drain excess water.
2. Catch basins and swales shall be provided adjacent to the building to move water away from the foundation.
3. When possible, use swales to move run-off in lieu of drainage piping.
4. Stormwater shall not be allowed to puddle in vehicular or pedestrian paving areas.
5. Swales and basins shall be designed at the service area and parking lot to filter stormwater run-off prior to entering the storm drain system where possible.
6. Site sidewalks may be designed to slope toward the landscape and away from curbs and gutters to the greatest extent possible, with swales in the landscape to move water away from the walks.
7. Landscape drainage facilities will be constructed of durable materials such as NDS, Rainbird, ACCO, or similar high-quality products.
8. Slopes shall be planted and/or covered with slope stabilization fabric to eliminate/minimize drainage erosion. Erosion control fabrics shall not contain plastics or petroleum of any kind.
9. Bioswale areas will incorporate various-sized boulders and river rock. Groundcovers, shrubs, and perennials shall be used on the edges and interior of bioswale areas. Species will be chosen for adaptability to flow-through and dry conditions.
10. Plantings that stabilize hillsides and prevent erosion will be promoted.

Figure 5.2.6.1 - Exterior of the Building

Figure 5.2.6.2 - Exterior of the Building

5.3 CIVIL ENGINEERING

5.3.1 SITE CONDITIONS & CONSTRAINTS

5.3.1.1 EXISTING CONDITIONS

The project site is located on the southern edge of the Diablo Valley College (DVC) campus, bounded by the math building to the north, the west side of the vehicular lane to the east, the north side of the vehicular lane the south, and the west side of the vehicular lane to the west. The existing lot is occupied by the existing Engineering & Technology (ET) building, which consists of northern and southern sections with a central open air courtyard between them. Existing service roads used for maintenance and emergency vehicle access lie to the east, west, and south sides of the existing ET building. To the east of the site lies the campus Police and Safety Services building.There are two storage sheds to the east and south of the building that are outside the project boundary.

5.3.1.2 DEMOLITION

Demolition will occur within the limit of work as described in Figure 4.1.1, Engineering and Technology Building Site Aerial Photograph. The existing lawn and walkways to the north of the building will be demolished to accommodate the 7,000 square foot (SF) companion building. Existing utilities within the project boundary will be protected in place, but may be removed and replaced as necessary for ease of construction.

Figure 5.3.1.2.1 - Site Utilities Diagram

5.3.1.3 SITE GRADING & DRAINAGE

The project site is relatively flat with about five feet of elevation difference (elevation 66 feet to elevation 61 feet) from the high point of the site to the north of the existing building (65.7 ft) and the low point of the site at the southwest corner of the service road along the perimeter of the existing building (61.4ft) . Stormwater flows along the existing service roads surrounding the ET building, where existing inlets collect runoff, then drain to the City of Pleasant Hill storm drain system in Viking Drive. The existing building and landscaped areas to the north connect to the same drainage system.

The stormwater management goal set forth by the District is to manage stormwater runoff within project limits using best management practices, as described further in Section 5.2.4 Stormwater Management. The site should be graded so that all stormwater runoff from impervious surfaces is directed to stormwater BMPs within the project area, while minimizing the construction of additional storm drain infrastructure.

5.3.1.4 ACCESSIBILITY AND FIRE ACCESS

The accessible entrance to the existing ET building is on the north side of the existing building. The accessible route starts at the accessible stalls in Parking Lot 1, then runs along the west side of the campus Police and Safety Services Building, west along a concrete path in the existing lawn, and finally south to the existing building. This accessible route is marked with signage and pavement striping. The proposed companion building will impact this pathway; Access to the accessible entrance and parking stalls must be maintained throughout the duration of the project. New pedestrian pathways to the companion

Figure 5.3.1.4.2 - Campus Map

building must also be accessible to both provide access to the companion building and maintain access to the north entrance of the existing ET building.

If required by the proposed project, providing access to the southern entrance of the existing ET building is feasible through the construction of curb ramps, given the flat topography of the existing site.

The existing fire access route serving the ET building is via DVC Lot 1 and the connecting service road on the east, south, and west sides of the existing building. There are four existing hydrants within the project boundary; the first (Hydrant 1) to the north of the campus Police and Safety Services building, the second (Hydrant 2) on the east edge of the north ET building, the third (Hydrant 3) to the west of the proposed companion building, and the fourth (Hydrant 4) on the southeast corner of the project site, between DVC Lot 1 and DVC Lot 2. At their current locations, there is approximately a 13 foot gap in coverage between Hydrants 2 and 3. To meet fire code for the existing ET building, Hydrant 2 may need to be relocated further south, or an additional hydrant or FDC must be added along the eastern edge of the existing building. Hydrant coverage to the proposed companion building is provided by Hydrants 1 and 3.

Fire access to the companion building will be provided by the existing fire access routes on the east and west sides of the proposed building location.

On the west side of the existing building, fire access is provided via the existing service road. CFC requires all fire access roads to be a minimum of 20 feet wide. The existing service road is 18 feet wide. The proposed project should confirm with fire officials if alternative compliance can be met and the 18-foot service road can be maintained, or if the road must be widened to meet current code requirements.

5.3.2 UTILITIES

5.3.2.1 DOMESTIC, FIRE, AND IRRIGATION WATER

There is an existing 8-inch combined domestic and fire water mainline running under the existing lawn to the north of the existing ET building. Water services to the building are on the east side, with two connections on the northeast corner of the building, one connection in the open air courtyard, and the final connection on the southeast side of the existing building. These water laterals run south from the existing mainline, then west to connect to the existing building.

Existing lines will not be impacted by the proposed companion building. A new water lateral connection will need to be installed to serve the proposed companion building.

5.3.2.2 SANITARY WATER

There are three sanitary sewer mainlines within the project vicinity; An 8-inch sanitary sewer mainline that flows southeast under the lawn to the north of the existing ET building, a 10-inch mainline running under DVC Parking Lot 1 that flows south, and a 6-inch mainline running under the south service road that flows east. The existing building is served by four sanitary sewer POCs. Two POCs are located on the northeast side of the building. The connecting lateral to these POCs flows north, then east, eventually outfalling to the 10-inch mainline running under DVC Lot 1. Two POCs serve the south section of the building, connecting at the southwest and southeast building corners, flowing south to the 6-inch mainline under the south service road and eventually the 10-inch mainline under DVC Lot 1.

The proposed companion building will not impact existing sanitary sewer infrastructure. A new sanitary sewer lateral will need to be installed to serve the proposed companion building.

5.3.2.3 STORM DRAIN

Three storm drain mainlines serve the existing site; an 8-inch line running under the north lawn flowing east, an 18-inch line under DVC Parking Lot 1 flowing south, and an 18-inch line running under the south service road flowing east. The mainlines under the north lawn and south service road connect to the mainline under Parking Lot 1. The mainline under Parking Lot 1 flows south to Viking Drive, connecting to the City of Pleasant Hill storm drain network under this road. There are a number of smaller storm drain laterals onsite; two 4-inch lines under the west service road flowing south, one 4-inch line under the east service road flowing south, and an 8-inch line in the central courtyard flowing north to a 10-inch line, which then flows east. All laterals ultimately flow into the 18-inch mainline under DVC Lot 1.

Existing stormwater infrastructure will not be impacted by the proposed companion building.

New stormwater best management practices (BMPs) and corresponding infrastructure will need to be constructed as part of the proposed project to treat stormwater runoff. Information about the proposed stormwater infrastructure can be found in Section 5.2.3. Stormwater Management.

5.3.2.4 NATURAL GAS

There is an existing 4-inch natural gas mainline within the project site under the north lawn. This mainline connects to a 2-inch lateral that serves the existing building, connecting to the northwest corner.

Existing natural gas infrastructure will not be impacted by the proposed companion building. If needed, a new natural gas line will need to be installed to serve the proposed companion building.

5.3.2.5 ELECTRIC

High voltage electric conduits run underground on the existing site along the north side under the north lawn, the south side under the service road, and west side under the service road. There is also an existing standard voltage electric conduit under the north lawn. Existing street light service lines also exist under the north lawn and in the central courtyard. There is an existing electrical structure on the southwest side of the building, adjacent to the existing electrical POC, which connects to the southwest corner of the existing building. Additionally, there is an existing electrical utility shed on the north edge of the north lawn that houses four electrical structures.

Existing electrical infrastructure will not be impacted by the proposed companion building. New electrical service lines will need to be installed to provide power to the proposed companion building.

5.3.2.6 TELECOMMUNICATIONS

Communication lines run along the northeast, south, and west sides of the building, under the existing service road. There is one communications POC on the northwest corner of the existing building. Existing communications infrastructure will not be impacted by the proposed companion building. New communications lines will need to be installed to serve the proposed companion building.

There is one existing telephone line running under the north lawn. There are two telephone POCs serving the existing ET building, one on the south corner, and one along the northwest edge of the building. These telephone lines connect to existing communications vaults under the west service road. Existing telephone lines will not be impacted by the proposed companion building. New telephone lines will need to be installed to serve the proposed companion building.

There are no major television conduits within the project boundary. There is one existing television POC serving the existing ET building located on the southern corner of the existing building. This television line connects to the existing communications vault under the southwest corner of the service road. Existing television infrastructure will not be impacted by the proposed companion building. New television lines will need to be installed to serve the proposed companion building.

5.3.3 STORMWATER MANAGEMENT

5.3.3.1 REGULATORY CONTEXT

In 2022, the Contra Costa Community College District (4CD) developed a set of district wide sustainability goals to be achieved between 2025 and 2035. Goal #7 addresses water goals. It calls for the adoption of Contra Costa County Model Stormwater Management Program practices by 2025, the adoption of the Municipal Separate Storm Sewer System (MS4) requirements by 2030, and limiting stormwater runoff and discharge to predevelopment levels for temperature, rate, volume, and duration of flow by implementing green infrastructure and low impact development (LID) for all new building projects and major modifications by 2035.It was confirmed with the District that both short term and long terms goals should be incorporated into the proposed stormwater management strategy.

5.3.3.2 WATER QUALITY PROTECTION

County stormwater runoff quality is governed by the MS4 permit, dictating that projects creating and/or replacing at least 5,000 square feet of impervious surface are subject to the LID standards dictated by the Contra Costa Clean Water Program (C3). C3 projects are required to abide by the 50% rule - if a proposed project creates or significantly alters 50% or more of the impervious area on a project site, runoff volumes equivalent to the 85th percentile storm event from the entire site must be treated with stormwater BMPs and LID. If a project creates or significantly alters less than 50% of the existing impervious surfaces onsite, then only runoff from the new or altered impervious surface needs to be treated.

The proposed project will create an additional 7,000 square feet of impervious surfaces of the approximately 100,000 square foot project site. Since the proposed project is only creating 7,000 square feet, only stormwater runoff from the proposed companion building is required to be treated by C3 requirements. Treating additional stormwater within the project site to meet 4CD Sustainability Goals is recommended, but not required by local regulations.

5.3.3.3 PROPOSED STORMWATER STRATEGY

The stormwater strategy for the site is to treat and retain runoff from site hardscapes through evapotranspiration and/or infiltration using self-treating areas and bioretention basins. C3 stormwater treatment requirements will be met through bioretention basins and self retaining areas. Bioretention areas shall be sized to equal 4.0 percent of the total impervious area the basin will treat. The bioretention basins shall also be sized to manage runoff and ensure no increase in runoff rate or volume for the 85th percentile rainfall event and the 10-year, 24-hour rainfall event. Wherever feasible, site hardscapes should be configured to sheet flow to adjacent landscaped areas and stormwater BMPs. Surface conveyance will also be prioritized to reduce the rate and volume of runoff, and minimize the need for piped infrastructure. Roof runoff shall be managed by adjacent bioretention basins.

The preferred option for retaining stormwater onsite is to utilize the existing pond to the north of the ET building for retention and flow mitigation. After treatment, stormwater from the site would outfall to the existing pond where stormwater would either infiltrate or evapotranspirate. This option would meet 4CD volume and flow rate goals as described in the 2022 District Sustainability Goals. This option would require a new storm drain line around the perimeter of the proposed companion building, connecting to the existing 6" storm drain line just south of the existing mathematics building.

Stormwater will be treated on site through bioretention and/or flow-through planters. A minimum of 405 square feet of bioretention planters with a 6-inch depth will be needed to detain and treat stormwater runoff from the proposed companion building from a 10-year, 24-hour storm event. Flow-through bioretention planters are proposed along the southeast corner of the existing ET building and along the west side of the existing building.

5.4 ARCHITECTURAL

5.4.1 BUILDING ENVELOPE

5.4.1.1 EXTERIOR WALLS

The exterior walls are comprised of two primary assembly systems. Exterior masonry wall assemblies, and stucco over wood-framed assemblies.

MASONRY WALLS

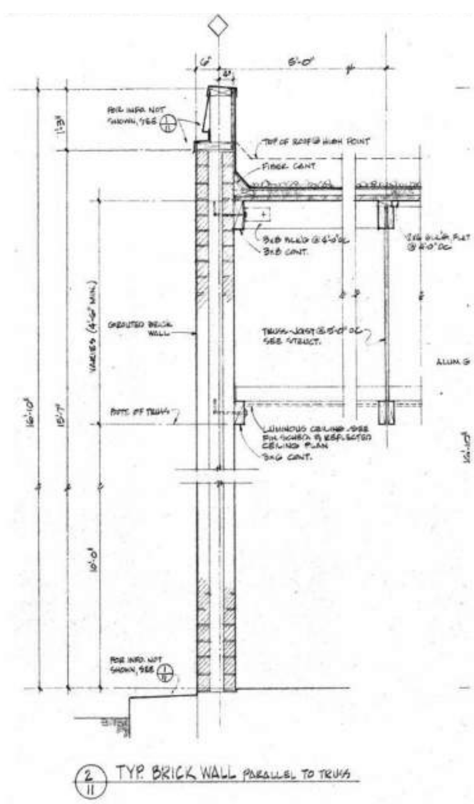
Exterior masonry walls are non-insulated, brick-faced exterior walls. Refer to structural narrative for the structural properties of the walls.

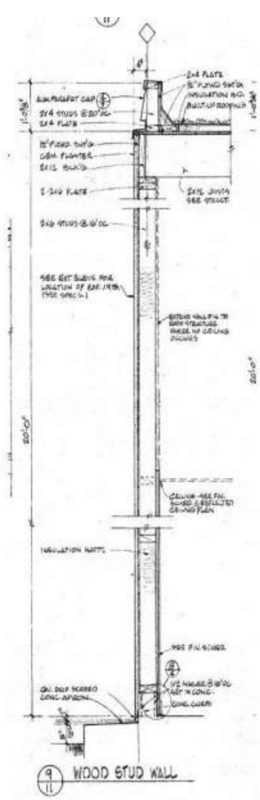
The project requirement is to improve the insulating characteristics of the exterior walls to meet the sustainability goals of project, by furring the interior side of existing partitions and providing interior insulation. For the preliminaty energy models, the U-value for the exterior wall assemblies was set to U=0.63.

STUCCO/WOOD-FRAMED

Exterior Wood-framed, walls cement plaster over 6" wood studs on 6" centers. According to existing drawings, these walls are insulated. The insulation for these walls should be confirmed.

Figure 5.4.1.1.1 - Exterior Wall Assemblies from 1971 Drawings





EXTERIOR CLADDING

Stucco exterior finish appears to largely to be in acceptable condition. Although there are vertical control joints at the exterior stucco, the amount of continuous stucco without a control joint seems to be close to tolerance of acceptable standards; 144 square feet and also no continuous surfaces greater than 18 feet in a single direction. The stucco does have standard wear and tear nearer grade or paved surfaces. There is evidence of water intrusion repairs where brick walls and parapet flashings and copings intersect the masonry walls. It is not known how old these fixes are and or how they are performing.

Concrete walls with brick at both interior and exterior occur at large parts of the building exterior. The original drawings do not depict any kind of vapor barrier or separation layer between the masonry and the concrete. There is some efflorescence visible in some areas, but the brick largely seems in acceptable conditions. The grade is close to the brick in some conditions which should be addressed through landscape as continued exposure to moisture from landscaping can degrade the masonry. The original drawings depict the good practice of not extending the masonry into grade, but instead show grade at least just below the masonry and a concrete curb typical at exterior walls.

The brick from the exterior is continuous into the interior of the building and appears to largely be in good shape at both the interior and exterior. Storefront glazing is weatherproofed through use of sealant joints.

Areas with Brick walls that are non-enclosed spaces such as the Exterior Wood Material Storage Area have vegetation growing on the masonry wall and steel gates. Vegetations on building exterior while occasionally visually attractive also presents maintenance issues and can promotes premature wear. Also at these areas, there appears to be some moss build up at some of the exterior areas. Moss is an indicator of built up moisture and shade that is promulgated by dead-vegetation and can cause extended moisture build up in the brick masonry. It would be good to delicately remove the moss and inspect masonry for any areas of potential failure of either the masonry and or the grout.

Some of the exterior doors at building envelope appear to have signs of rust. Where this has occurred, the recommendation would be to consider replacing the doors.

Figure 5.4.1.1.2 - Exterior ET Building's Brick

5.4.1.2 EXTERIOR STOREFRONT

The exterior system exists in two different uses at the building exterior; one as opaque condition and the other condition as clear glazing storefront. The intent for the project is that the entire exterior storefront system is replaced with a new, aluminum, insulated storefront system. For preliminary energy modeling, the U-Value of the storefront assembly was set at S=0.47 and SHGC at 0.31.

The opaque condition has insulated metal panel with final R-value unknown.

Figure 5.4.1.2.1 - Existing Exterior Storefront

5.4.1.3 COURTYARD STRUCTURE

Roof over walkway around the canopy appears to be supported by an independent steel structure with 4-inch square posts connected by a system of smaller sized wide-flange beams with an exposed T&G ceiling resting on the tops of the wide flanges. The steel structure appears to be in acceptable condition. There are some areas of built-up dirt where it is difficult to observe wear on the structures - but initial thoughts are that the structure may require cleaning and some touch up paint where the finish may be damaged.

The Areas of the courtyard structure may need to be removed and replaced in order to complete required structural seismic work

Figure 5.4.1.3.1 - Cortyard Structure

Figure 5.4.1.3.2 - Cortyard Structure

5.4.1.4 ROOFING

The roofing is a single Ply roof that does not have any obvious signs of deterioration. Flashing along the perimeter parapet and mechanical curbs appears to be of adequate height. However, enhanced roofing insulation will likely result in increased roof thickness, which may result in having to increase the height of the parapets. The upturn appears to at least be 4" in most conditions. Manufacturer recommendations are typically 8" upturn at single ply roofing. There are long runs of condensate piping running from rooftop mechanical units with the piping mounted on neoprene blocks that empty in the vicinity of the roof drains. The existing roof drains do not have separate overflow drains and each are a single roof drain with a strainer where they occur. Dead vegetation seems to build up either around the roof drains and or at the perimeter at the backside of the parapet walls. Standing water was observed at a few of the roof drains.

In addition to standing water at some of the single roof drains themselves, there is standing water in the field of the roofing at many of the valleys. At the time of the site visit, there had not been a rain event within 48 hours. Most single-ply roofing manufacturers state in their literature and design guides that 80% of water should naturally flow off from a roof within 48 hours following a rainstorm. A few locations on the roof with ponding water after 48 hours may be acceptable, but would depend on the initial amount of ponding water and the roofing manufacturer. The ponding water here may be acceptable to the manufacturer but should be measured via a hose test to measure the water as approved by the manufacturer if there are no changes to the contributing conditions.

Figure 5.4.1.4.1 - Roof

Figure 5.4.1.4.2 - Roof

The underlying structure is sloped. There are construction tolerances for maintaining regular slopes, but best practices would be to have little to no ponding water with minimum 2% roof slopes at the valley of the roofing accomplished either by the structure or built-up roof insulation.

The sustainability goals of the project will likely result in the need to replace the roofing, despite the roof being in fair condition. For the preliminary energy model, the U-Value for the roof assembly is set at U=0.37 (R-23)

Recommendation would be a visual maintenance schedule at the roof. Another solution would be to provide separate visual warning overflow drains that daylight approximately 18" above grade or sidewalk in a visible location around the building to act as a visual indicator that there are drainage issues at the roof.

Roof hatches are recommended to be curb mounted type where they occur.

Additionally, there are a few trees around the building that are well over the height of the adjacent roof. These trees are believed to be the main factor contributing to the clogging of roof drains around the roof and also for future clogged drains.

5.4.1.5 WATERPROOFING BELOW GRADE

There are areas at the East portion of the building, such as the Tesla Studio Space where the slab is 4'-4" below the rest of the building. The perimeter concrete stem wall is exposed and painted with evidence of moisture intrusion made evident by the bubbling shown in the paint.

Outside of this, the building has minimal waterproofing concerns where the floor meets the grade. The rest of the building is a single-story slab on grade concrete with no occupiable spaces below grade. There is no elevator or associated pit.

5.4.2 STAIRS & ELEVATOR

5.4.2.1 ELEVATOR & STAIRS

The building does not have an elevator. There are areas at the East portion of the building at the Tesla Studio Space where the slab is 4'-4" below the rest of the building. These areas are currently only accessed by routes that do not meet current accessibility standards. There are two existing stairs at the north and a ramp at the southwest that do not meet accessibility. The existing risers (7.5”) exceed the code maximum 7” and the existing tread depth of 10” does not meet the code minimum tread depth of 11”. Also the ramp that provides service to this area is 1:10 slope per the as-built documents which exceed the code maximum of 1:12 for an accessible ramp. Both of these items would need to receive work to become accessible, taking into account items such as handrail extensions, clearances at the top and bottom landings, etc.

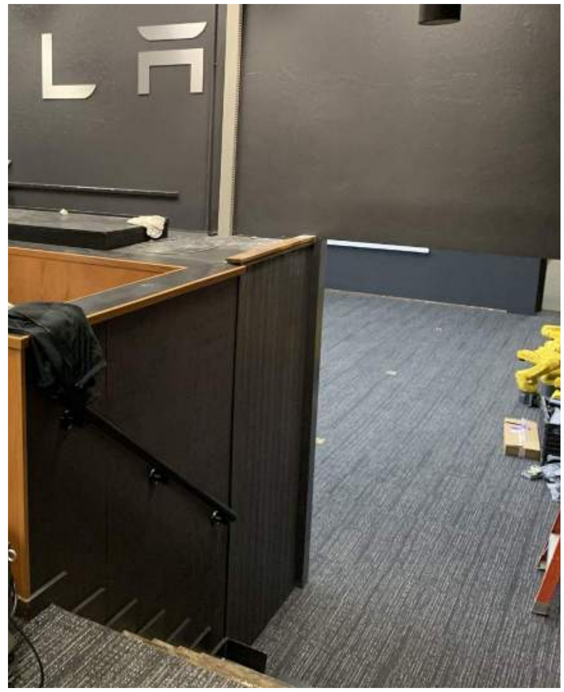
There are multiple options, each with their own considerations.

1. Redo the accessible routes to bring up to current code which will take some floor area away from both the interior as well as the exterior landscape.
2. Infill the floor area where the depression occurs so that the building floor level is all on a single level.
3. Possibly remove one of the interior stairs and substitute with an interior wheelchair lift. These tend to get cluttered with litter over time as well as have operational issues that are only discovered when occupants need to use them.

There are other options, but these are just a few to consider.

Figure 5.4.2.1.1 - Stairs inside Tesla Lab

Figure 5.4.2.1.2 - Stairs inside Tesla Lab



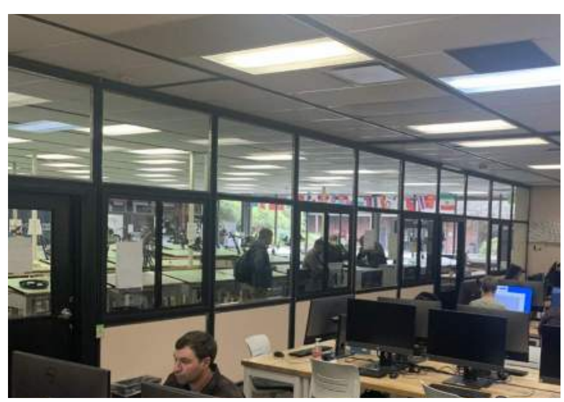
5.4.3 INTERIORS

5.4.3.1 INTERIOR GLAZING

Interior glazing is an aluminum stick system with a single pane of glass held in place with stainless steel stops secured at the corners. This should be evaluated for STC performance and where upgrades can occur. The stick system in place does not seem to be a newer system which are tested as a whole system for STC performance. If the interior glazing storefront is to remain, an acoustical test should be performed to measure sound transmission from each side of the glazed partitions.

Figure 5.4.3.3.1

Figure 5.4.3.3.2



5.4.3.2 CEILINGS

The original construction in the building involved "luminous" vinyl ceiling panels, with light troughs above, spanning between the bottom chords of the trusses, apx 5' OC. With subsequent remodeling, the ceilings are comprised of a variety of different conditions, many in a state of pad repair. Many of the "generic" 2x4 ceilings result in visually lowering the ceiling plane, and hiding one of the design features of the existing building.

The Criteria Document recommendation and preliminary cost model is based on two recommended strategies:

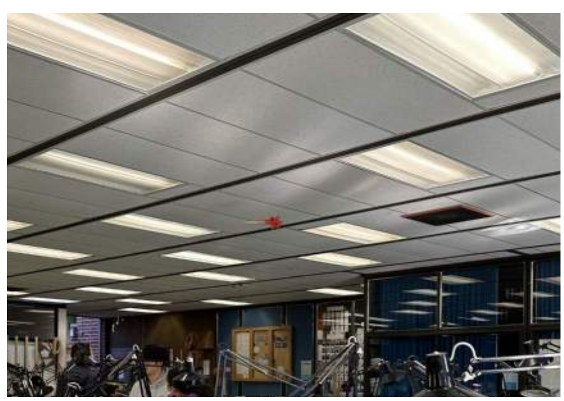
1. Where possible and in larger spaces, remove and expose and paint the wood deck above, and apply acoustically absorptive panels as requires to meet the acoustical requirements. This will require coordination of HVAC ductwork, and piping to be aesthetically organized.
2. Where ceilings are more appropriate (Office, smaller rooms), consider exposing bottom chord of trusses, and using 5' ceiling panels, to span from truss to truss. This treatment of ceilings may influence locations of new partitions.

Figure 5.4.3.2.1 - Original Backlit Luminous Ceiling System

Figure 5.4.3.2.2 - Inactive Luminous Ceiling Systems with Light Fixture Inserts

Figure 5.4.3.2.3 - Open Ceiling System

Figure 5.4.3.2.2 - Typical Replacement Ceiling System



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5.5 STRUCTURAL

5.5.1 PROJECT STRUCTURAL DESCRIPTION

The ET Building consists of two single-story buildings (referred to as the North Building and South Building) constructed circa 1971. These two buildings are independent structures and together create a central courtyard. Inside the courtyard there is a covered walkway at its building perimeter that is also a separate structure, independent of the two buildings.

The North Building has a rectangular floor plan approximately 60 feet by 160 feet. The South Building has a central core measuring approximately 180 feet in the east-west direction with four wings. Two of these extending the building foot print south away from the courtyard and the other two wrap around the courtyard toward the North Building. The courtyard is a rectangular plan measuring approximately 130 feet by 90 feet. The covered walkways at the perimeter of the courtyard are approximately 10 feet wide and was built as an independent structure from both the North and South wings.

<u>North and South Buildings</u>

Gravity Framing System:

The North and South Buildings have lightly reinforced masonry shear walls at the building perimeter that are both load bearing and the primary lateral system. There are some additional plywood shear walls at the building interior that are also both load bearing and provide lateral stability locally. The roof is supported by steel wide flange beams and tube columns at the curtain walls, and open-web truss joists with a plywood sheathing roof system. The open-web truss joists are spaced approximately 5 feet on center and measuring approximately 5 feet deep. The top and bottom chords consist of two 2x6 wood members, and the webs are comprised of 2-inch diameter steel bars. The roof diaphragm consists of continuous 1-1/8-inch-thick plywood sheathing. Steel framing at curtain walls consists of wide flange beams aligned with the joist top chord and supported by tube columns. Steel tube ledgers span between the columns and are aligned with the joist bottom chords, approximately 5 feet below the wide flange beams. The ground floor is a 4-inch-thick slab-on-grade.

Foundations:

The masonry shear walls have continuous footings, while the steel columns are supported by spread footings. Footings are typically 3 feet deep with a varying width of 18 inches to 2 feet.

Lateral Force Resisting System:

Wind and seismic forces are resisted by the perimeter masonry shear walls, which are typically 10 inches thick, grouted, and reinforced with vertical #4 bars spaced at 9 inches on center and horizontal #4 bars spaced at 12 inches on center. The masonry shear walls are supplemented by a limited number of plywood shear walls, but these systems are secondary to the masonry walls. The top and bottom chords of the roof joist framing perpendicular to the wall are have positive ties to the walls framing wall to create a load path from the roof to the walls. Where the masonry walls parallel to the roof framing there is blocking that braces the wall out of plane.

However, the interior courtyard walls have an extensive clerestory and the top of the masonry wall is not adequately tied to the roof to provide bracing of the wall out of plane or a load path for roof seismic forces.

Covered Walkways:

The steel framing for The covered walkways uses of 5-inch-by-5-inch steel tube columns and W12x27 wide flange beams. The beams are supported by the columns through a bearing cap plate and four 3/4-inch diameter bolts. The walkways are covered by 5/16-inch-thick plywood sheathing. The columns are embedded in 3-foot-deep footings.

5.5.2 DESIGN CRITERIA

The findings of this feasibility study, based on cost evaluation using IR EB-4, indicate that this program will trigger a requirement for a complete seismic upgrade to the existing building. Under DSA regulations seismic upgrades proceed in two stages. The first stages requires a submittal to DSA that satisfy the requirements of IR EB-3. This submittal will need to include a testing program to verify the in situ properties of the existing building and the design criteria for the seismic upgrade that outlines the analytical and design principals that will be used for the completion of the seismic upgrade. The purpose of this document is to create an agreement between the design team and DSA for the basis of design for the upgrade contract documents. Once this document is approved by DSA then the structural engineering for the seismic improvements may proceed with a final submittal to DSA of drawings, specification and calculations.

5.5.3 SEISMIC UPGRADE REQUIREMENTS

The existing lateral system for this building will need to be enhanced through seismic improvements to meet DSA regulations for existing buildings. There have been two seismic assessment studies performed for this building:

- Interactive Resources Report in 2006
- Thorton Tomasetti Report "Structural Feasibility Study", February 28, 2023

Based on these reports any seismic upgrade solution for this project will need to address at a minimum the following issue:

1. Strengthening lateral load capacity of masonry shear walls
2. Creating a load path for masonry walls below clerestory
3. Bracing walls below clerestory
4. Strengthening roof diaphragm connections to walls
5. Installing new or strengthening existing chords and collectors in the roof diaphragm
6. Improvements to foundation capacities based on new code requirements (omega factors)

There are a range of options available for upgrading main lateral system (Masonry Walls) of the existing facility. Using fiber wrapping to strengthen the shear capacity of the existing masonry walls is one option discussed in previous reports. In consultation with the DSA structural division it was advised that this methodology would require an "Alternate Means of Compliance" submittal to DSA because this material's ICC reports do not explicitly provide testing data for this type of application. Full scale testing of the FRP may ultimately be needed as part of this AMC submittal. A more conventional approach would be to provide new concrete walls along the exterior faces of the building that are tied to the building mass through collectors installed along the roof. This approach would also provide ready access to the installation of new pile foundations for these walls to resist the seismic overturning and would not substantially impact the programming of the interiors.

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5.6 MECHANICAL

5.6.1 MECHANICAL OVERVIEW

The Diablo Vista College Engineering Technology project includes the renovation of two existing classroom buildings, and construction of a new 7,000 SF Math and Engineering Student Center (MESC) in Pleasant Hill, California. The two existing buildings are approximately 32,500 square feet and contain classrooms, computer labs, machine labs, and support areas. These existing spaces will undergo complete renovation including new electrical distribution, lighting, plumbing, mechanical, and additional machine lab equipment. The new MESC building is comprised of approximately 7,000 square feet for open study and classroom spaces.

The mechanical scope of this project includes demolition of existing mechanical systems and the design of proposed systems to meet the latest programming needs. As the exact location of the new expansion has not been defined, mechanical basis of design assumes this area as an addition to the existing buildings.

5.6.2 OUTDOOR AND INDOOR DESIGN CONDITIONS

1. Ambient Weather Conditions
    - The outside ambient conditions that shall be used for design of HVAC and mechanical systems are based on Title 24 Pleasant Hill weather station values below.
        - Climate Zone 3
        - 0.2% Heating DB: 30 °F
        - 0.1 Cooling DB/MCWB: 96 °F /68 °F
        - 0.1% Design WB: 70 °F
2. Indoor Space Temperature and Humidity
    - Occupied setpoints:
        - For occupied spaces:
            - Summer (cooling): 74 °F DB, Uncontrolled relative humidity (max 60%RH expected)
            - Winter (heating): 70 °F DB
    - Unoccupied setback:
        - All occupied spaces shall be capable of having unoccupied temperature setback. (Cooling: 80 °F Heating: 60 °F)
    - Building support spaces such as electrical, telecom, and mechanical rooms:
        - Cooling only. 80 °F cooling setpoint with 4-hour override button to condition space to 74F for extended work in room.
3. Internal Load Criteria
    - The following metabolic rates for sensible and latent heat of people will be used in the load calculations.

Table 5.6.2.1 - Metabolic Rates - People

Space Type	Metabolic Rates	
	Sensible (Btu/h)	Latent (Btu/h)
Labs, Shops	275	475
Classrooms, Offices	250	200

- The following plug loads will be used in the load calculations.

Table 5.6.2.2 - Plug Loads

Space Type	Heat Gain	
	Sensible (W/sf)	Latent (W/sf)
Classrooms	1	-
Offices	0.75	-
Computer Labs/Studio	3	-
Machine Lab	22*	-
Wood Shop	26*	-
Tesla Lab/CNC Lab	15*	-
3D Print & Laser/Polishing Optics	13*	-
Material Testing	10*	-
Construction	5*	-
Elec. Lab	4*	-
Corridors	0.2	-
Restrooms	0.5	-
Electrical, Mechanical, Telecom	TBD in the next phase	-

- The following lighting power densities will be used in the load calculations.

Table 5.6.2.3 - Lighting Power Density

Space Type	Lighting Power Density (W/sf)
Classrooms	0.85
Offices	0.65
Labs, Shops	1
Corridors, Restrooms	0.6
Electrical, Mechanical	0.4

4. Hours of Operation
   - The following schedule of occupancy will be used in the load calculations.
   - Note that over the New Years break, the building is shut down for two weeks.
   - Note that the building is shut down on holidays, except for critical rooms like IT rooms.

Table 5.6.2.4 - Occupancy Schedule

Space Type	Weekday	Saturday	Sunday	Holiday
Labs, Shops	7:00am - 11:00pm	7:00am – 7:00pm	7:00am – 7:00pm	Not Occupied
Classrooms, Offices	7:00am - 11:00pm	7:00am – 7:00pm	7:00am – 7:00pm	Not Occupied

5. Building Envelope and Energy Conservation Criteria
   - The project is located in Pleasant Hill, California Title 24 Climate Zone 3. The following envelope is recommended for the project.

Table 5.6.2.5 - Recommended Envelope For ET

Envelope	Existing Construction U-Values	Code Minimum* (T24) Envelope	Recommended Good Envelope (Project Min. Req)	High Performance Envelope
Roof	U-0.08	U-0.037	U-0.034	U-0.029
Wall	U-0.63	U-0.63	U-0.253	U-0.086
Glazing	U-1.1 SHGC-0.39	U-0.47 SHGC-0.31	U-0.41 SHGC-0.26	U-0.38 SHGC-0.23

*Code minimum for Additions + Alterations construction.

Table 5.6.2.5 - Recommended Envelope For MESC

Envelope	Recommended Good Envelope* (Project Min. Req)	High Performance Envelope
Roof	U-0.034	U-0.029
Wall	U-0.055	U-0.05
Glazing	U-0.41 SHGC-0.26	U-0.38 SHGC-0.23

*Recommended good envelope is based on code minimum prescriptive requirements for New construction.

6. Preliminary Loads:

The following data is provided for informational purposes only, but reflect data collected from record Drawings, field observations and preliminary calculation. Preliminary load calculations are based on the good envelope criteria.

Table 5.6.2.6 - Preliminary Load

Data Source	Cooling Load (Tons)	Heating Load (kBtu/h)
Record Drawings Circa 1971	154	3,000
NAM Report Data	184	3,847
Preliminary Calculations for ET (Good Envelope)	140	1200
Preliminary Calculations for MESC (Good Envelope)	20	200
Preliminary Calculations for ET and MESC Combined (Good Envelope)	160	1,400

5.6.3 MISCELLANEOUS DESIGN CONSIDERATIONS

1. Equipment Access

Provide a minimum of 3'-0" access for and between equipment, including a 3'-0" wide by 7'-0" higpath from the equipment to the door that provides maintenance access.

Equipment shall be located where readily accessed for maintenance, not over light fixtures, ceil ing height partitions, or large, difficult-to-move furniture such as cabinets and desks. Where possible, locate in corridors or over entry doors to rooms where it is assured no furniture will be located below.

Where new equipment is being installed in a new location, or where existing equipment is being replaced and moved to a new location, do not locate any equipment requiring access doors above drywall or other inaccessible ceilings in public areas, conference rooms, etc. (Ceiling access doors are acceptable in toilet rooms and other back-of-house type spaces.)

Where terminal units are relocated, VAV boxes shall not be located over conference rooms and other spaces NC 30 and below. Locate above corridors wherever possible.

Space shall be provided around all equipment for routine maintenance and inspection in strict accordance with recommendations of the manufacturer. Service and maintenance access space and access doors shall not be blocked by conduit, sprinkler lines, cable trays, ceiling hangers, etc.

Ceiling and wall grilles and slots shall be centered with architectural elements and symmetrical.

2. Quality Assurance

All equipment and accessories to be the product of a reputable manufacturer regularly engaged in its manufacture.

All items of a given type shall be the products of the same manufacturer.

Fire, smoke, and fire/smoke dampers shall be UL listed and constructed in accordance with UL

Standard 555 Fire Dampers and UL Standard 555S.

Supply all equipment and accessories new and free from defects.

5.6.4 VENTILATION AND EXHAUST RATES

1. Minimum Ventilation Rates: Minimum ventilation rates shall be calculated in accordance to ASHRAE 90.1, the California Energy Code (CEC), and the California Mechanical Code (CMC). The maximum value calculated from the above standards shall be used.
   - CMC Ventilation rate = [People Outdoor Air Rate] x [Number of occupants] + [Area Outdoor Air Rate] x [Area of space]
   - CEC Ventilation Rate = [Area Outdoor Air Rate] x [Area of space]

Table 5.6.4 - Ventilation Rates

	CMC People Outdoor Air Rate (cfm/person)	CMC Area Outdoor Air Rate (cfm/sf)	CEC Area Outdoor Air Rate (cfm/sf)	DCV Area Outdoor Air rate (cfm/sf)
Labs	10	0.18	0.15	-
Shops	10	0.18	0.15	-
Classrooms	10	0.12	0.38	0.15
Offices	5	0.06	0.15	-
Corridors	-	0.06	0.15	-

2. Minimum Exhaust Rates: Minimum ventilation rates shall be calculated in accordance with ASHRAE 90.1, the California Energy Code, and the California Mechanical Code. The maximum value calculated from the above standards shall be used.
   - Custodial closets shall be exhausted at a minimum of 1 cfm/sf.
   - Copy/printing rooms shall be exhausted at a minimum of 0.5 cfm/sf.
   - Restrooms shall be constantly exhausted at a minimum of 50 cfm/fixture.
3. Design air flow rates shall be based on the highest of the following criteria:
   - Exhaust air requirements
   - Required ventilation air rates
   - Sensible cooling loads
   - Heating loads
4. VAV Zones
   - Minimum air circulation must also be maintained at low load/occupancy conditions

- This shall be with the exception of Server rooms, IT, Copy Rooms & Back of house spaces where minimum setpoint shall be zero and airflow will be dictated by thermostatic controls.

5.6.5 AIR DISTRIBUTION CRITERIA

1. Fire smoke dampers shall be provided where required by CBC or CMC.
2. Smoke dampers and smoke detectors shall be provided in all air systems as required by code and NFPA requirements.
3. Volume dampers shall be provided to facilitate air balancing. Provide at accessible locations a minimum of 5 ft from air terminals to limit acoustical issues.
4. Access doors shall be provided in the ductwork in the following locations.
   - At all automatic control dampers.
   - On both upstream and downstream sides of each reheat coil, sound trap, and in-line fan.
   - On both upstream and downstream side at each duct airflow and pressure measuring device, so that full access is available at every pitot tube (where applicable).
   - At each duct mounted temperature sensor.
   - At fire dampers, smoke dampers, and smoke detectors.
5. Sizing Criteria
   - Louver velocities:
     a. Fresh air intake: 350 fpm maximum through free area.
     b. Relief/Exhaust: 700 fpm maximum through free area.
6. Duct Friction Loss Sizing Criteria
   - General Supply and Exhaust Air branch ducting shall be sized at 0.05 in.w.g.
     a. Main and velocities shall be limited to 1200 fpm.
     b. Riser velocities shall be limited to 1400 fpm.
7. Supply System
   - Insulation will be provided for all air conditioning supply ducts. Blanket wrap will be used in concealed spaces and rigid board where exposed in mechanical equipment rooms.
   - Exposed ducts in conditioned areas do not need to be insulated. Provide mill-phosphatized galvanized ducts in exposed areas that will be painted.
   - All supply ductwork shall be galvanized.
   - No supply air ducting allowed on roof.
   - Flexible duct shall not be used upstream of VAV boxes
   - Downstream of VAV boxes, flexible duct is permitted only where concealed from view and as a max length of 5 feet per CMC.

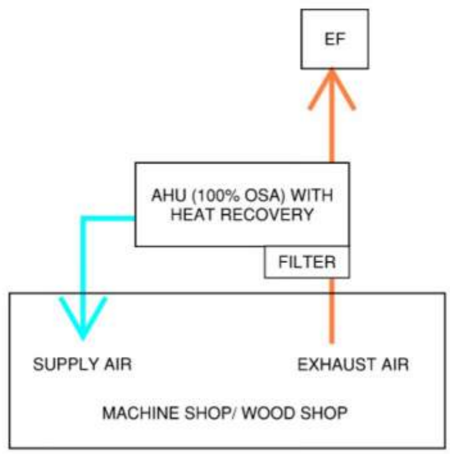
8. Exhaust Air Systems:
   - Room exhaust ductwork shall be constructed of galvanized steel. Provide mill-phosphatized galvanized ducts in exposed areas that will be painted.
   - All exterior duct shall be welded stainless steel duct.
9. Ductwork Exposed to View
   - Only use spiral round or oval duct (no rectangular or flexible)
   - Avoid reducers wherever possible - sizing ducts downstream of VAV box for design airflow and retaining this without fitting for the remaining run.
   - Use Gripple hangers to support ducts.
   - Use clear sealant concealed with joints.
   - For taps, tees, wyes, grilles and similar; conceal duct flanges within duct and avoid using factory constructed tees (cut taps directly into continuous spiral duct)
10. Duct Liner
    - Use duct liner only where required for sound attenuation.
    - For this application this is recommended for 5' plenums downstream of VAV boxes.
11. Separation
    - Exhaust and economizer relief separation shall be in accordance with ASHRAE Standard 62.1.
12. Balancing and Duct Pressure Testing
    - Air Balance:
      a. All air handling systems shall be balanced for specified design flow rate ±5% and system static pressure.
      b. Air balance reports will be submitted for final review and approval.
      c. Testing and balancing will be performed by an independent contractor.
      d. As required, test portions of system to permit finish work.
      e. Leakage not to exceed maximum values identified by SMACNA HVAC Air Duct Leakage Test Manual.
      f. Testing procedures shall be as described by SMACNA HVAC Air Duct Leakage Test Manual.
      g. Test all high-pressure ductwork systems and 25% of all low pressure systems.
      h. Pressure test ductwork to 1.5 times listed fan operating pressure test ductwork before insulation is applied.
      i. Use only manual balance dampers for balancing (no splitters, extractors, or other de vices to be used).

13. Thermal Zoning:
    - Each lab/Classroom shall be a separate thermal zone with dedicated supply air valves. Use of plenum for AHU is acceptable.
    - Offices: No more than four offices on any one thermal zone.
    - Common Areas: Shall be zone per thermal exposure.

5.6.6 AIR SYSTEMS

1. Shop Spaces:
    - Supply air to shops (Wood Shop and Machine Lab) will be provided by 100% dedicated outside air handling units, with heat recovery from filtered general exhaust air from shops

Figure 5.6.6.1 - Air System Diagram for Shops



(Figure 1 below)

- The 100% dedicated outside air handling units will be located at roof level and include:
    a. Outside air damper.
    b. Air flow monitoring to measure outside air.
    c. MERV 8 filter bank (min 4" depth).
    d. Heat recovery wheel.
    e. Heating hot water coils capable of heating incoming air to 55F.
    f. Chilled water coils capable of cooling incoming air to 55F.
    g. MERV 14 filter bank (min 12" depth).
    h. Fan array with variable frequency drive and provide N+1 fan redundancy within the AHU.
    i. Isolation damper with smoke detector per code.
    j. Air handling unit shall be sized at 350 fpm at filters and coils to reduce internal

static pressure.

k. Air handling unit shall be provided with double wall casing construction. Inner wall shall be galvanized sheet metal with the fan section inner wall perforated and insulated, and mylar lining. No thermal breaks in the casing construction and R-19 insulation.

l. Air handling units shall be provided with a convenience outlet for maintenance. Power shall be available for servicing when power to the unit is off.

m. Access doors (minimum 24" wide") shall be provided at all required points.

- Specialty Exhaust:

a. Wood Shop Exhaust:

1. The Wood Shop shall be provided with a dust collection system that serves both equipment exhaust and floor sweeps.
2. Some Wood Shop equipment are provided with dust collection attachments, and these shall be reused.
3. Equipment without dust collection attachments shall be provided with dust collection designed to ACGIH standards and the capture device being 1" from generation source.
4. Provide a minimum of 2 floor sweeps for the space and include damper to operate the floor sweep when in use and close when not in use.
5. The dust collection system shall include space for two waste barrel collection.
6. No redundancy required on dust collection fans.

b. Machine Shop Spray Booth:

1. An existing modular and self-contained spray booth will be reused in the new program.

c. Machine Shop Dust Exhaust:

1. The machine shop has several pieces of equipment that will generate dust (grinders for instance) and while a specific dust collection system is not needed, there is a need to provide directional airflow across the dust producing equipment that can be used when the equipment is in operation.
2. Wall exhaust air plenums are anticipated to facilitate this direction air movement, with ducting up to a roof mounted exhaust fan. Provide filtration of the exhaust air as directed by DVC.
3. Note that make-up air is anticipated to be via louvers to the exterior. Provide MERV 13 filters on make-up air.

d. 3D printing and CNC Machines:

1. Both areas will need dedicated exhaust fans that are interlocked to operate

when the equipment is in use.

2. Equipment exhaust shall be provided with exhaust air fans on the roof.

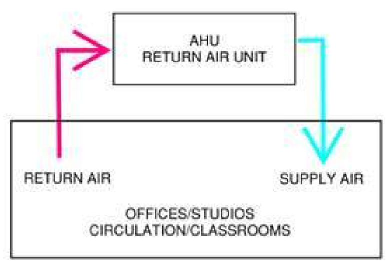
3. Note that make-up air is anticipated to be via louvers to the exterior. Provide MERV 13 filters on make-up air.

4. No redundancy required on exhaust fans.

2. Non-shop Spaces:

- Supply air to non-shop spaces will be provided by (4) recirculating air handling units (Figure below).

Figure 5.6.6.2 - Air System for Non-Shop Spaces



- (1) Additional recirculating air handling unit shall be provided for the new MESC building.
- The recirculating air handling units will be located at roof level and include:

a. Outside air damper.

b. Air flow monitoring to measure outside air.

c. MERV 8 filter bank (min 4" depth).

d. MERV 14 filter bank (min 12" depth).

e. Heating hot water coils capable of heating incoming air to 55F.

f. Chilled water coils capable of cooling incoming air to 55F.

g. Fan array with variable frequency drive and provide N+1 fan redundancy within the AHU.

h. Isolation damper with smoke detector per code.

i. Air handling unit shall be sized at 350 fpm at filters and coils to reduce internal static pressure.

j. Air handling unit shall be provided with double wall casing construction. Inner wall shall be galvanized sheet metal with the fan section inner wall perforated and insulated, and mylar lining. No thermal breaks in the casing construction and R-19 insulation.

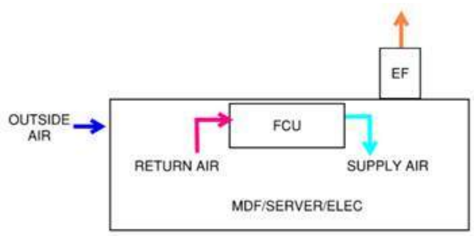
k. Air handling units shall be provided with a convenience outlet for maintenance. Power shall be available for servicing when power to the unit is off.

l. Access doors (minimum 24" wide") shall be provided at all points requiring access for maintenance (i.e. Heating Coil, Cooling Coil, Air Filters, Control Damper).

3. High load unoccupied spaces:

- Spaces with high loads such as mechanical, electrical, and telecom rooms will be provided with cooling only hydronic fan coil units with economizers and exhaust fans (Figure 3 below).
  In the economizer mode, the fan coil unit will be off and the exhaust fan will be on. Outside air will be provided for cooling via a louver with a backdraft damper. In the recirculation mode, the

Figure 5.6.6.3 - Air System for High Load Spaces



outside air louver will be closed, and the exhaust fan will be off. Cooling will be provided by the fan coil unit.

4. The Electronics / Electrical Lab Electronic Storage Room:

- A split system (indoor cooling coil and outdoor roof mounted condensing unit) to be applied to this room to allow for the unit to be used as an instructional air to the students.
- The control and monitoring of this unit shall be adjustable by the students so that measurements and studies can be made.

5.6.7 HYDRONIC PIPING CRITERIA

1. Pipe sizing criteria:

- Chilled Water/Hot water (<2 inch):
  a. Maximum pressure drop: 4 feet head per 100 equivalent feet of pipe.
  b. Maximum velocity: 8 feet per second.
- Chilled Water/Hot water (>2 inch):
  a. Maximum pressure drop: 4 feet head per 100 equivalent feet of pipe.
  b. Maximum velocity (mech. room): 12 feet per second.
  c. Maximum velocity (outside mech. room): 8 feet per second.

2. Pipe material:

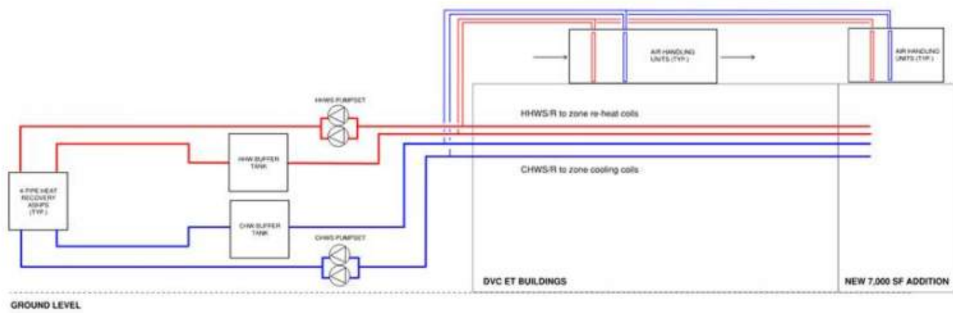
- 2" and smaller: Type L copper. Soldered joints
- 2-1/2" and larger: Schedule 40 steel pipe. Welded or seamless black steel. Welded or

grooved mechanical joints allowed on roof and in mechanical rooms only.

5.6.8 HYDRONIC SYSTEMS

Chilled Water (CHW) and Heating Hot Water (HHW) plant will be 4-pipe modular air source heat pumps, located at the ground level (Figure 4 below). The heat pumps shall be capable of heat recovery and simultaneously produce heating hot water and chilled water. CHW and HHW will be distributed in a variable primary system.

Figure 5.6.8 - Hydronic System Diagram for ET Building



The ASHP plant shall be of modular configuration allowing the system to stage up and down effectively to meet demand. Capacity shall be provided for the future MESC building by dedicated ASHP within the existing module. Hydronic plant equipment (air source heat pumps, pumps, buffer tanks, air separators, and expansion tanks) will be sized based on the total loads of ET and MESC.

5.6.9 CONTROLS

The building will be provided with a full Direct Digital Control (DDC) system to manage the mechanical systems while also monitoring plumbing, lighting, and electrical equipment. System shall be provided by ALC only and be compliant with campus master controls specifications and standards, allowing full integration with existing central campus wide monitoring system.

The Electronics / Electrical shall have monitoring access to the following data to be able to use the electrical infrastructure of the building to be use for lab and demonstration purposes:

1. All MEP motors: Status (ON/OFF), Volts, Amps (per phase), kVA.
2. Building electrical meters as provided per Title 24 and LEED requirements.
3. Lighting Controls: Status and consumption by room.

See 5.5.4-4 for additional monitoring and control requirements for the Electronics / Electrical Lab Storage Room.

Figure 5.6.10.1 - EUI Summary

	Minimum EUI (District Approved Target)	Stretch Target EUI (15% Reduction)
ET and MESC	87	74
ET	95	81
MESC	45	38

Figure 5.6.10.2 - EUI for ET and MESC

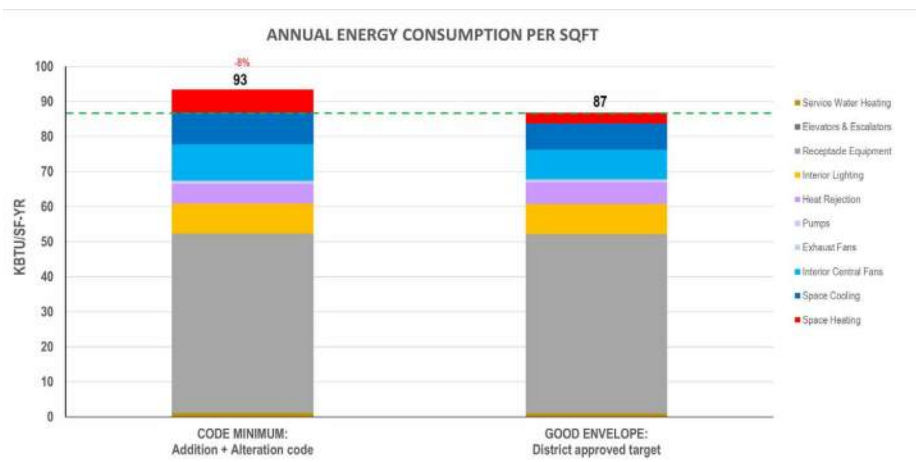


Figure 5.6.10.3 - EUI for ET

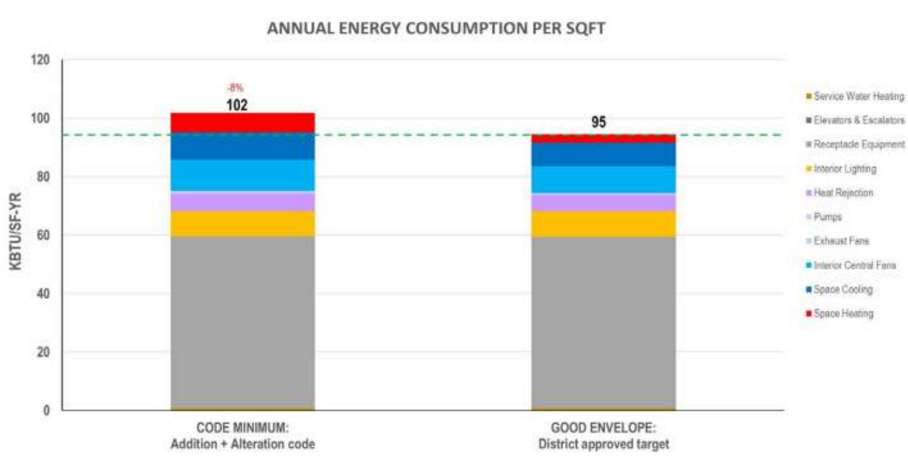
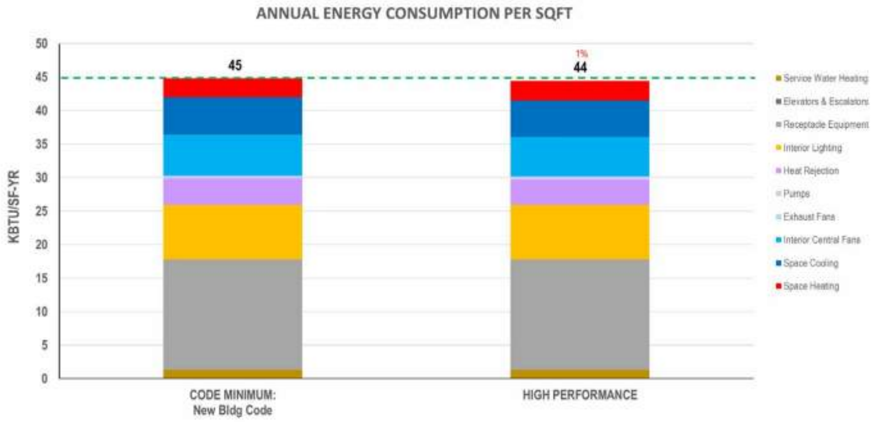


Figure 5.6.10.4 - EUI for MESC



5.6.10 RENEWABLE ENERGY

The following table showcases the photovoltaic (PV) array capacity needed to achieve Zero Net Energy (ZNE) building and to gain all points under LEED renewable energy production credit.

	PV Array Capacity for LEED Renewable Energy Production Credit (All Points)[1] (kW)	PV Array Capacity for LEED Renewable Energy Production Credit (All Points Plus Exemplary)[2] (kW)	PV Array Capacity for Zero Net Energy (kW)
ET and MESC	84	126	838
ET	75	113	750
MESC	8	11	75

1. Based on 10% of annual building energy consumption.
2. Based on 15% of annual building energy consumption.

5.7 PLUMBING

The following narrative describes the plumbing work and materials to be provided for the renovation of the Diablo Vista College Engineering Technology Building and construction of the new Math & Engineering Student Center. The existing ET building has two classroom buildings, referred to as the north wing and south wing, totaling approximately 32,500 square feet. These two buildings consist of classrooms, computer labs, machine labs, and support space and will undergo a complete renovation including new plumbing equipment, distribution, plumbing fixtures, and additional lab equipment. The new MESC building is approximately 7,000 square feet and is planned to consist of office and support space.

Both the renovation and new construction projects will be provided with plumbing systems that are cost-effective, energy-efficient, environmentally friendly, and easily maintainable. Strategies will be employed to conserve energy in conjunction with various sustainability and wellness strategies. Design of the plumbing systems shall promote forward thinking in engineering and be flexible in design incorporating minimum requirements needed to ensure a safe and healthy building while applying guidelines to minimize the environmental impact.

All plumbing systems shall be designed to promote reliability, serviceability, flexibility, and capacity for future renovation. The design of the systems and materials shall not compromise the systems' required cleanliness or purity levels.

5.7.1 GENERAL REQUIREMENTS

Provide isolation valves to facilitate independent shutdown at each wing, restrooms, and other locations as required such service and modifications may be performed without affecting other areas. Each piece of equipment and plumbing fixtures shall be provided with individual isolation valves or fixture supply stops and be provided with 3' wide and 7' high clear maintenance access space.

Maintian a minimum of 6" clearance above finished ceiling height for all pipes, including insulation, to allow space for recessed light fixtures. Ceiling-mounted equipment shall be located where readily accessible for maintainance, not above light fixtures, partitions, or large furniture. Locate equipment in corridors or over doors to rooms as much as possible. Do not locate any equipment requiring access doors above drywall or other inaccessible ceilings in public areas, conference rooms, or high visibility spaces. Space shall be provided around all equipment for routine maintenance and inspection per manufacturer recommendations. Service and maintenance access shall not be blocked by conduit, sprinkler lines, cable trays, hangers, or other appurtenances.

All equipment and accessories shall be the product of a manufacturer that is regularly engaged in its manufacture. All items of a certain type shall be the products of the same manufacturer. All supplied equipment and accessories shall be new and free from defects and damage.

Provide stainless steel escutcheons at piping penetrations of walls exposed to public view. Provide sleeves where pipes pass through floors above grade, roofs, and exterior walls. Sleeves shall be standard weight steel pipe, except for concealed piping through floors not in structural members may be galvanized sheet metal. Floor sleeves shall extend from the bottom of the slab to 2" above the finished floor. Seal between piping and sleeve with fire-rated caulk at all penetrations of fire-rated partitions and floors. Sleeves through outside walls shall be watertight; caulk between uninsulated pipe and sleeve. Size sleeves for insulated pipes to allow full insulation thickness.

5.7.2 DEMOLITION

All existing plumbing equipment and systems shall be demolished, unless otherwise noted in the narrative below, including all pipe hangers, supports, associated controls, fixtures, and other appurtenances.

Domestic water piping shall be demolished back to the isolation valve at its entry into the building for connection to the new design.

Sanitary piping, including below slab, shall be demolished back to the point of connection at the exterior of the building.

5.7.3 DOMESTIC WATER

Table 5.7.3.1 - Domestic Cold Water Piping Design Criteria

Domestic Cold Water Piping Design Criteria	
Velocity (Cold Water)	*Maximum 8 feet per second*
Pipe Material (Below Grade)	*Seamless copper tube, ASTM B88, Type 'K', and brazed joints with PE encasement*
Pipe Material (Above Grade)	*ASTM B88 and ANSI/NSF 61 Type 'L' hard drawn copper pipe and soldered joints*

Table 5.7.3.2 - Domestic Hot Water Piping Design Criteria

Domestic Hot Water Piping Design Criteria	
Velocity (Hot Water)	*Maximum 5 feet per second*
Pipe Material (Below Grade)	*Seamless copper tube, ASTM B88, Type 'K', and brazed joints with PE encasement*
Pipe Material (Above Grade)	*ASTM B88 and ANSI/NSF 61 Type 'L' hard drawn copper pipe and soldered joints*
Insulation	*Hot water piping to be insulated. Concealed piping to be insulated with FSK jacket and exterior and exposed piping to be insulated with aluminum jacket*

There are currently multiple existing points of connection at the ET building. A 1-1/2" domestic cold water line enters the north wing from the east side and a 4" domestic line enters the south wing from the courtyard. A minimum of 35 psi shall be delivered at the most hydraulically remote fixture.

Domestic cold water will also be required at the new MESC building. A new point of connection to the utility shall be provided with backflow preventer and meter.

If not existing, each domestic cold water and hot water service will be independently sub-metered and integrated into the BMS per LEED water efficiency standards.

All sub-meters shall be located inside the building and be provided with three-valve bypass assemblies with a lock on the bypass valve.

Shut-off valves shall be provided on all branch connections and at all equipment connections. Water-hammer arrestors with accessible isolation valve will be provided at all quick closing valves and other potential shock sources. The hammer arresters will be sized and located per PDI standards.

5.7.4 DOMESTIC HOT WATER SYSTEM

The piping layout design shall be based on loop system with valved branches to the central core restroom. The recirculated water loop shall be designed to minimize the amount of time waiting for hot water to reach fixtures with non-recirculated fixture branch piping 'dead-leg' not exceeding 25 feet in length including drop in wall to fixture. Hot water piping will be insulated.

Domestic hot water system will include a tank-type air-source heat pump water heater and recirculation pump with electric tankless water heater on the recirculation line to account for recirculation heat loss and promote stratification of the main storage tank. An electronic central thermostatic mixing station will be provided for hot water distribution set at 120°F. This equipment will be located in the existing mechanical room for the ET and a separate system in an equipment room or closet for the MESC.

Provide BAS control and monitoring of the hot water temperature leaving the mixing valve.

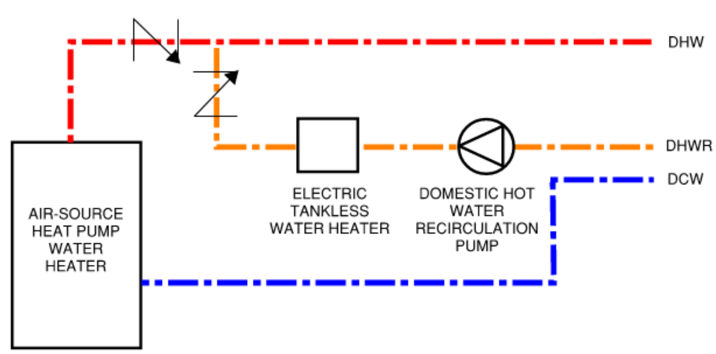
Domestic hot water piping will be extended to all domestic plumbing fixtures.

For remote fixtures, such as the sinks in labs and classrooms in the ET and MESC buildings, provide electric tankless heaters below the fixture.

Temperature valves will be provided to automatically regulate the temperature of hot water delivered to plumbing fixtures used by occupants to a range of 105°F minimum to 120°F maximum.

Hot water delivered into public-use lavatories shall be limited to a maximum of 110°F and will be supplied with an ASSE 1070 thermostatic mixing valve.

Figure 5.7.4.1 - Domestic Hot Water System Diagram



5.7.5 RECLAIMED WATER

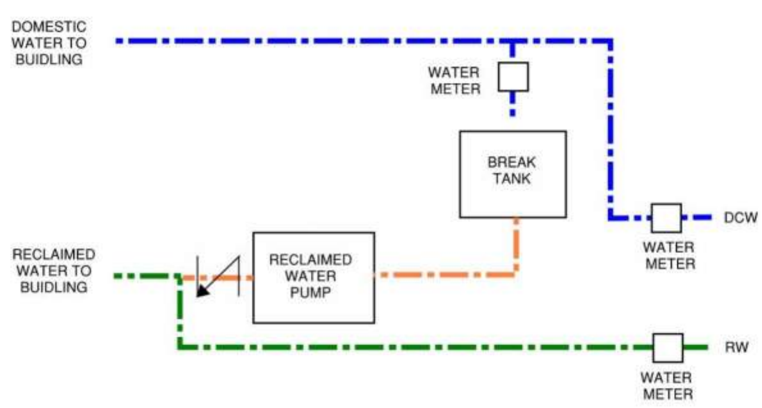
Table 5.7.5.1 - Reclaimed Water Piping Design Criteria

Reclaimed Water Piping Design Criteria	
Velocity (Reclaimed Water)	*Maximum 8 feet per second*
Pipe Material (Below Grade)	*Seamless copper tube, ASTM B88, Type 'K', and brazed joints with PE encasement. Label all piping, valves, and appurtenances per CPC 1505.7.*
Pipe Material (Above Grade)	*ASTM B88 and ANSI/NSF 61 Type 'L' hard drawn copper pipe and soldered joints. Label all piping, valves, and appurtenances per CPC 1505.7.*

Reclaimed water (purple pipe) piping will be provided for water closet and urinal fixture flushing. The reclaimed water utility shall be provided with domestic water through a break tank, located at grade, as a secondary source. All reclaimed water piping shall be painted and labeled as required by Code.

Reclaimed water supply and domestic water back-up feed shall each be sub-metered and integrated into the BMS.

Figure 5.7.5.2 - Reclaimed Water System Diagram



5.7.6 NATURAL GAS

The design team has identified the sustainability goals of reducing greenhouse gas emissions. The intent will be to remove all natural gas piping within the building, valve, and cap the service at the exterior of the building. No natural gas shall be used for any system in the building.

5.7.7 SANITARY WASTE & VENT

Table 5.7.7.1 - Sanitary Waste & Vent Piping Design Criteria

Sanitary Waste & Vent Piping Design Criteria	
Sizing	*California Plumbing Code*
Piping Slope	*Minimum 1/4" per foot*
Pipe Material (Below Grade)	*Hubless cast-iron pipe with CISPI 301 stamp, IAPMO UPC-approved service weight cast-iron, heavyweight no-hub couplings with 4-band stainless steel clamps, PE encasement*
Pipe Material (Above Grade)	*Hubless cast-iron pipe with CISPI 301 stamp and IAPMO UPC-approved service weight cast-iron, heavyweight no-hub couplings with 4-band stainless steel clamps.*

Pipe Type	*Minimum Diameter*
Vent pipe	*1-1/2"*
Buried waste	*2"*
Buried vent	*2"*
Waste pipe penetrating a single floor (located downstream of trap arms)	*2"*
Horizontal fixture branches	*2"*
Trap arms	*1-1/2"*

Floor drains and similar traps directly connected to the drainage system shall be provided with electronic trap primers and shall be accessible for maintenance. Pressure-activated trap primers are not recommended.

Soil, waste, and vent piping support installation shall withstand the effects of earthquake motions. All vents from plumbing fixtures shall extend to the roof per code requirements and shall be located with a minimum 25 feet clearance away from air intakes.

5.7.8 CONDENSATE DRAINAGE

Table 5.7.8.1 - Condensate Drain Piping Design Criteria

Condensate Piping Design Criteria	
Sizing	*California Plumbing Code*
Piping Slope	*Minimum 1/8" per foot.*
Pipe Material (Above Grade)	*ASTM 88 and ANSI/NSF 61 Type 'M' hard drawn copper pipe*
Insulation	*Condensate piping to be insulated within building.*

5.7.9 STORM DRAINAGE

Table 5.7.9.1 - Storm Drain Piping Design Criteria

Storm Drain Piping Design Criteria	
Sizing	*California Plumbing Code*
Piping Slope	*Minimum 1/8" per foot*
Pipe Material (Below Grade)	*Hubless cast-iron pipe with CISPI 301 stamp, IAPMO UPC-approved service weight cast-iron, heavyweight no-hub couplings with 4-band stainless steel clamps, PE encasement*
Pipe Material (Above Grade)	*Hubless cast-iron pipe with CISPI 301 stamp and IAPMO UPC-approved service weight cast-iron, heavyweight no-hub couplings with 4-band stainless steel clamps.*

Existing storm drainage system for the existing building consists of roof drains piped to below grade and the site point of connection. Roof drains shall be replaced and tied into the existing storm drain piping. The design build team shall scope the existing piping conditions and allocate budget to replace 20% of the piping. New overflow drains shall be provided and piped to the exterior of the building and terminated in a visible location.

A new storm drainage system will be provided to convey rainwater from the roof of the new building to a point of discharge at the exterior to the building.

The roof area will be drained to bioretention areas/planters (by Civil).

5.7.10 SHOP AIR

Table 5.7.10.1 - Compressed Air Piping Design Criteria

Compressed Air Piping Design Criteria	
Shop Air	*Copper tube Type 'L', ASTM B88M, seamless tube with brazed joints, silver solder, AWS A5.8*

It is anticipated there will be four air compressors, one serving the Wood Shop, second serving the CNC Lab, a third compressor to serve the Machine Shop, and a fourth to serve the Tesla labs. Exact quality of air provided and sizing of the equipment shall be determined by the design-build team.

Air compressors shall be factory packaged, single point connection, oil-less, triplex scroll compressor with receiver tank, desiccant dryer and pre-and-post 0.01 micron filtration. Compressed air will be generated and distributed at 100 psi via copper piping to labs and outlets as defined by the building program, including dedicated connections to pieces of equipment and general use outlets throughout the lab room (minimum of one general use outlet on the walls of the woodshop and machine shop). Provide pressure regulator at each classroom/shop needing compressed air and individual piece of equipment as required.

Provide BAS control and monitoring of the compressed air system, dryer system and source line pressure and fault status.

5.7.11 PLUMBING FIXTURES

All applicable fixtures will meet the American Disabilities Act (ADA) for accessibility. The design team will use advanced innovative, water-efficient plumbing fixtures to help attain water conservation goals. Plumbing Fixtures shall be highly efficient, decreasing total water demands without negatively impacting the quality of life.

All toilets, urinals, lavatories, and shower heads shall be WaterSense labeled to comply with LEED. Waterless urinals are not recommended.

Any sensor-operated faucets shall be hard-wired.

All floor drains except for toilet rooms and single use showers to be provided with 3" traps.

5.7.12 EMERGENCY FIXTURES

Emergency fixtures will be provided in rooms where corrosive or hazardous materials are handled or as required by the building program. Existing emergency shower/eyewash stations are provided with domestic cold water only and it is assumed the water supply meets the tepid requirement as defined in ANSI/ISEA Z358.1 and therefore, a domestic hot water connection or temperature mixing valve are not required.

Existing emergency shower stations are provided with floor drains. New emergency shower stations shall be provided with floor drains to match existing.

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5.8 ELECTRICAL

The DVC Engineering Technology (ET Building) buildings consist of (2) existing classroom buildings adding up to about 32,500 square feet, anda new 7,000 square foot Math and Egineering Student Center. The (2) existing buildings consist of classrooms, computer labs, machine labs and support spaces. These spaces will undergo a complete renovation including new electrical distribution, lighting, plumbing, mechanical, and additional machine lab equipment. The new addition will consist of open study and classroom spaces.

As the exact location of the new 7,000 square foot buildinghas not been defined, this basis of design report considers this area as a separate building with its own address and meter.. Alternate designs for the electrical service and PV system requirements are defined in this report in case this new MESC building is considered an addition and shares an address with the ET building..

5.8.1 DESIGN CRITERIA

The electrical system design will aim to reduce energy consumption by using lighting controls to turn lighting off when the building is unoccupied and dimming lights where sufficient daylight is available. LEED Requirements mandate that 90% of lighting be dimmable on this project. Receptacle power loads will be turned off in office areas, lobbies, and conference rooms when the building is not occupied to lower power usage. Emergency power off switches will be used in machine rooms and lab spaces with equipment as required. Machine lab equipment to be fed from underground. CNC machines to be fed from overhead.

All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture. All items of a given type shall be the products of the same manufacturer. All equipment and accessories shall be new and free from defects.

5.8.2 PROPOSED ELECTRICAL DESIGN

The following describes the proposed electrical design to be implemented and materials to be selected for the project. It will be provided with a system that is right sized, cost effective, energy efficient, environmentally friendly, and easily maintainable. Strategies will be used to conserve energy and provide high performance indoor lighting along with Title 24 requirements. The electrical design allows for the removal of natural gas from the project. This design also includes the additional equipment added to the machine lab spaces, for the new 7,000 square foot MESC building, and 20% spare capacity for future loads added.

Due to the changes in electrical loads, the existing building service will need to be increased. Increasing the electrical service will require a new, larger medium voltage transformer, and all new switchboards, distribution boards, and panelboards throughout the project. New equipment is required due to the increased electrical loads and the increase in available fault current that will result from the increased medium voltage transformer size.

Power to campus is managed by DVC facilities group. Design build engineer to provide electrical load summary to DVC facilities. DVC facilities shall provide confirmation that the existing medium voltage campus service has capacity for this renovation project.

Below are electrical load summary for the combined ET building, MESC buildingand for the alternative where the the ET building and MESC building are combined. All options below are for all electric buildings.

Load Summary for ET Building

Load Summary		
Load Type	**Connected**	**Demand**
Lighting	31.9	31.9
Receptacle	137.8	73.9
Equipment	29.8	29.8
Special Equipment	221.9	221.9
Computer Labs	97.0	48.5
Mechanical	807.6	807.6
Plumbing	134.0	134.0
Largest Motor (20 HP)	0.0	5.6
Total (KVA)	1428.2	1353.3
Total (AMPS) 480V	1717.9	1627.7
Total + spare		1953.3
Total kVA + spare		1623.9

Load Summary for MESC

Load Summary		
Load Type	**Connected**	**Demand**
(18W/SF Estimate)	126.0	111.5
Mechanical	188.7	188.7
Total (KVA)	126.0	300.2
Total (AMPS) 480V	151.6	361.1
Total + spare		433
Total kVA + spare		360

Load Summary for ET Building and MESC Combined

Load Summary		
Load Type	**Connected**	**Demand**
Lighting	31.9	31.9
Receptacle	137.8	73.9
Equipment	29.8	29.8
Special Equipment	221.9	221.9
Computer Labs	97.0	48.5
Mechanical	941.5	941.5
Plumbing	134.0	134.0
Largest Motor (20 HP)	0.0	5.6
7000 SF Office Addition	126.0	108.5
Total (KVA)	1688.1	1595.6
Total (AMPS) 480V	2030.4	1919.2
Total Amps+ spare		2303
Total kVA + spare		1915

5.8.3 SITE NORMAL POWER DISTRIBUTION

The electrical service for the ET building and MESC building will be provided from the DVC medium voltage distribution at 4.16kV. The preliminary electrical load estimate for the ET building is 1,623.9 kVA. The preliminary load estimate for the MESC building is 360kVA.. This estimate assumes that the 7,000 square foot addition is open study and classrooms and includes 20% spare capacity for future loads. The load estimate also considers all electric HVAC and plumbing equipment to allow for removal of natural gas.

The ET building will have (1) exterior 2000kVA transformer with an exterior 3-phase 250A medium-voltage load interrupter switch on the primary side. The MESC building will have (1) exterior 500kVA transformer with an exterior 3-phase 50A medium-voltage load interrupter switch on the primary side.

Alternatively, if the MESC building is considered an addition to the ET building, they will both be served by (1) exterior 2000kVA transformer with an exterior 3-phase 300A medium-voltage load interrupter switch on the primary. Connection points to be confirmed with DVC due to additional loads added, based on preliminary information the point of connection will be through existing MH-5.

Short circuit rating of electrical equipment shall be based on available fault current at campus medium voltage distribution. If the fault current information is not available, it will be calculated using infinite bus method. The entire electrical system shall be fully rated and selectively coordinated.

5.8.4 BUILDING NORMAL POWER SERVICE EQUIPMENT

The ET building will have (1) 2000A 480/277V, 3-phase, 4-wire switchboard (front access only) located in the main electrical room. The new addition will have (1) 600A 480/277V, 3-phase, 4-wire distribution board located in the new addition space main electrical room.

Alternatively, if the MESC is considered an addition to the ET building, the ET building will be provided with (1) 3000A 480/277V, 3-phase, 4-wire switchboard (front access only) located in the main electrical room. From this switchboard, 480/277V, 3-phase, 4-wire feeders will be distributed throughout the building to supply power to various distribution boards.

Each building will be have separate panelboards. The machine lab will have dedicated panelboards for equipment.

5.8.5 EMERGENCY POWER DISTRIBUTION

Both ET buildings and MESC building will have an emergency lighting inverter with minimum back-up time of 90 minutes for a total of (3) inverters. The south ET building will have a 5kVA inverter. The north ET building will have a 3kVA inverter. The addition will have a 1.5kVA inverter.

5.8.6 UNINTERRUPTIBLE POWER SUPPLY

IT equipment will have rack mounted UPS for safe shut down of IT equipment during loss of power. Rack mounted UPS will support IT equipment on racks and provide a minimum of 30-minute back-up time. DVC shall indicate longer back-up time as needed. In order to meet the minimum 30-minute runtime, UPS shall be sized with increased capacity or with additional battery modules as necessary. Consider additional rack space for extra battery module and/or upsized UPS module.

5.8.7 GENERAL ELECTRICAL MATERIALS

Electrical Equipment

All electrical equipment shall meet the working space and clearance requirements defined in CEC section 110.26.

Distribution panels and power panels will be circuit breaker-type. Molded-case and insulated-case breakers will be used. Bussing will be copper.

The capacities and breakers shall be sized with spares based on the following guidelines:

- Switchboard/Switchgear – minimum 20% spare capacity
- Distribution Boards – minimum 20% spare capacity, 25% spares breakers/spaces
- Panelboards – minimum 20% spare capacity, 25% spares breakers/spaces

Transformers will be provided to convert 480 volt power to 208Y/120 volt for receptacle and equipment needs. Transformers shall be NEMA 1 or 3R as required. Transformers shall be standard high efficiency, NEMA STP TP1 dry-type rated for 115o C rise. Windings will be copper. Transformers shall be floor mounted within electrical rooms, as much as possible. All distribution equipment shall be consistent of the same manufacturer.

Branch Equipment

Disconnect switches will be heavy-duty fuse type.

Magnetic motor starters shall include hand-off-auto (H-O-A) switch, auxiliary contacts, control power transformer, and a motor running pilot light. Starters shall have a minimum inrush rating of 140% of that for a standard motor to meet the NEC requirement for use with energy efficient motors. Loose starter will be combination-type with a motor circuit protector (MCP).

Raceways

- Rigid steel conduit – feeders, branch circuits, exposed.
- PVC – feeders and branch circuit underground.
- EMT – feeder, branch circuits, and low voltage.
- Flexible Metallic Conduit (FMC): May be used in dry locations for connections from adjacent outlet boxes to motors, transformers, vibrating equipment and machinery and lighting fixtures installed in

suspended ceilings, minimum sizes shall be 3/8" for lighting fixtures and control wiring and ½" for motor and transformer connections.

- Liquid tight Flexible Metallic Conduit (LFMC): May be used in damp and wet locations for the same applications as for Flexible Metallic conduit specified under this Section. Connections to all pump motors, solenoid valves, float switches, flow switches and similar devices shall be made using liquid tight flexible metallic conduit. Minimum sizes shall be 3/8" for lighting fixtures and control wiring and ½" for motor and transformer connections.

Conductors

- Provide insulated copper conductors for all wires and cables. Use stranded conductors for AWG #8 and larger sizes.
- Provide minimum AWG #12 Cu for all power and lighting branch circuits. Provide minimum AWG #14 Cu for all signal and control circuits.
- Feeders and branch circuit wiring shall contain a separate green insulated grounding conductor
- Use NEC type THW, THWN or Type XHHW for feeders and branch circuits in wet or dry locations. Use NEC type THHN for branch circuits in dry locations.
- Use NEC type XHHW, rated 90 degrees C in dry locations and 75 degrees C in wet locations, for exterior branch circuit wiring and for circuits served by ground fault interrupting circuit breakers.

Boxes

- Four inch square by 1-1/2" minimum sheet metal boxes for interior use.
- Two inch wide by three-inch long steel switch boxes, ganged together for multiple switches.

Devices

Receptacles – 20 amp, 125 volt, duplex, grounding type, specification grade, convenience outlets. Receptacles shall be white or as specified by electrical identification or architect. Sample of color to be approved by Owner. Provide 20 amp GFCI receptacles in locations where required by code. Controlled receptacles shall be labeled as controlled by an industry standard method.

5.8.8 METERING

Metering to capture load type usage on all switchgear, switchboards, and distribution boards to match existing metering throughout DVC campus. Lighting, receptacles, HVAC and plumbing shall be metered separately. Metering shall report back to campus BMS system and viewing only status in the Electrical Lab. Per DVC, Schneider electric meters will not be allowed on the project. Power distribution equipment shall be provided with additional metering as needed to comply with 2022 Title 24 metering requirements and LEED.

5.8.9 POWER QUALITY

To mitigate electrical noise interference to sensitive electronic equipment generated by heavy machinery such as air handling units, pumps, etc., the following equipment/devices shall be considered in the cost estimate.

Surge Protective Device (SPD) shall be provided in all switchboards, and in all panelboards which serve sensitive electronic equipment (e.g. audiovisual equipment, computers, etc).

Harmonic mitigation for VFD driven motors will be provided as follows:

- For motors less than 5hp, 5% nominal impedance integral AC 3-phase line reactor.
- For motors 5hp up to 40hp, passive inductor/capacitor network/filter which suppresses the characteristic harmonics without the need for individual tuning that are suitable for 6-pulse drives. The cancellation of harmonics will be achieved without requiring phase shifting against other harmonic sources.

5.8.10 GROUNDING SYSTEM

A central grounding system shall be provided for the electrical system, consisting of ground rods, concrete encased electrode and interconnecting cables. Transformer secondaries, ground busses in switchboards and in Telecommunication spaces will be connected at the central ground bus in the main electrical room. Building steel and metal piping systems will be bonded to the grounding system.

Rooms with vinyl floors and sensitive electronic equipment shall be provided with grounding strip.

For an alternate design where the addition is considered a separate building with a separate address, the grounding system will be separate, and a separate central ground bus will be located in each main electrical room.

.5.8.11 ELECTRICAL NOISE AND VIBRATION CONTROL

All building services equipment shall be vibration isolated based on ASHRAE Applications Handbook, HVAC Applications, Chapter 48 'Sound and Vibration' and all standards and references contained therein..

.5.8.12 LIGHTING CONTROLS

The Network Lighting Controls system shall have capability to communicate seamlessly with the

Campus Central Lighting Control system so it can be remotely controlled via the internet or building wide Ethernet LAN by Facility Management Services. The lighting control system shall be capable of demand response per 2022 Title 24 requirements and integrating into the campus BMS system.

All spaces shall have local switches, automatic off controls, dimming controls, and daylighting where applicable. All occupancy sensors to be dual technology. Exterior lighting fixtures will be controlled by photocells and an astronomical time clock.

All lighting controls to be wired. Wireless lighting controls are not allowed on this project. Lighting controls in ceiling shall be aligned with light fixtures and other architectural elements. Only managed network switches provided by DVC may be used.

Below are controls schemes expected per space type:

Classroom Spaces/Computer Lab Spaces/Multipurpose:

- Daylight sensors where required.
- Minimum (2) lighting scene switch with dimming.
- Ceiling occupancy sensor for automatic controls.

Studio/Spaces with machinery:

- Daylight sensors where required.
- Dimming wall switch.
- Automatic time clock for automatic off with override.

Restroom/Locker Room:

- Ceiling occupancy sensor.
- Keyed wall switch.

Support Spaces:

- Daylight sensors where required.
- Wall switch with dimming.
- Ceiling or wall occupancy sensor for automatic controls.

Office < 250 Square Feet:

- Daylight sensors where required.
- Wall switch with dimming.
- Ceiling or wall occupancy sensor for automatic controls.

Lobby/Corridor:

- Ceiling occupancy sensor to dim lighting.
- Keyed wall switch
- Daylight sensors where required.

5.8.13 SOLAR REQUIREMENTS

The prescriptive requirements for a photovoltaic system in the 2022 California Title 24 will apply to the MESC building. This requires the new MESC building to include PV panels on the roof along with battery storage. Per code, the PV system and battery storage system would need to meet the following requirements:

- PV Capacity: 22kWdc
- Battery Energy Capacity 38kWHbatt
- Battery Power Capacity 16kWbatt

Alternatively. if the MESC building is considered an addition to the existing building, the addition will need comply with the solar ready provisions in the 2022 California Title 24. These provisions will require

15% of the roof area (1050 square feet) to be designated as a solar zone for future solar panels. A conduit from the solar zone to the main distribution panel along with space in the main distribution panel for the future solar zone would be included in the project.

5.7.14 LEED REQUIREMENTS

This project will aim to achieve LEED GOLD. Refer to LEED scorecard for points list.

5.9 AV / IT / TELECOMMUNICATIONS / SECURITY

5.9.1 TELECOM

5.9.1.1 OVERVIEW

Diablo Valley College, located at 321 Golf Club Road, Pleasant Hill, CA intends to renovate the existing Engineering Technology 1-story building, totaling approximately 32,500 gross square feet and construct a new 7,000 gross square feet Math and Engineering Student Center (herein "Project"). The building will house Architecture, Engineering, Construction, Mechanical Technology, Electronics and Electronic Technology, Industrial Design, Energy Systems programsDBE shall be provided with "CCCCD IT Standards 270000-General-V3 (Revision 3.0)" document, dated December 2021, for standards and the basis of design.

5.9.1.2 EQUIPMENT SPACES

The Project will not require demolition of existing telecom spaces that serve areas outside the Project's boundary of work. All new infrastructure added to TR rooms will meet the DVC design standards. The DBE should confirm the IDF rooms with district IT services and size of these rooms (following the IT room standards document) after the systems have been engineered, sufficiently, to account for the required data connections.

- TR racks are to be 7 foot tall (at least 43 rack units) and provide vertical rails with threaded holes to support installation of 19-inch equipment and patch panels.
- Racks are to have a load rating of at least 1000 pounds.
- A mixture of 19"x 7'-tall four post and two post racks shall be used.
- 4-Port Racks: A BDF or IDF will always have one 4 post rack mounted flush to the wall where the line of racks begin. Four post racks are reserved exclusively for items such as servers or UPS systems.
- Post Racks: The BDF or IDF will have 1 or more 2-post racks depending on the number of horizontal cables served from the TR. Patch panels, copper termination, or fiber termination panels should only be installed in two post racks.
- Between each rack and at the end of each row of racks provide vertical wire managers at least 6 inch wide and 19 inches deep, with hinged cover doors that swings in either direction and with continuous fingers permitting cabling to enter the sidewalls of the manager. One rack unit horizontal wire management will be mounted on the front of the rack between patch panels and below each network switch. Network requirements for all systems must be included in overall IT port counts for IDF sizing.
- Racks shall be placed side by side with no spaces between and no racks standing alone.
- No more than (6) 48-port CAT 6A cable patch panels shall be placed in a two-post rack.
- For each new 4-post rack added to a TR (as needed):
- Provide one dedicated 120 VAC, 20-amp (non-switched) quad receptacle box and dedicated circuit above each rack.

- Provide a minimum of two 220 VAC, 30-amp twist lock receptacles and dedicated circuits at the top of each rack. The 220 receptacles shall be coordinated with District IT for receptacle type at time of installation. These receptacles should be mounted above rear of the racks.

- For each new 2-post rack added to a TR (as needed):
  - Provide one dedicated 120 VAC, 20-amp (non-switched) quad receptacle box and dedicated circuit above each rack.
  - Provide a minimum of one 220 VAC, 30-amp twist lock receptacles and dedicated circuits at the top of each rack in each TR. The 220 receptacles shall be coordinated with District IT for receptacle type at time of installation. These receptacles should be mounted above rear of the racks.
- The placement of the device box and its conduit shall not block or interfere with the rack's equipment mounting area (rails) on either side of rack.

5.9.1.3 BASE BUILDING PATHWAYS

Campus telecommunications connections exist, which will remain in place. The Project will not require new or renovations to the telecommunications campus infrastructure. All new infrastructure added will meet the DVC design standards.

- Pathway design coordination.
  - The District has selected Category 6A as its cable standard for new construction and where complete building remodels make it possible to scale up the conduit and ladder rack systems. Where Category 5 or 5E is being replaced, Category 6A should be utilized with the existing conduits and ladder racking. If ladder racking and/or conduits are missing those should be addressed and changed per the 4CD standards.
- Interior TR pathway.
  - Cable Tray should be used within TRs to provide cable run management. All cable trays shall be a minimum 12” wide.
  - Cable tray shall meet Zone 4 or higher seismic bracing standards.
  - All trays must be bonded and grounded to the Telecom Grounding and Bonding System.
  - Cable tray layout design shall be reviewed and approved by District IT.
- Primary horizontal cabling pathways.
  - Primary horizontal cabling pathways are major pathways that transport drop cables from the TR to secondary horizontal cabling pathway. They are usually constructed using cable tray; however, conduits can be used when it is necessary for the pathway to cross over a hard-lid ceiling.
  - At a minimum, primary horizontal pathways will always require pathway fire-wall penetration fire-stop technology through the TR walls into the occupied space of the floor the TR serves. Other wall penetrations may be required depending on the wall/ceiling layout of the TR's

drop service area.

- These primary horizontal cabling pathways should be routed following building lines and major floor access routes such as corridors and hallways. They should not cross over floor space designated as end user work area such as offices, work cubical areas, or classrooms.
- Access for cabling personnel and technicians that is sufficient for easy cable placement yet causes minimal disruption to floor occupants is a critical design consideration when laying out the routing of primary horizontal cabling pathway.
- Concealed cable tray systems may be used but are not recommended due to the potential for long term maintenance issues, increased costs of plenum rated materials, increased installation labor costs, wire damage and fire code violations. If cable trays are located in a ceiling that is a return air plenum, the wire and cable used shall be specified as plenum wiring, listed for use in an environmental air space by its manufacturer.
- Supports shall be installed no more than 5 feet apart and within 2 feet of any fitting.
- Cable tray shall be installed with 4-inch cable fence on both sides of the tray placed in main corridors throughout the floor allowing the shortest cabling distance from the tray to the drop conduit. Basket type cable tray is an acceptable option.
- Cable tray shall be readily accessible and placed in ceilings that utilize removable tile. If transition over solid or inaccessible ceiling is required, access hatches of a minimum of 24" x 24" should be installed every 15 feet or continuous 4-inch conduits should be used to span the inaccessible ceiling area.

5.9.1.4 CABLING

- Fiber Optic Riser cable used for data networking shall consist of a minimum of twelve multimode (50/125um) and minimum twelve Single-mode (8.3/125nm) optic fibers from the BDF to each TR in the building. This fiber is only to be used for wired and WiFi data networking. If there are fiber optic needs for other building services, those needs must be discussed and approved by District IT.
- The fiber that serves the ET building is quite old and potentially brittle. DBE to discuss with District IT the potential of installing replacement or upgraded fiber from Library to ET building.
- Jacks are to be color coded for easier identification and administration based on the following color list:
  - Voice - white jacks (offices and conference rooms)
  - Data in Administrative Areas and Offices - blue jacks (blue is default)
  - Data in Instructional Areas - yellow jacks
  - Classroom Notification System – orange jacks
  - Wireless Access Points - green jacks
  - Security – black jacks
- Table I shows the count for drops, jacks, and jack colors needed depending on the usage for each room.

Table I
Drop Cable Counts

Room Usage	Minimum drop(s)	# of Jacks per Drop	Jack Color	Notes
Standard Lecture Classrooms				
Teaching oriented wall	1	3	Yellow	Coordinate with multimedia plan
Non-teaching wall	1	3	Yellow	
Projector	1	2	Blue	
Instructor's podium	1	3	Yellow	Coordinate with multimedia plan
Classroom Notification speaker	1	2	Orange	See classroom notification section below for details.
Instructional Lab				Typically sized for 40 student computers plus 1 instructor computer and several printers/scanners
Instructor	1	3	Yellow	
Students	1	1	Yellow	Plus 1 spare drop per grouping of student workstations
Printer/Scanner	1	2	Blue	
Classroom Notification speaker	1	2	Orange	See classroom notification section below for details.
Self-Study Lab				
Students	1	1	Yellow	Power must be provided at each location
Printer/Scanner	1	2	Blue	
Student Carrels				
Students	1	1	Yellow	Power must be provided at each location.
Printer/Scanner	1	2	Blue	
Single Person Office				

Table I
Drop Cable Counts

Room Usage	Minimum drop(s)	# of Jacks per Drop	Jack Color	Notes
Single Person Office with Meeting Space	3	3	Blue	On opposing, non-door walls. Also a drop shall be installed, normally at 18"AFF, for meeting table.
Single Person Office	2	3	Blue	On opposing, non-door walls.
Single Person Modular Furniture	1	3	Blue	
Two Person Office				
Modular Furniture	1	3	Blue	
Network Multi-Function Printer	1	2	Blue	For office/cubicle areas determine where a networked, centralized, multifunction printer/scanner will be placed. Ensure WAO and appropriate power for placement.
Conference Rooms				
Presentation Wall	1	3	Blue	Coordinate with multimedia plan for the room.
Projector	1	2	Blue	
Mounted TV/Display	1	2	Blue	Flush mounted biscuit and appropriate power. Coordinate media connections with multimedia plan for the room.
Under Table	1	3	Blue	One floor mounted communication outlet box as well as an electrical outlet to allow access under the conference table per 6 ft of table.
Walls	1 per 10 feet	3	Blue	
Work Rooms				
Throughout the Workroom			Blue	Along counter tops where devices and printers shall be placed, communications outlets, with appropriate electrical outlets, will be distributed every six feet. Depending upon the size and configuration of the room, District IT will define the number of wired connections required. These will be placed at +6" above counter height. For self-standing copier machines, a communication outlet will be provided with appropriate dedicated electrical outlets.
Large Indoor Gathering Spaces				
Classroom Notification Speaker	1	2	Orange	See classroom notification section below for details.
Mounted TV/Display	1	2	Blue	Flush mounted biscuit and appropriate power. Coordinate

Table I
Drop Cable Counts

Room Usage	Minimum drop(s)	# of Jacks per Drop	Jack Color	Notes
				media connections with multimedia plan.
Moderator / Podium	1	3	Blue	To be coordinated with multimedia plan.
Other Data Locations				
Mounted TV/Display	1	2	Blue	Flush mounted biscuit and appropriate power. Coordinate media connections with multimedia plan.
Wireless Access Point	1	2	Green	Shall be installed 12" below the ceiling but not to exceed 12' above the finished floor. This shall take the form of a flush-mount outlet. This outlet can be located above a false ceiling. Variance needs to be requested below 8' on a wall. For the longevity and safety of the WiFi system, access points must be mounted further than 12" from any metal or wire mesh surface. The location of the access point will be discreetly marked on the ceiling to enable technicians to find the access point without lifting tiles. Placement of Access Points is entirely dictated by the Wireless heatmap based Design.
Security Camera	1	2	Black	Pathway and routing to these security devices will be designed on an individual basis. Cables shall be terminated in suitable biscuit boxes.
Access Control to Individual Doors	1	2	Black	Pathway and routing to these security devices will be designed on an individual basis. Cables shall be terminated in suitable biscuit boxes.
Open Corridor or Lobby Workspace	1	3	Blue	
Building Maintenance Areas				Electrical rooms, security rooms, mechanical rooms, control rooms, boiler rooms, and garages.
Building Management Systems	1	2	Blue	This shall take the form of a flush-mount outlet coordinated with layout of equipment on wall.
Mechanical Room	1	2	Blue	This shall take the form of a flush-mount outlet coordinated with layout of equipment on wall.
Electrical Room	1	2	Blue	This shall take the form of a flush-mount outlet coordinated with layout of equipment on wall.
Security Systems	1	2	Black	This shall take the form of a flush-mount outlet coordinated with layout of equipment on wall.
Fire Alarm Systems	1	2	Black	A dedicated 1" homerun conduit shall be run from each fire alarm panel to the TR horizontal cross connect.
Intrusion Alarm Systems	1	2	Black	A dedicated 1" homerun conduit shall be run from each intrusion alarm panel to the TR horizontal cross connect.
Elevators	1	2	White	A dedicated 1" homerun conduit shall be run from the TR to the elevator equipment room and connected to a 2"W x 3"H x 2-1/2"D single gang box adjacent to the elevator equipment. Elevator voice instruments are normally provided by District IT. The design professional should consult with District IT concerning the district instrument of choice.
Storage Spaces	1	3	Blue	If storage space is large enough to be repurposed as office, it needs to be designed with Office standards above.

5.9.1.5 LABELING

Labeling requirements will be determined based on existing conditions and DVC standards. Final cable labeling scheme to be approved by DVC IT prior to installation of Low voltage contractor.

5.9.2 AUDIOVISUAL

The promary basis of this criteria is the Classroom Design Standards document published on January 19, 2018, with technological updates pursuant to current technology.

The design criteria and goals support the "Tech-Enabled" initiative:

Focus on developing a minimum standard for technology and other equipment in the classroom primarily addressing the needs for audio-visual and other technical methods. Furnishing a variety of simple/ standardized instructional equipment in appropriate quantities to support all sizes of classrooms including interactive audiovisual systems. Network requirements for all systems must be included in overall IT port counts for IDF sizing. Only managed network switches used and supplied by owner.

5.9.2.1 DESIGN CRITERIA AND GOALS

The design goals are based on programming meetings with the design team, industry best practices, and TEECOM's experience on similar Contra Costa Community College projects.

This section is intended to assist the team in understanding the scope and nature of the AV systems envisioned for the project.

Presentation and Video Conference functionality primarily based on Classroom Design Standards

- Operate with minimum maintenance and maximum availability.

Quality

- High-quality image reproduction
- Clear and intelligible program (sound associated with presented video) and speech audio in all spaces.

Operation

- Simple and intuitive operation with a consistent experience.
- Ergonomic operation for the instructor at an AV equipped instructor desk.

Expansibility

- Infrastructure designed with future capabilities, expandability, and technologies in mind, based on present and foreseeable user requirements.

5.9.2.3 AV SYSTEMS DESCRIPTIONS

This section encompasses audiovisual systems for classrooms and other audiovisual spaces. The spaces are identified as follows:

- Design Studio
- Typical Classroom
- Construction Lab
- Electronics Lab
- Woodshop
- Robotics
- Tesla Start
- Machine Shop
- Materials Testing Lab
- Typical Computer Lab

5.9.2.3 AV SYSTEMS DESCRIPTIONS

Instructional Spaces and Laboratories

1. Display:
   a. Large Classrooms: A video projector, or multiple video projectors will be mounted to the ceiling on a fixed mounting pole(s). Projection screen(s) will be recessed, tab-tensioned, and motorized screen.
      I. Use AVIXA DISCAS calculation to establish the baseline size for projection screens in large rooms
      II. Alternatively, certain large rooms such as the Machine Shop, may prefer the use of flat screen monitors (maximum of 65”) since there will not be any practical line of site viewing for the whole room, and students may gather in smaller groups to view digital content
   b. Computer Classrooms: Supplement or replace the video projection system with multiple flat panel monitors mounted high on the walls to allow students to view instructional content above the sightlines of their local monitors. These displays should be centered at approximately 12’, or placed at the end of rows of seated student desks.
   c. Medium/Small Classrooms: A large flat panel display or short-throw projection system will be wall-mounted on the presentation wall sharing space with the whiteboard.
2. Audio:
   a. Sound will be reproduced through ceiling loudspeakers.
   b. Assisted Listening: An RF-based, ADA-compliant assisted listening system is used for the

instructional spaces, either portable or built-in (depending on the size of the room).

3. Source material: Each room will include:
    a. Two computer inputs at the lectern/teacher desk, mounted underneath with cabling for connecting a computer.
    b. HDMI input with HDCP compatibility
    c. Sources will be routed through a 4x2 AV matrix switcher.
    d. If multiple monitors are installed, a single source will be distributed and will required distribution amplifiers (splitters).
4. Control: Touch screen will be used for system control and simultaneous viewing of computer content. The screen will be mounted to the instructor station.
    a. Control buttons shall be: On/Off, Input, Vol Up, Vol Dn., DVD player controls.
    b. Connect the control system to all equipment capable of being controlled, including the d projection screen.
5. Instructor station:
    a. The AV equipment will be installed in a lectern/desk combo provided by the Owner.
    b. The connectivity for this desk will typically be on an adjacent wall. In cases where the desk is not located at a wall, floor box/poke through connectivity will be required.

Upgrade Considerations

Depending on budget, the following upgrades should be considered:

1. Ceiling microphones for voice-lift and conferencing; rooms like the Machine Shop may require this more due to high noise levels. .
2. A wireless microphone for the instructor
3. Audio DSP (Digital Signal Processor) to support conferencing for larger rooms with ceiling microphones.
4. A PTZ Camera with auto-tracking for conferencing and remote learning.
5. USB-AV bridging for the instructor PC for conferencing with the upgraded AV equipment.

5.9.3 SECURITY

5.9.3.1 OVERVIEW

Electronic Security System

Diablo Valley College utilizes Software House CCure 9000 access control and alarm management system (ACAMS), Qognify video surveillance system (VSS), and DSC Power Series intrusion detection system (IDS). This project will be an expansion of the existing systems and includes security scope related to the Engineering Technology Building Renovation.

- Implementation References:
    - The electronic security system implementation will comply with national, state, local and other binding building and fire codes, including the following:
        - National Fire Protection Agency (NFPA)
            - NFPA 75, "Protection of Information Technology Equipment"
        - California Code of Regulations (CCR) Title 24, California Building Standards Code
            - Part 2, "California Building Code" (CBC)
            - Part 3, "California Electrical Code" (CEC)
            - California Fire Code (CFC)
            - California Mechanical Code (CMC)
        - FCC Regulations:
            - Part 15 – Radio Frequency Devices & Radiation Limits
            - Part 68 – Connection of Terminal Equipment to the Telephone Network
        - Underwriter's Laboratories (UL): Applicable listing and ratings.
            - UL 294: Access Control System Units
            - UL 1076: Proprietary Burglar Alarm Units and Systems
            - UL 2044 Commercial Closed-Circuit Television Equipment
        - Illuminating Engineers Society of North America (IESNA)
- Design Approach
    - The design of the electronic security system will be based upon Contra Costa Community College District's Security Design Guidelines, 2018.
    - The electronic security system will be an expansion of existing systems/products.
    - The electronic security system will use Diablo Valley College's network/infrastructure to communicate.
    - The electronic security system will utilize Open Supervised Device Protocol (OSDP) card readers and access panels as well as Power over ethernet card readers with integrated locking hardware, and alarm initiating devices. All security systems (ACAMS, VSS, and IDS) will be integrated via a software solution.

The security systems integrator shall fulfill the following requirements.

5.9.3.2 GOALS AND POLICES

Project Goals

- Protection: Provide enhanced protection of the owner's staff, visitors, and assets within and around the Engineering Technology building.
- Flexibility: Provide the ability to interface with other building systems such as fire and life-safety systems, Owner's WAN/LAN, electrified door hardware, and electrical power,
- Scalability: Provide expandability to support security system growth and enhancement.
- Cost Efficiency: Utilize commercial off-the-shelf products (where possible) that are supported by multiple dealers or Value-Added Resellers (VARs) through a competitive bid process.
- Efficiency: Improve security operation efficiency by staff.

Security Policies

- Building Access
  - The Engineering Technology building will be secured by the ACAMS. All access-controlled openings shall be programmable to lock and unlock on a schedule and must be equipped with a push button or other override device on the secured side of the door that overrides the card reader and locks the door. Activation of the push button or override device generates an alarm event and locks the door.

5.9.3.3 ELECTRONIC SECURITY SYSTEMS (ESS)

The following electronic security systems will be utilized for the Diablo Valley College Engineering Technology Renovation project:

- Access Control and Alarm Monitoring System (ACAMS)
  - System Description
    - Diablo Valley College currently utilizes Software House CCure 9000 access control and alarm monitoring system (ACAMS), and this project will expand the existing system. The Software House CCure 9000 application software is running on an existing server managed and maintained by the Diablo Valley College Security System Administrator.
    - Diablo Valley College Security Staff will monitor and grant access to designated users through Software House CCure 9000 (Client) software running on existing workstations. The Software House CCure 9000 system will control access to the building perimeter, classrooms, and utility spaces (MDF, IDFs, electrical rooms, mechanical rooms, and storage rooms). The ACAMS will generate and manage alarms, produce reports, and monitor the status of designated points.

  - The ACAMS shall also enable alarm event recording and automatic camera call up from the VSS and provide secondary alarm monitoring and alarm partition control of the IDS panels through software integrations.
  - The ACAMS will utilize LAN/WAN topology and will communicate between the access control panels and ACAMS server across the District's network. This configuration will allow future flexibility in monitoring locations, integration with other building systems, and the ability to be scaled as needed to support future electronic security system requirements.
  - Diablo Valley College will utilize its existing access control cards, as well as, 100 new fobs that are to be provided as part of this project.
  - New software licenses will be required for additional card readers/access control panels.
  - The ACAMS will support both OSDP access control panels and hard-wired card readers, as well as, PoE card readers with integrated locking hardware. Typically, hard-wired card readers are to be installed at exterior openings while PoE card readers with integrated locking hardware are to be installed at interior locations such as classrooms. Coordinate with Diablo Valley College Security Staff to determine the appropriate device for each opening. Utilize the manufacturer's recommended network cabling to support the PoE card reader with integrated locksets.
  - Card reader-controlled openings shall be programmable to unlock and lock on a schedule, bypass alarms, and enable ADA actuation devices. Program the system such that double tapping with a valid credential shall enable "office mode," and unlock the opening for an agreed-upon duration.
  - Additionally, card reader-controlled openings must have the capability to disable the card reader and lock the door from the secured side using a mechanical or electronic push button. Activation of the override device shall generate an alarm event in the ACAMS, override the card reader, and lock the door.
- Equipment and Devices
  - Provide Software House CCURE 9000 Software Licensing as necessary for a complete and functioning system.
  - Provide licensing to support security workstations provided by Diablo Valley College to support the ACAMS, VSS, and IDS systems. Workstations shall exceed manufacturers' minimum recommendations for processing power, RAM, and on-board storage.
  - Provide Software House controllers, input/output and reader modules.
  - The ACAMS will utilize multi-format (NFC, Bluetooth, iCLASS 13.56 MHz, and 125kHz) hard-wired card readers that are the latest version of OSDP functionality as well as PoE card readers with integrated locking hardware.
  - Provide double-pole, double-throw door monitoring contact switches to signal both the ACAMS and IDS, as well as interfaces to electrified door hardware at designated

locations.

- Provide all ACAMS devices with four-state End of Line (EOL) resistors to monitor status/ tamper of devices.
- Provide door contact on each leaf of electronically secured doors.
- Coordinate with Door Hardware Designer to ensure compatibility with PoE card readers with integrated locking hardware and that electronically secured doors have REX switch integrated in door hardware. Division 8. Shall provide door hardware with integrated REX.

- Operations
    - The ACAMS will integrate through software with the VSS and IDS systems to provide an automatic display of an associated VSS camera view based upon a selected ACAMS event.
    - Security devices will connect to a smart power supply enclosure in the nearest IDF room. Power supplies shall be smart, network-based power supply enclosures with dual voltage power supply and access control modules in a single enclosure. Provide sufficient battery backup to support supported devices. Supervision of power supplies and batteries are required. Security enclosures shall be monitored for tampering by the ACAMS via an installed tamper switch.
    - Card readers shall control access at the following locations:
        - Main perimeter entry/exit doors.
        - Exterior elevator hall call buttons.
        - Other perimeter doors frequently used by staff.
        - MDF, IDF, and data rooms
        - Lecture halls, laboratories, and rooms with high-value instructional technology
        - Staff administrative spaces including Administrative Offices, Accounts Receivable
        - Financial Aid, Counseling, and Information Services Departments
        - Other rooms where staff handle or store cash and other assets.
        - Classrooms and computer labs
        - Faculty office suites (individual offices to be controlled by hard key)
    - On the secured side, provide mechanical or electronic push button to disable the card reader, lock the door, and generate and alarm event.
    - Coordinate with Diablo Valley College Security Staff to define and program a schedule for locking and unlocking access-controlled opening, bypassing alarms, and enabling auto operators.
    - The ACAMS will monitor emergency exit-only doors utilizing door position contacts and local audible alarms. Security staff will monitor the system from the designated security

workstation.

- Local alarm devices will only sound when the door is held open for an Owner specified amount of time and upon a forced door alarm event. Local alarm devices will reset when the designated door is closed or when the alarm is remotely reset via security ACAMS from security workstations. Coordinate with Diablo Valley College Security Administrator for held open timing.
- Auto-operators shall be interconnected with the ACAMS for secure after-hours operation by interlocking the exterior ADA push plate or motion sensor with the aux relay on the local lock power supply. When the door is locked the exterior push plate or motion sensor is disabled. When the door is unlocked, the push plate or motion sensor is enabled.
- Coordinate with the Fire/Life-Safety system contractor to provide a fire interface relay to automatically drop power to electric locks for all doors in the path of egress upon alarm activation of the Fire/Life-Safety system.
- Doors and locking hardware must be coordinated with Diablo Valley College, Architect, and Door Hardware Designer to generate a door schedule containing Fail/Safe and Fail/Secure information per door. Provide door schedule as part of a device schedule in the submittal phase.
- Door Hardware:
    - Setup and conduct a door hardware coordination meeting with the Division 8 contractor.
    - Document the results of the door coordination meeting and ensure that all door hardware coordination items are resolved prior to installation commencement.
    - Coordinate the installation and termination of security cabling with the installation of electric door hardware and transfer hinges.
    - Door Hardware Designer must provide door hardware integrated with REX switch.
- Programming:
    - Contractor, Design Engineer, College CM, and the District shall hold a meeting prior to the completion of construction to address the programming criteria and access to the District's head end. Topics to be discussed shall include but are not limited to the following:
        - Door Names
        - Device Names
        - Alarm groups
        - Schedules and time codes
        - Action/responses from individual input points
        - Action response from card commands

- Alarm groupings for programming and reporting

- Contractor shall program and setup all system hardware such that no additional programming other than entering new access cards, time codes, and adding doors to existing access privilege groups is required.
- The table below lists the standard ACAMS door typology as defined by Diablo Valley College. Each typology is identified by the unique number in the door type column. All door types include intrusion monitoring. For programming, the Contractor shall use the defined typology as a starting point for coordination with the end users.

Door Type	Description	How it Works
1	Card Reader Door with Standard Proximity Reader (no keypad)	Can be programmed to unlock/lock on a schedule. When not scheduled unlocked, a card or fob must be presented to unlock the door. Door includes capability to disable card reader by using a push button or other override device on opposite side on interior of door. Activation of the push button or override device generates an alarm event and locks the door.
2	ADA Card Reader Door with Standard Proximity Reader	Uses a card reader, like “1”, but in conjunction with an automatic door operator.
3	Scheduled Unlock Door	Automatically locks or unlocks on a schedule that has been programmed into the ACAMS. Door includes capability to lock the door by using a push button or other override device on opposite side on interior of door. Activation of the push button or override device generates an alarm event and locks the door.
4	Monitored Door with Authorized Exiting	Allows for egress without an alarm, no re-entry through these doors, typically no exterior trim on this type.
4.1	Emergency Exit Door with Local Alarm	Monitored like “4”, exiting through this door will set off an audible alarm near the door as well as at the ACAMS and IDS.
4.2	Emergency Exit Door with Local Alarm	Monitored like “4”, exiting through this door will set off an alarm at the ACAMS and IDS.
5	In/Out Standard Proximity Reader with Door Management Alarm	A card or fob must be presented to use this door to exit or enter, otherwise an audible alarm near the door will sound.
6	Proximity Reader Sliding Storefront	Card reader outside to enter, momentary key switch inside to exit, magnetic lock on the first sliding panel.

    - Program any Type 3 scheduled unlock doors which access the same space as a Type 1 or 2, card reader door to unlock when the space is switched to an unlocked/disarmed state via card reader conditional commands.
    - Program the ACAMS software to make conditional commands a function of the control panel instead of a server function. Conditional "if" statements shall have up to eleven "then" commands.
- Manufacturers:
  - Card Readers (hard wired): HID Signo Readers #20, #40, #40K - supports mobile credential powered by Seos, Near Field Communication (NFC), Bluetooth, 13.56 MHz,125 kHz, and latest Software House compliant version of OSDP encryption between panel and card reader. Configured to read both iCLASS 13.56MHz and 125kHz cards.
  - Card Reader (PoE Card Reader with Integrated Locking Hardware): Assa Abloy, Software House compliant, PoE.
  - ACAMS Controller: Software House iSTAR Ultra Controller, I8 input module, R8 output module, RM-4E reader interface module
  - ACAMS Power Supply: LifeSafety Power dual voltage unified power supply - compliant with the latest Software House modules.
  - Door Contacts, Double Pole, Double Throw: Interlogix #1076D, #2205, or equal
  - Local Alarm: DSI #ES4200; include custom backbox
  - Lockdown button: STI Stopper Station, yellow, with cover, or equal.

5.9.3.4 VIDEO SURVEILLANCE SYSTEMS (VSS)

Video Surveillance System (VSS)

- The VSS will be an extension of the existing Qognify video management system, consisting of video recording/storage system, workstations, software, licensing, cameras, and mounts
  - Diablo Valley College will provide the required network video recorders in a centralized telecommunications or server room on the campus. Contractor shall provide storage calculations for cameras being added as part of this project and assess the existing system's capacity to support the additional devices. As needed, provide recommendations for additional network video recorders to be procured by Diablo Valley College. Contractor to install any necessary VSS software on Diablo Valley College-provided hardware. Provide software licenses to integrate VSS with ACAMS and IDS, as well as for the quantity of cameras required for the project.
  - Provide and install a minimum of two VSS remote viewing programming licenses to allow Diablo Valley College the ability to view camera images via web-based client or mobile device. Workstation to be provided by Diablo Valley College.
- Recording / Video Storage

All VSS cameras will utilize the Diablo Valley College's LAN/WAN. Connect them to Diablo Valley College-provided PoE switches and utilize Category 6 cables provided by the network cabling contractor from network switches to each VSS camera. Coordinate with District IT regarding all programming for cameras and access control.

- Contractor shall provide storage calculations for all VSS camera views to be recorded for a minimum of 30 days at 1 frames-per-second (fps). It must also record 10 seconds pre and post event recording at 15 fps on high motion detection. All videos must be recorded at full resolution. Coordinate with Diablo Valley College IT staff to review existing server capacity.
- Diablo Valley College to provide commercial off-the-shelf video servers for all cameras required by the project and meeting previously listed requirements. Contractor to demonstrate storage requirements with submittals prior to procurement.
- Contractor to provide and install all necessary VSS software, licenses, and programming.
- Schedule a meeting with Diablo Valley College Security Administrator to coordinate VSS viewing requirements and locations as part of the submittal process.
- Activation of an lockdown button, duress button, local alarm, door contact alarm, door forced, or door held alarm, shall display the associated camera view on the security workstation monitor.

- VSS cameras shall provide coverage of the following locations:
  - Student assembly area, Multi-sensor camera required.
  - Critical circulation areas, Multi-sensor camera required.
  - Main perimeter entry/exit doors, Fixed camera required.
  - Perimeter doors including exit only and fire stairwell, Fixed camera required.
  - High-traffic or high-value interior locations and corridors, Fixed camera required.
  - Student/Staff counters, Fixed camera required.
  - Loading dock, Fixed camera required.
  - Cashier/Cash handling areas, Fixed camera required.
  - Exterior Courtyard, Fixed and/or Multi-sensor
- Manufacturers and Models:
  - Axis Camera:
    - Indoor Fixed Camera #P3265-LV
      - Recessed Ceiling Mount
      - Wall Mount
      - Pendant Mount
      - Corner Mount
    - Interior 360-degree view camera #M3058-PLVE

        - Ceiling mount
        - Recessed Ceiling Mount
    - Exterior Fixed Camera #P3265-LVE
        - Wall Mount
        - Pendant Mount
        - Corner Bracket Mount
    - Exterior Multi-Lens Camera #P3719-PLE
        - Ceiling Mount
        - Pendant Mount
        - Corner Mount
- Qognify Video Management System, compatible with the latest version of Software House CCure 9000 in use by Diablo Valley College.
- Provide all software licenses for workstations, servers, cameras, and integrations to other security subsystems.
- Qognify Server, existing or if new is required, to be provided by Diablo Valley College.

5.9.3.5 INTRUSION DETECTION SYSTEM (IDS)

Provide software integration for IDS system with ACAMS.

IDS will consist of hard-wired keypad, glass break detectors, motion detectors, duress buttons, door position contacts, and intrusion detection panel located adjacent to ACAMS equipment enclosures in the MDF/IDF room(s).

IDS will utilize:

- Under-desk mount duress buttons at the Cashier/Cash handling desk, and the Student/Staff counters.
- Ceiling-mounted glass break detectors on the interior of first floor along the exterior glass wall
- Ceiling-mounted or wall mounted motion detectors at Main Perimeter Entry, Perimeter Entrances, Rooms with Windows, Smart Classrooms, Computer Labs, and in High Value Asset Areas.
- Provide keypads at the Main Perimeter Entry, Employee Entrance, and High Value Asset Areas, to allow security and authorized staff to arm/disarm the IDS and view IDS zone status as shown on project drawings. Provide a card reader adjacent to each IDS keypad to allow the IDS system to be armed/disarmed with the presentation of a valid ACAMS credential.
- Double pole, double throw door contacts shall report to both the ACAMS and IDS and shall be installed at all security doors including the Main Perimeter Entry, Perimeter Entrance, Employee Entrance, Emergency Exit Only, Perimeter Exit Only, Utility Entrance with or without Building Access, Loading Dock, Cashier/Cash Handling area, High Value Asset areas, Counseling Entrance, Telecom Rooms, Tiered Lecture Halls, Staff Work Areas, Smart Classrooms, Computer Labs, Instructional Labs, Corridors Adjacent to High Value/Sensitive Areas/Labs.

- IDS will alert the Owner-selected outside alarm monitoring central station when the alarm is generated.
- IDS will integrate with ACAMS and VSS via software to generate alarm in Diablo Valley College's system and call up camera views in related areas. IDS and alarm system on ACAMS will cause associated cameras to be called up displaying the alarm location on the security workstation(s).
- IDS will utilize IP-based communication as a primary method, and analog telephone phone line as secondary method.
- IDS will utilize tamper switches within each IDS control panel enclosure, IDS power supply enclosure, and associated wireway. Connect tamper switches to IDS control panel as monitor input points.
- Provide power supply with battery backup for IDS system transformer. Exposed plug-in transformers, batteries, etc. are not allowed.
- Manufacturers:
    - IDS Panel, expansion modules: DSC Power Series
    - IDS Power Supply: Altronix AL600ULXPD16CB, or equal
    - IDS Keypad: DSC Power Series
    - IDS Cellular Backup Communicator: DSC Power
    - Duress Button: Ademco #269R, Sentrol 3040, or equal
    - Glass Break Detector: Honeywell FG-1625/1625T, or equal
    - Motion Detector: Bosch ISM-BLP1, DS938Z, or equal

5.9.3.6 INTERFACES WITH OTHER BUILDING SYSTEMS

The security subsystems will also interface with other building systems, such as the following:

- Door hardware – electrified
- Building IT network including PoE network switches
- Fire alarm/life safety system
- 120V AC electrical power

5.9.3.7 SECURITY CABLING REQUIREMENTS

- Provide plenum-rated jackets (type CL2P, CL3P, or CMP) on cables installed indoors where required by code.
- Provide PVC or PE jackets for cables and flooded-type cables to prevent water intrusion where installed outdoors, underground, and/or within slab-on-grade. Provide transition of outdoor/ underground cables to indoor cables when entering a building.
- Provide surge protection when security cables enter buildings from outdoors devices.
- Dedicated cable support is required for security cables when not within primary pathways (such as cable tray). Coordinate work with Division 27 for use of pathways/cable support.
- Manufacturers:

- Windy City Wire
- Belden

5.9.3.8 LABELING REQUIREMENTS

All contractors installing cabling will fulfill the following requirements.

- General Requirements
  - Meet with the Owner or dedicated representative for Owner's labelling standard. Document and submit examples as a submittal.
  - Label security system components. Components include, but are not limited to:
    - Equipment Enclosures
    - Security Devices
    - Batteries
    - Wires and Cables
    - Relays
    - Patch panels, and the termination positions within the patch panels.
  - Labels shall coincide with device IDs used on the record drawings.
  - Degrease and clean surfaces to receive nameplates and labels.
  - Install nameplates parallel to equipment lines. Secure nameplates to equipment fronts using a permanent adhesive.
- Equipment Cabinets
  - Label SEC enclosures associated with the security system with nameplates.
  - Mount labels on exteriors of doors, centered horizontally, and positioned one-third of the door height vertically from the top.
  - Example:
    - Line 1 (1/2 inch high letters): "SEC-01"
    - Line 2 (1/4 inch high letters): "Security Equipment Cabinet"
  - Security Devices
    - Label devices associated with the security system with a permanent machine-generated, laminated, label. Use 12-point Helvetica text with a clear background. Use white or black lettering depending upon the color of the device.
    - Label each device in a concealed location with the system point number and address.
  - Batteries
    - Label power supply batteries with the month and year they were installed.
    - Example: "April 2023"

- Wire and Cable
    - Identify wire and cable clearly with permanent machine-generated labels wrapped about the full circumference within one inch of each connection.
    - Indicate the cable ID designated on the associated field or shop drawings or run sheet, as applies.
    - Assign wire or cable designations consistently throughout a given system; i.e., each wire or cable to carry the same labeled designation over its entire run, regardless of intermediate terminations.
    - Provide labels where wire and cable first enter and exit from conduit, junction or distribution boxes; locate labels within six inches of the point of exit.
    - Positional labels so they are clearly visible without the need to remove wire management or other obstructions.
    - Label cables at both ends of each run and within pull and junction boxes using machine-generated wrap-around labels.

5.9.3.9 WARRANTY REQUIREMENTS

- Provide a completely functional and operational security system. Warrant all work for a period of one year from the date of written acceptance by Diablo Valley College or their designated representative. The warranty shall cover system operation/performance, equipment, software, programming, parts, and labor. During the warranty period, respond within four hours and correct deficiencies within 24 hours of notification.

5.9.3.10 NETWORK REQUIREMENTS

- The security subsystems will utilize Diablo Valley College LAN/WAN. Coordinate with the District IT department for network configuration and static IP addresses. Network requirements for all systems must be included in overall IT port counts for IDF sizing.
- Only managed network switches used and supplied by owner.

5.9.3.11 EXTERIOR LIGHTING RECOMMENDATIONS

- The success of security systems critically depends on the amount of exterior building lighting. During nighttime operation, exterior lighting provides:
    - Illumination to allow the proper operation of the exterior VSS.
    - A deterrent to crime around the building.
    - A sense of security for personnel using the facility.
- Site lighting shall meet all applicable building codes.
- Minimum lighting levels as recommended by the IES and by VSS camera manufacturers consist of:
    - Building perimeter - 1 foot-candle (10 lux)
    - Entrances - 5 foot-candles (50 lux)

    - Parking areas - 1.5 foot-candles (15 lux)
    - The average to minimum lighting uniformity ratio shall not exceed four to one.
- Exterior lighting shall operate continuously during hours of darkness in these areas:
    - Building perimeter
    - Building entrances
    - Parking areas

5.9.3.12 SUBSTITUTIONS REQUIREMENTS

- Where products are noted as "or equal", a product of equivalent design, construction, and performance is considered. Include in the product data submittal: catalog cuts, product information, and pertinent test data required to substantiate that the product is in fact equivalent to that specified.
- Only one substitution allowed for each product specified. Do not provide substituted material, processes, or equipment without written authorization from the Owner or dedicated representative. Assumptions on the acceptability of a proposed substitution, prior to acceptance by Owner or dedicated representative, are at the sole risk of Contractor.
- The burden of proof rests with the Contractor that the substituted product is equivalent or better than the specified product. When the Owner or dedicated representative accepts a substitution in writing, it is with the understanding that the Contractor guarantees the substituted product, component, article, or material to be equivalent to the one specified and dimensioned to fit within the construction according to contract documents. Approved substitutions do not relieve the Contractor of responsibilities for the proper execution of the work, or from provisions of the Specifications.

5.9.3.13 SUBMITTAL AND SHOP DRAWINGS REQUIREMENTS

- Qualifications: Submit the following for review and comment at the beginning of the project.
    - Resumes of the project manager, general foreman, and lead technician(s) indicating role, years of experience, product certifications and training, listing of similar projects the individual performed the role proposed for this project along with client contact information for each.
    - Certification letters from manufacturers of major system components stating Contractor is an authorized reseller, installer, and extended warranty provider for the specified security systems.
- Prior to procurement, winning bidder will submit complete submittals in pdf format to Diablo Valley College for approval. Complete submittals are comprised of shop drawings and product data sheets as detailed below and related sections (covering specific security systems). Incomplete or partial submittals will be rejected. Submittals will be reviewed twice, and subcontractors will be back-charged for any additional submittals. Required submittals include the following:
    - Written detailed project description

- Project schedule
- Product data sheets for products and accessories used in project will be clearly indicated by arrows or brackets.
- Door schedule including, but not limited to door number, floor number, sheet number, IDF designation, ACM panel designation, Fail/Safe or Fail/Secure identifier, and associated devices
- Voltage drop calculations demonstrating less than ten percent voltage loss to individual security devices
- Battery calculations showing backup support of security equipment and locks (except egress hardware with local power supplies) for 4 hours.
- Shop Drawings
    - Shop drawings shall document Contractor's intent to execute the work and shall include the following:
    - Title sheet and index
    - Floor plans showing device locations, cable routing, and pathways
    - System block diagrams
    - Point-to-point wiring diagrams
    - Specific wiring details and device mounting/installation details
    - Security Device Schedules:
        - Devices by floor
        - Unique device name and number
        - Security controller/location
        - Interfaces, interlocks
        - IP address
        - MAC address

- Samples
    - Submit samples as required for proper coordination and installation of custom mounted equipment. Examples of samples that may be required include:
    - Active functional icons
    - Secure areas/zones
    - Camera field of views
    - Labeling examples for equipment, cables, devices, etc.
- Submittal Requirements at Closeout:
    - Pre-functional Testing test results documentation, submitted to the Owner or designated

representative for review and comment.

- Functional acceptance Testing test results documentation, developed during system functional demonstrations with the Owner or designated representative.
- As-Built Drawings: submit as-built drawings that include approved block diagram, riser diagram, wiring diagram, security control room layout and elevations, floor plans, and reflected ceiling plans, and site plans showing device locations.
- O&M Manual: submit O&M Manual as a binder or soft copy (bookmarked PDF) including the following, at a minimum:
  - Clearly labeled title sheet with Client Name, Project Name, Manual Name, Date of Submittal, Contractor's Name
  - Table of Contents at the beginning that lists the content included in the manual
  - Manufacturer's original catalog information sheets for each component provided under applicable Section (typically, this is similar to the accepted product data submittal
- Warranty statement and service protocol (guidelines, contact numbers, etc.)
- Maintenance requirements
- Include information for the network switches and ports.

5.9.3.14 ACCEPTANCE TESTING REQUIREMENTS

- Overview
  - Provide testing activities to ensure the security system operates properly and per the Owner's requirements. Security systems are very complex from both an equipment and programming standpoint and thorough testing is necessary to ensure correct operation. When testing, follow the manufacturer's written test procedures for each type of device and system.
  - Perform testing activities after-hours or on weekends when the system is not being actively utilized and the building is generally unoccupied. This will minimize the amount of irrelevant activity in the system activity reports that will be used as a record of the Functional Testing and Acceptance Testing test results documentation.
- Pre-Functional Testing
  - Pre-functional Testing represents a complete and documented test of the security systems. At a minimum, Functional Testing shall demonstrate proper operation of security system components, including devices, sensors, switches, power supplies, controllers, input/output boards, relays, network communications, tamper switches, initiating circuits, and associated accessories and appurtenances required for system functionality.
  - Perform Pre-functional Testing of security systems to verify correct operation prior to scheduling the Acceptance Testing.

    - Document the results of the Pre-functional Testing and submit to the Owner or designated representative along with system activity reports for approval.
    - Pre-functional Testing test results documentation shall be reviewed and approved prior to scheduling the Acceptance Testing.
- Functional Acceptance Testing
    - Coordinate and provide Functional Acceptance Testing with the Owner or designated representative to demonstrate proper operation of security system components including system integration, programming, operational capabilities, and functional performance.
    - Perform Functional Acceptance Testing of the security systems in the presence of the Owner or designated representative to demonstrate fully functional and completely operational security systems.
    - Submit Acceptance Testing test results documentation and punch list/deficiencies corrections, prior to Owner or designated representative approval of Substantial Completion and the start of the Warranty period.

5.9.4 WI-FI / NETWORK

5.9.4.1 OVERVIEW

Not included in scope. The Owner (or their Wi-Fi integrator) will design and provide the Wi-Fi system. The Owner will provide the WAP layout to the DBE and the DBE will pick up the supporting cabling requirements.

The Owner (or their IT integrator) will design and provide the wired network (LAN, switches, routers, firewalls, etc.) and the telephone system (VoIP, terminals, etc.). The Owner will provide the network and phone requirements to the DBE and the DBE will pick up the supporting infrastructure and cabling requirements.

5.9.5 DAS-ERRCS

Not included in scope.

5.9.5.1 DISTRIBUTED ANTENNA SYSTEMS (DAS)

Not included in scope.

5.9.5.2 EMERGENCY RESPONDER AUDIO COVERAGE SYSTEMS (ERRCS)

Not included in scope.

5.10 LIGHTING

Lighting for the Engineering Technology Building and MESC Building seeks to reinforce a high level of efficiency and simplicity. To this end, lighting will focus primarily on illumination for the highly functional requirements of the spaces while offering flexibility for various scenarios. Lighting systems will also aid in the user experience with added focus on common areas and clarifying wayfinding throughout. Light fixture selection will also consider visual comfort, maintenance, economic value, daylighting opportunities, and sustainability.

5.10.1 INTERIOR LIGHTING SYSTEMS

The lighting systems and controls for the interior spaces throughout the building will target the following attributes:

- Luminaires throughout the building will be LED type, 3500K CCT, 90 CRI or higher, with lumen packages selected to provide light level in accordance with the recommendations of the Illuminating engineering Society of North America (IESNA) handbook and recommend practice guides and local ordinances.
- All lighting shall be LED with dimmable drivers.
- Storage and unfinished areas will be provided with 2' x 4' standard lensed troffers in areas with ceilings or industrial type strip fixtures in areas without ceilings.
- Emergency egress lighting: selected light fixtures shall be connected to the emergency inverter to provide egress lighting along the egress paths in accordance with California building code. 1.0 FC average, 0.1 FC minimum, 40:1 uniformity ratio.
- Illuminated exit signs will also be used along the path of egress, allowing a sign to be seen at any one time. Exit signs will be edge-lit LED and UL listed with red lettering.

ILLUMINATION DESIGN CRITERIA

Classroom:

Continuous pendant direct indirect light fixtures will provide ambient and task lighting at desks. Teaching walls will be illuminated with recessed linear wall wash fixtures and controlled from separate switch.

Electrical Lab:

A task-ambient lighting approach will be utilized for lab spaces. The lighting system for this space will primarily utilize direct/indirect pendants centered between benches to provide an ambient lighting layer. For open benches recessed adjustable spot fixtures located in the ceiling directly above the bench will provide enhanced lighting levels as needed.

Computer Lab:

Continuous pendant direct indirect light fixtures will provide ambient and task lighting at desks. Teaching walls will be illuminated with recessed linear wall wash fixtures and controlled from separate switch.

Robotics Training:

Continuous pendant direct indirect light fixtures will provide ambient and task lighting at desks. Teaching walls will be illuminated with recessed linear wall wash fixtures and controlled from separate switch.

Open Work Lab:

Continuous pendant direct indirect light fixtures will provide ambient and task lighting at desks. Teaching walls will be illuminated with recessed linear wall wash fixtures and controlled from separate switch.

Restrooms:

Linear regressed perimeter lighting will be utilized above sink and fixtures. General lighting shall utilize recessed lensed downlights.

Reception:

Recessed LED wall washers will provide vertical brightness by highlighting accent walls, further defining the space. Low profile LED downlights will provide functional lighting levels for the transition area. Where ceiling changes occur, surface mounted LED cove fixtures concealed within an architectural cove will highlight the ceiling.

Private Office:

A task-ambient lighting approach will be utilized to reduce energy and provide individual control. The ambient system will be comprised of pendant mounted direct/indirect LED fixtures. Furniture mounted LED under-cabinet or free-standing LED task light fixtures will provide elevated lighting levels at the work plane.

Open Office:

A task-ambient lighting approach will be utilized to reduce energy and provide individual control. The ambient system will be comprised of pendant mounted direct/indirect LED fixtures. Furniture mounted LED under-cabinet or free-standing LED task light fixtures will provide elevated lighting levels at the work plane.

Machine Room:

Pendant mounted industrial LED strip fixtures. Fixtures should be fully sealed and gasketed to avoid internal dust accumulation and lens should be impact rated to avoid damage.

CNC:

Pendant mounted industrial LED strip fixtures. Fixtures should be fully sealed and gasketed to avoid internal dust accumulation and lens should be impact rated to avoid damage.

Wood Shop:

Pendant mounted industrial LED strip fixtures. Fixtures should be fully sealed and gasketed to avoid internal dust accumulation and lens should be impact rated to avoid damage.

5.10.2 OUTDOOR

The lighting systems and controls for the exterior will target the following attributes:

- Fixtures throughout the site and building exterior will be LED type, 2700K CCT, 80+ CRI, with lumen packages selected to provide light level in accordance with the recommendations of the Illuminating Engineering Society of North America (IESNA) handbook and recommended practice guides and Local Ordinances.
- Model Lighting Ordinance (MLO) Lighting Zone 3 (LZ3) will be used for outdoor lighting ordinances and for determining light pollution reduction targets.
- All exterior lighting will be selected to meet the LEED light pollution reduction credit for MLO LZ3 and align with International Dark-sky Association (IDA) recommendations.
- Light pollution reduction will also be addressed via controls and a curfew based on programmatic requires. Occupancy based site lighting controls will be used where possible.
- Architectural LED wall packs will be used above exterior doors connected to emergency inverter power circuit.
- LED pole mounted fixtures on 12'-15' poles will be used for pedestrian walkway lighting.
- Pole mounted LED lighting fixtures will be used for roadways. Poles will be round tapered aluminum, 20'-25' high with single or double arm mounted fixtures.
- Exterior equipment yards shall utilize architectural building mounted LED light fixtures for general illumination and maintenance purposes. Provide LED lights mounted to fence/screen or posts if building mounting is not applicable.

Table 5.10.2.1 - Exterior Illumination Criteria

Area	Illumination Levels
Roadway	2.0fc avg. 0.9fc min., 4:1 avg./min.
Parking	0.2fc min.
Pedestrian Path	0.5fc min. and 1.0fc avg.
Entry	1.0fc min.
Courtyard	0.5fc min. and 1.0fc avg.

Courtyard:

The courtyard will utilize a combination of typical pedestrian area pole lights, linear bench integrated continuous under glow, and strategic landscape accent with ground mounted floodlights. Where canopies are present, surface mounted downlights will be used.

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5.11 ACOUSTICS

The following section provides a summary of the relevant acoustical criteria and acoustical recommendations for the "Engineering Technology Renovation + Addition Building" project. The focus of this section is:

- Sound Isolation: Coordination of interior partitions to reduce airborne noise transfer between spaces as well as structure borne (e.g., footfall, machinery) noise.
- Room Acoustics: Coordination of acoustically absorptive finishes to meet the reverberation time requirements and support clear speech and hearing within spaces as well as reducing noise build-up.
- MEP and Elevator Noise and Vibration: Coordination of engineered building systems such as mechanical, electrical, plumbing, and elevator.
- Exterior noise intrusion (such as traffic noise).

We understand LEED Gold for EB or Schools is being pursued for the project.

5.11.1 CRITERIA

The following criteria is based on the Diablo Valley College Classroom Design Standards, industry standards, ANSI Standard S12.60, LEED, and ASHRAE guidelines.

- CalGreen Section 5.507 "Environmental Comfort," stipulating a maximum Leq of 50 dBA inside of occupied spaces due to exterior (environmental) noise.
- All classroom spaces shall meet the requirements as described in the Diablo Valley College (Contra Costa Community College District) Classroom Design Standards final report dated January 19, 2018.
- All indoor academic and academic support spaces shall meet the requirements as described in LEED for Existing Buildings or Schools.
- All core learning and ancillary learning spaces shall meet the requirements as described in ANSI Standard S12.60-2010 – Performance Criteria, Design Requirements and Guidelines for Schools, Part 1: Permanent Schools.
- Exterior Noise Control: Project-generated noise shall comply with State and local City noise ordinances.

LEED v4.1, ANSI Standard S12.60-2010, and ASHRAE's guidelines contain quantitative acoustical criteria for schools and office space.

Table 1 summarizes the relevant criteria from the sources noted above. Table 2 summarizes the recommended STC rating between adjacencies. Where more than one STC rating can be applied to a specific adjacency, the more stringent rating shall be used for the assembly.

Table 5.11.1 Acoustical Criteria

Table 1: Acoustical Criteria

<table>
<tr><th>Space</th><th>Room Acoustics</th><th>Sound Isolation</th><th>Background Noise [a]</th></tr>
<tr><td>Small Classrooms
(30 student stations or less)</td><td>Maximum Reverberation Time: 0.6 seconds</td><td rowspan="5">Airborne Noise
See Table 2 below for STC criteria

Impact Noise
IIC 45

Maximum L_{eq} due to Exterior Noise Sources
35 dBA (15-minute L_{eq}) and 50 dBA ($L_{max\text{-}slow}$) in Classroom / Teaching spaces</td><td rowspan="3">NC: 30</td></tr>
<tr><td>Medium Classroom (above 30, less than 45 student stations)</td><td>Maximum Reverberation Time: 0.8 seconds</td></tr>
<tr><td>Large Classroom (above 45, less than 90 student stations)</td><td>Maximum Reverberation Time: 1.0 seconds</td></tr>
<tr><td>Group Teaching Labs - Electrical/Electronics/Computer/Tesla Robotics</td><td>Maximum Reverberation Time: 1.0 seconds</td><td>NC 35

NC 50 (with fume hoods)</td></tr>
<tr><td>Corridors</td><td>No requirement, recommend reverberation time of 1.2 seconds or less</td><td>NC: 40</td></tr>
<tr><td>Conference Rooms</td><td>Incorporate acoustically absorptive ceiling (NRC 0.80 minimum) or maximum reverberation time of 0.6 seconds</td><td>Airborne Noise
See Table 2 below for STC criteria

Impact Noise
IIC 45

Maximum Hourly L_{eq} due to Exterior Noise Sources
45 dBA</td><td>NC: 30</td></tr>
<tr><td>Flex Classroom/Event Space</td><td>Incorporate acoustically absorptive ceiling (NRC 0.80 minimum) or maximum reverberation time of 0.6 seconds</td><td>Airborne Noise
See Table 2 below for STC criteria

Impact Noise
IIC 45

Maximum Hourly L_{eq} due to Exterior Noise Sources
35 dBA (15-minute L_{eq}) and 50 dBA ($L_{max\text{-}slow}$) in Classroom / Teaching spaces</td><td>NC: 30</td></tr>
<tr><td>Huddle/Offices/Small Meeting Rooms</td><td>Incorporate acoustically absorptive ceiling (NRC 0.75 minimum) or maximum reverberation time of 0.6 seconds</td><td>Airborne Noise
See Table 2 below for STC criteria

Impact Noise
IIC 45

Maximum Hourly L_{eq} due to Exterior Noise Sources
45 dBA</td><td>NC: 35

NC 30 (for LEED)</td></tr>
<tr><td>Architecture Design Studio</td><td>Incorporate acoustically absorptive ceiling (NRC 0.75 minimum) or maximum reverberation time of 0.6 seconds</td><td>Airborne Noise
See Table 2 below for STC criteria

Impact Noise
IIC 45

Maximum Hourly L_{eq} due to Exterior Noise Sources
50 dBA</td><td>NC: 35</td></tr>
</table>

Space	Room Acoustics	Sound Isolation	Background Noise [a]
Open Plan Areas/Group Study/Tutoring/Quiet Study/Staff Area	Incorporate acoustically absorptive ceiling (NRC 0.80 minimum) or maximum reverberation time of 0.8 seconds	**Maximum Hourly L_{eq} due to Exterior Noise Sources** 50 dBA	NC: 40
Copier/Breakroom	Incorporate acoustically absorptive ceiling (NRC 0.75 minimum) or maximum reverberation time of 0.6 seconds	**Airborne Noise** See Table 2 below for STC criteria **Maximum Hourly L_{eq} due to Exterior Noise Sources** 50 dBA	NC: 40
Woodshop/Construction Lab/Materials Testing/ Machine Shop/ CNC Room/3D Printing/Laser Cutting/Instrument Room/Foundry Room/Paint Booth/Motor Tech Training	Incorporate acoustically absorptive ceiling (NRC 0.75 minimum) or maximum reverberation time of 1.0 seconds	**Airborne Noise** See Table 2 below for STC criteria **Maximum Hourly L_{eq} due to Exterior Noise Sources** 50 dBA	NC: 40
Lobby/Entrance/Check-In/Lounge Area	Incorporate acoustically absorptive ceiling (NRC 0.80 minimum) or maximum reverberation time of 1.0 second	**Maximum Hourly L_{eq} due to Exterior Noise Sources** 50 dBA	NC: 40
MEP Rooms/Data Center/IT Room	Incorporate acoustically absorptive ceiling (NRC 0.75 minimum)	**Airborne Noise** See Table 2 below for STC criteria	--
Bathrooms/Kitchen	--	**Airborne Noise** See Table 2 below for STC criteria	NC: 40-45

[a] Background noise level from continuous interior sources (e.g., fan coil units, VAV boxes, etc.). Equipment such as fume hoods and other intermittent devices may be louder if they are user-controllable (i.e., they can be turned off).

Table 5.11.2 Partition STC Adjacency Matrix

Table 2: Partition STC Adjacency Matrix

	Offices, Conference Rooms, Huddle, Copy, Workroom	Classrooms	Group Teaching Labs	CNC Room[a]	Flex Classroom / Event Space, Breakroom	Architecture Studio	3D Printing/Laser Cutting/Instrument Room/Foundry Room/Paint Booth/Motor Tech Training*	Construction Lab/Machine Shop [a]	Woodshop [a]	Material Testing lab [a]	Restroom	MEP / IT Room [a]
Corridor, Open Plan Areas	40	45	45	45	45	40	40	40	40	40	40	40
Offices, Conference Rooms, Huddle, Copy,	45	50	50	65	60	45	60	60	60	60	55	60
Classrooms		50	50	65	60	50	60	60	60	60	55	60
Group Teaching Labs			50	65	60	50	60	60	60	60	55	60
CNC Room*				65	65	65	65	65	65	65	55	60
Flex Classroom / Event Space, Breakroom					60	50	60	60	60	60	55	60
Architecture Studio						45	60	60	60	60	55	60
3D Printing/Laser Cutting/Instrument Room/Foundry Room/Paint Booth/Motor Tech Training*							60	60	60	60	55	60
Construction Lab/Machine Shop*								60	60	60	55	60
Woodshop*									60	60	55	60
Materials Testing Lab*										60	55	60
Restrooms											55	50
MEP / IT Room*												40

* If it can be demonstrated that equipment in these rooms meets the background noise limits specified in the adjacent space, STC rating of wall can be reduced to no lower than STC 50 (if adjacent to Classrooms / Teaching Rooms) and STC 45 (at other adjacencies).

5.11.2 RECOMMENDATIONS

5.11.2.1 PARTITION SOUND ISOLATION

Airborne sound isolation is the amount of noise reduction afforded by constructions (doors, windows, partitions, floor-ceiling, etc.). Constructions with high levels of noise reduction, such as concrete walls, are described as providing greater amounts of airborne sound isolation. Sound isolation recommendations are expressed in terms of laboratory STC rating.

To achieve the STC ratings listed in the criteria section above, sound-rated partitions will be necessary. The field-measured Noise Isolation Class (NIC) value of the installed wall assembly shall not be more than 5 decibels below the STC rating of the demising assembly.

We have found that partitions with fewer layers of gypsum board incorporating "acoustical" studs, staggered studs, or double-stud assemblies may cost less than single-stud partitions with multiple layers of gypsum board. We recommend the Cost Estimator provide input on the most efficient partition design.

Sound-Rated partitions shall follow these guidelines:

- Offset gypsum board layer seams by 24". Mud and tape all joints between gypsum board layers.
- Provide full depth insulation in all stud cavities; do not compress insulation.
- Hold back the face layer of gypsum board ¼" from intersecting surfaces and caulk airtight with non-hardening resilient acoustical sealant.
- Minimize the number of penetrations in sound-rated partitions.
- Oversize full perimeter of penetrations (maximum ¼" gap) to avoid direct contact between the penetrating element and partition framing elements and layers. Seal all penetrations with closed cell foam backer rod, if necessary, and non-hardening, resilient acoustical sealant.
- Rough-in boxes should be fully backed with putty pads (minimum ¼"-thick intumescent clay pads).
- Rough-in boxes should not be placed back-to-back; offset boxes by a minimum of 16" horizontally.
- Seal gaps airtight where full height walls meet structural decks above (see following section).
- Double-stud walls should not be laterally bridged; at metal stud walls, we recommend following the UL U493 design which does not require lateral bridging across stud rows.

Schematic detail options for each STC rating are provided as follows:

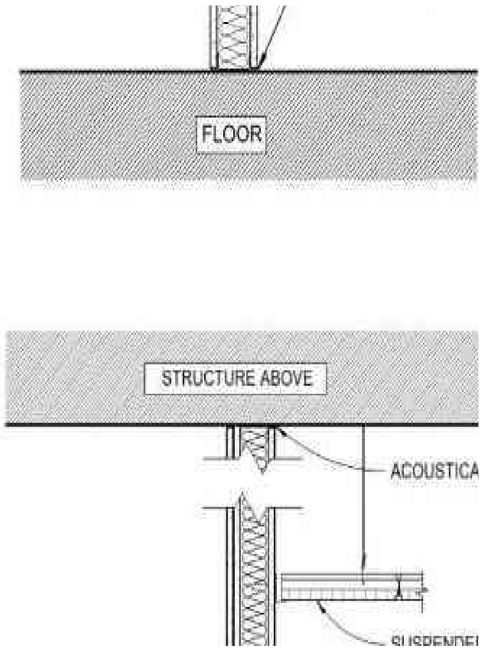


Figure 5.11.2.1 STC 40 Partition

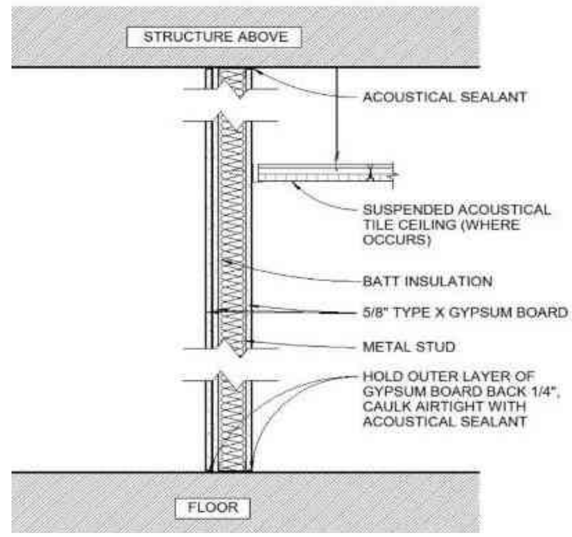


Figure 5.11.2.2 STC 42 Partition

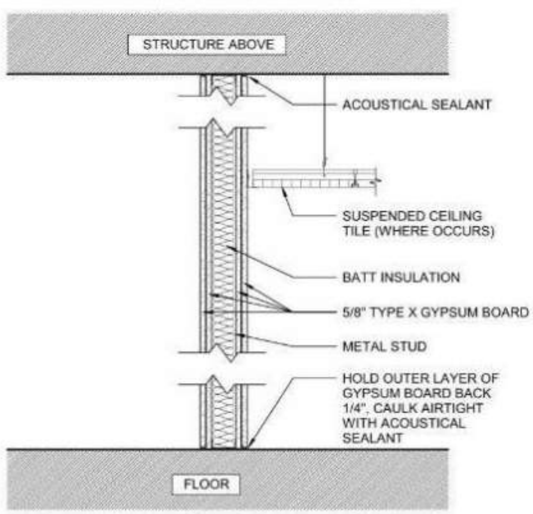


Figure 5.11.2.3 STC 45 Partition

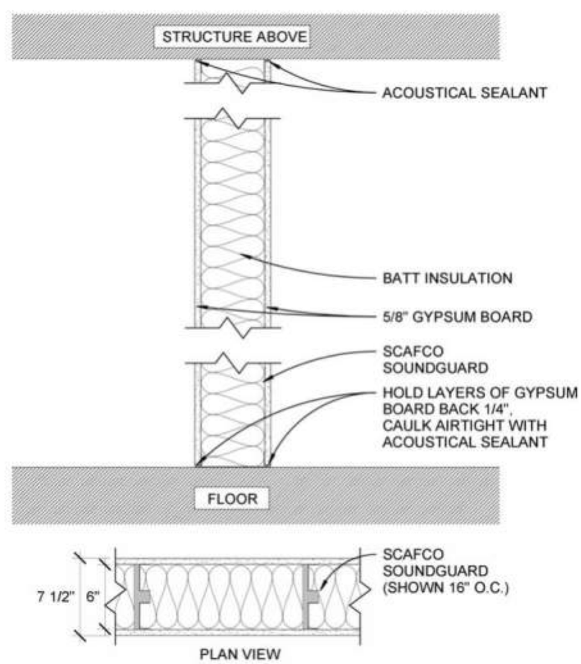


Figure 5.11.2.4 STC 50 Acoustic Stud Wall (SCAFCO SoundGuard)

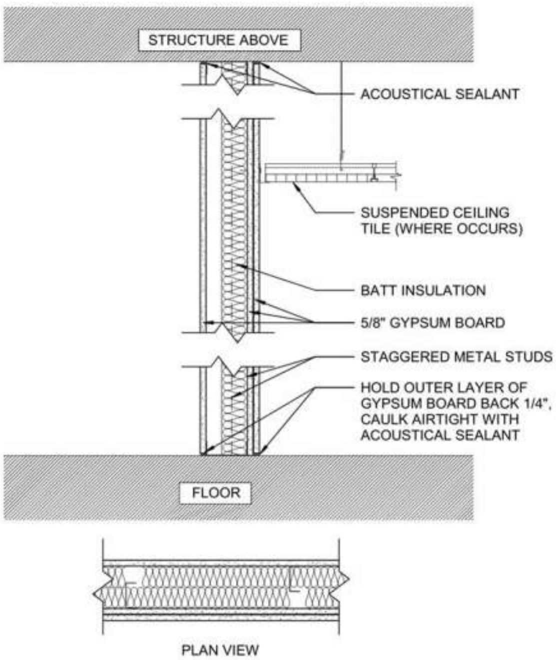


Figure 5.11.2.5 STC 50/53 Staggered Stud Partition

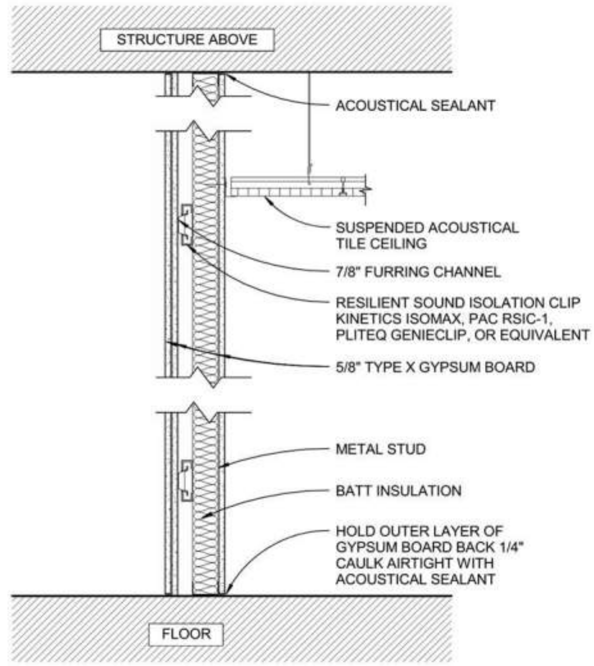
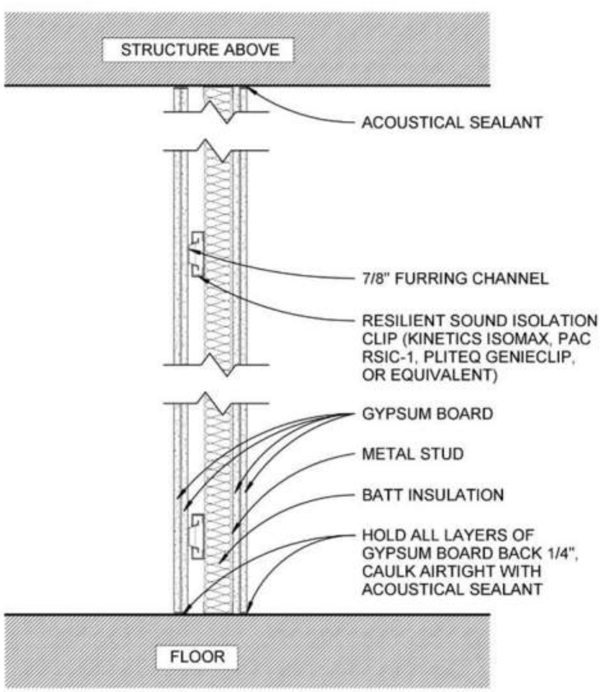


Figure 5.11.2.6 STC 50 Acoustic Clip Partition



NOTE: RESILENT CLIP MANUFACTURER'S INSTALLATION GUIDELINES SHOULD BE FOLLOWED.

Figure 5.11.2.7 STC 55 Acoustic Clip Partition

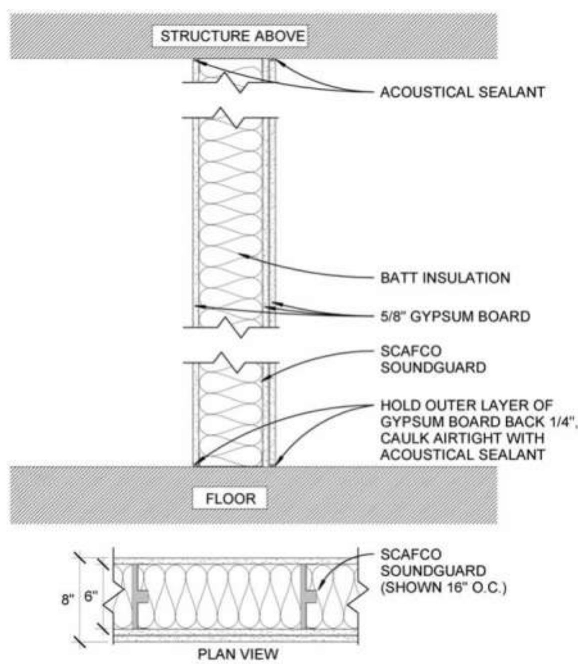


Figure 5.11.2.8 STC 55 Acoustic Stud Partition (SCAFCO SoundGuard)

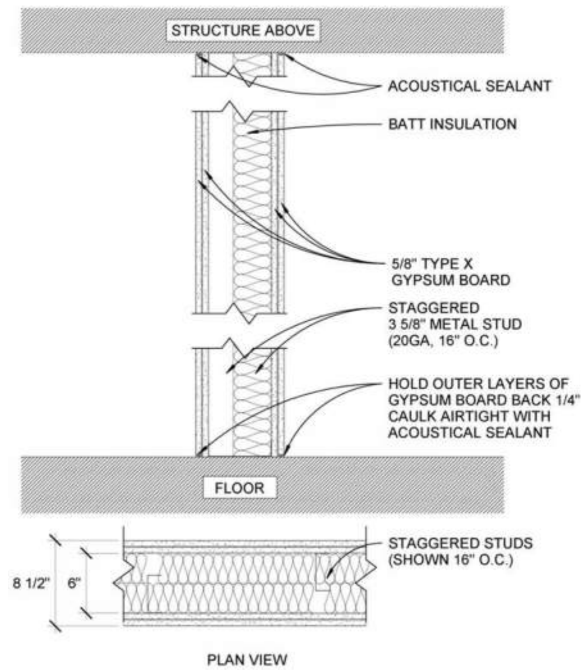


Figure 5.11.2.9 STC 55 Staggered Stud Partition

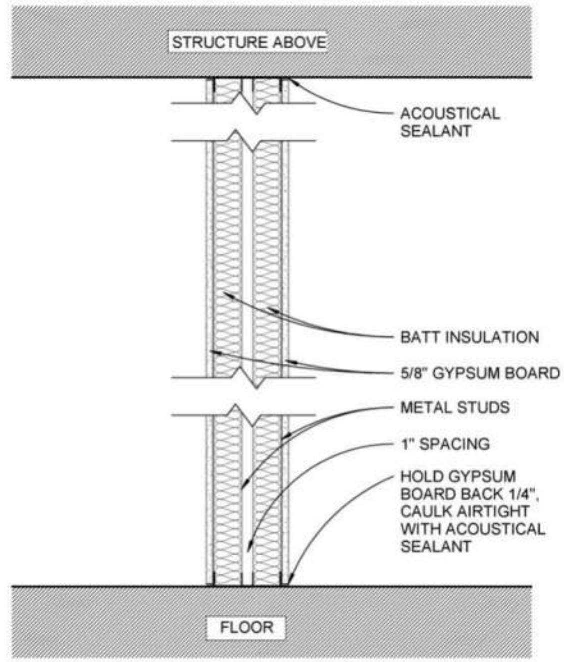


Figure 5.11.2.10 STC 55 Double-Stud Partition

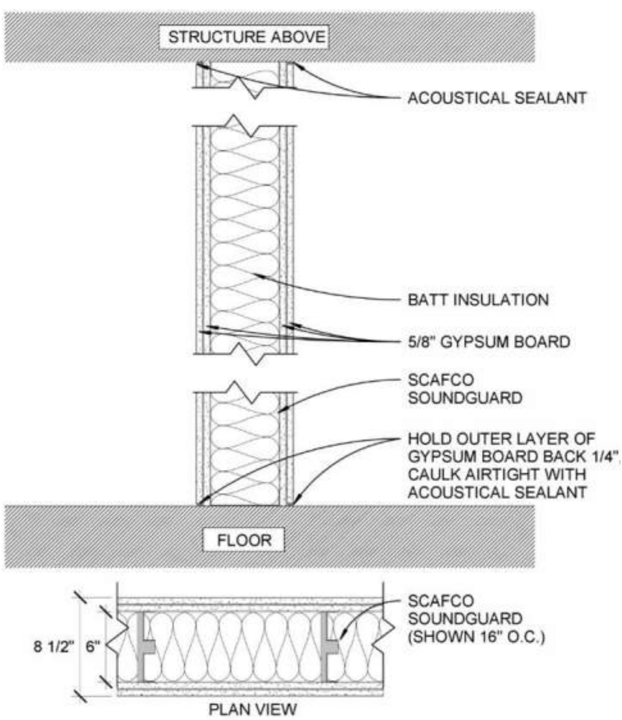


Figure 5.11.2.11 STC 60 Acoustic Stud Partition (SCAFCO SoundGuard)

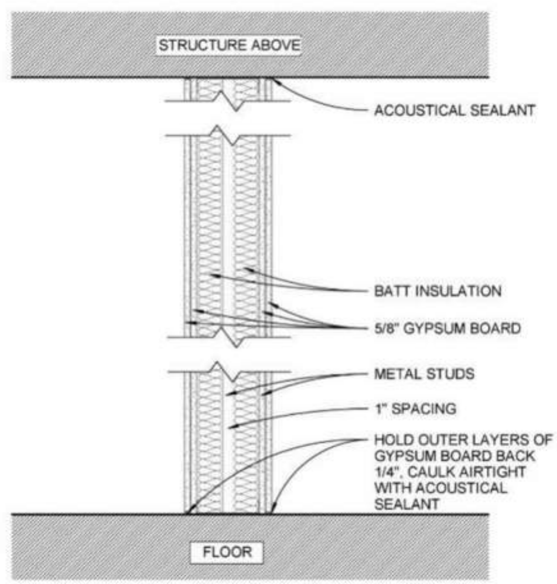


Figure 5.11.2.12 STC 60 Double-Stud Partition

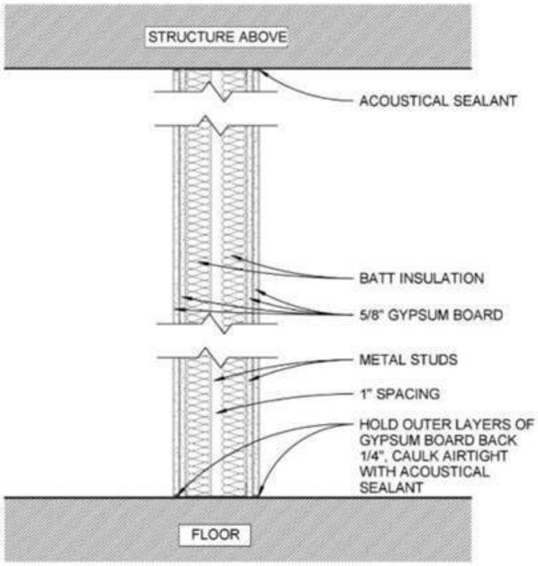


Figure 5.11.2.13 STC 65 Double-Stud Partition

5.11.2.2 PARTITION SOUND ISOLATION SPECIALTIES

Partitions at shafts, MEP rooms, Telecom Rooms, Data Center / IT Rooms, IDF rooms, Machine Shops, Maker Space and other noise emitting rooms should be evaluated and recommended STC ratings should be refined as the equipment is scheduled and noise calculations are completed; prescriptive STC recommendations are provided in Table 2.

Some sound-rated partitions that terminate at the exterior windows can be an acoustical "weak link" in the wall assembly and will compromise the performance of the demising partition. The intersection should be treated with an acoustical mullion product such as the STC-60 Mull-it-Over, Emseal QuietJoint, or Piedmont Plug products.

The acoustical treatment of penetrations, partition intersections, and outlet boxes is critical to achieve the STC ratings presented in the Criteria section. The following details should be incorporated into the architectural drawings and noted on the floor plans, sections, etc. as appropriate.

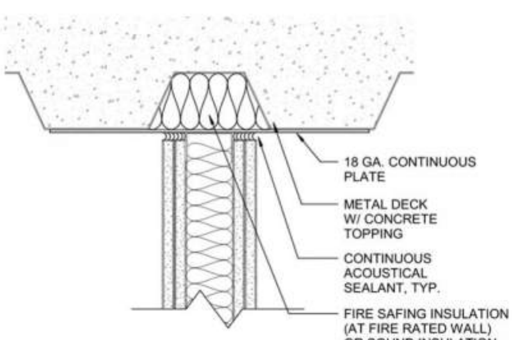
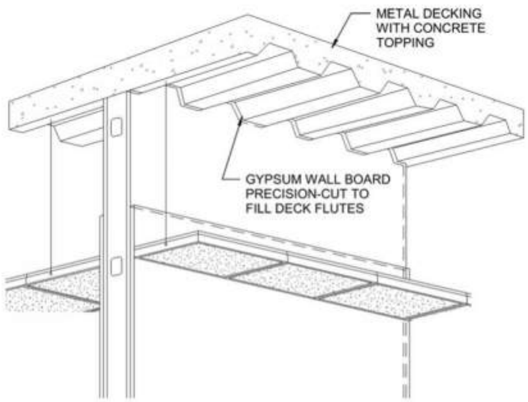
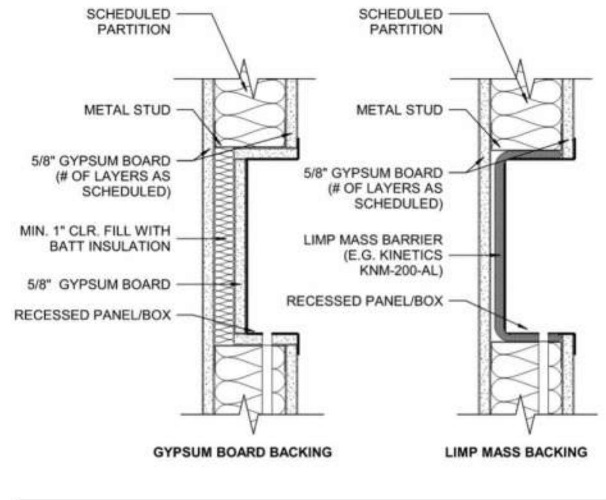


Figure 5.11.2.14 Partition Termination Parallel to Metal Deck



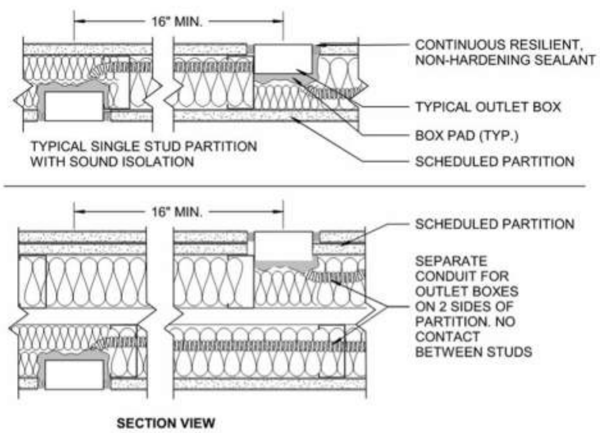
NOTE:
1) IF AN ACOUSTICAL TILE CEILING IS LOCATED ON BOTH SIDES OF THE PARTITION, HILTI SPEED PLUGS OR SIMILAR CAN BE USED TO PLUG THE DECK FLUTES IN LIEU OF PRECISION CUTTING THE TOP OF THE GYPSUM BOARD.

Figure 5.11.2.15 Partition Termination Perpendicular to Metal Deck



NOTES:
1) LIMP MASS BARRIER AVAILABLE FROM ACOUSTHETICS (415) 753-1301

Figure 5.11.2.16 Recessed Panels and Fixtures

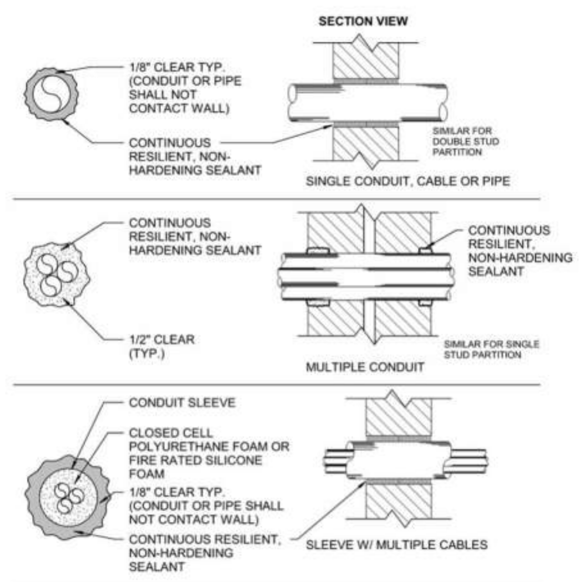


TYPICAL DOUBLE STUD PARTITION WITH SOUND ISOLATION (SIMILAR FOR STAGGERED STUDS)

NOTES:
1) PLACE OUTLET BOXES IN SEPARATE STUD SPACES
2) BACK-TO-BACK OUTLETS NOT RECOMMENDED.
3) PLUG ALL UNUSED KNOCK-OUTS IN OUTLET BOXES WITH KNOCK-OUT CAPS.
4) PROVIDE BACKING EQUIVALENT TO "LOWRY'S" OUTLET BOX PADS (HARRY A. LOWRY & ASSOCIATES INC. (800) 225-8231)
5) DEPTH OF OUTLET BOX MUST BE COMPATIBLE WITH STUD SIZE IN ORDER TO ACCOMMODATE BOX PAD.
6) ACOUSTICAL BOX PAD REQUIREMENT APPLIES TO ALL PARTITIONS WITH UNFACED BATT INSULATION (MIN 1.5 PCF DENSITY).
7) USE OF MUD RINGS WITHOUT ELECTRICAL BOXES SHOULD NOT BE ALLOWED.

APPLIES TO POWER, PHONE, COMMUNICATIONS, ETC.

Figure 5.11.2.17 Junction Box Isolation



NOTES:
1) PENETRATIONS OF ACOUSTICAL PARTITIONS BY, CONDUIT, CABLE, PIPES ETC. SHALL BE ACOUSTICALLY SEALED AS SHOWN. GAPS LARGER THAN 1/2" SHALL NOT OCCUR. CABLE TRAYS SHOULD NOT PENETRATE SLAB-TO-SLAB PARTITIONS. A CONDUIT SLEEVE SHOULD BE USED AT SUCH PENETRATIONS AND SEALED AS SHOWN ON THIS DETAIL.
2) FLEXIBLE DUCT, PIPE, CONDUIT, ETC. CONNECTIONS SHOULD BE INCORPORATED BETWEEN ROOMS WHERE RESILIENTLY ISOLATED FLOORS, WALLS OR CEILING LIDS OCCUR.

Figure 5.11.2.18 Partition Penetration Details

5.11.2.3 DOORS

Doors and vision windows between adjacent sound sensitive spaces (such as classroom to classroom or conference room to conference room) should be avoided, otherwise STC rated sound control door and window assemblies equal to the STC demising wall rating listed in the criteria section will be required to maintain sound isolation.

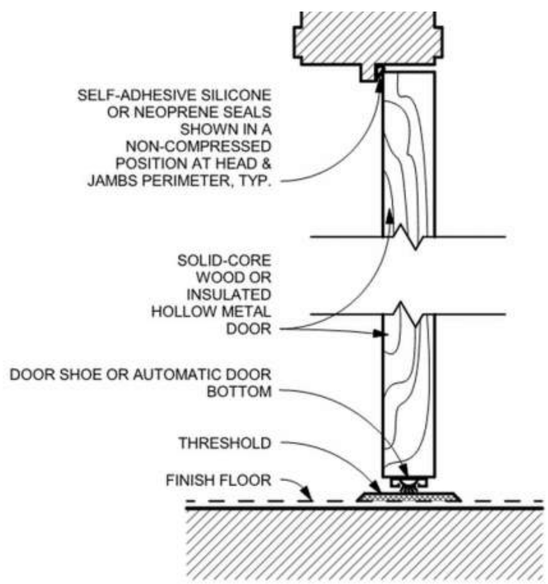
Entry doors to occupied spaces should be solid core wood or insulated hollow metal with a minimum surface density of 5 psf. Entry doors to core learning spaces as well as conference rooms (and other rooms where speech privacy is a concern) and Maker Space / MEP / IT / Elevator Machine Rooms (or any other noise emitting rooms) should incorporate rubber bulb gasketing and automatic door bottoms. Door undercuts shall be no more than 1/4".

Classroom doors that open onto a corridor or lobby should have a minimum STC 35 sound isolation performance. For communicating doors between classrooms, minimum STC 45 doors should be used depending upon the specific adjacency.

A typical entry door with automatic door bottom is shown below.

Doors to rooms with noise generating equipment such as Maker Space / MEP / IT / Elevator Machine Room should not open into acoustically sensitive spaces, otherwise STC rated sound control doors will be required.

CNC Room doors that open onto a corridor or lobby should have a minimum STC 45 sound isolation performance. This room should not open into acoustically sensitive spaces.



				AUTOMATIC DOOR BOTTOM	
MANUFACTURER	PERIMETER	ASTRAGAL	SHOE	MORTISE	SURFACE MOUNT
PEMKO	S-88	355CS	234	434A/420A	
NATIONAL GUARD	5050	109N		423N	420N
REESE	797		DB591F	371	521
ULTRA				DB 043	
ZERO		1840	253A	369	367

Figure 5.11.2.19 Doors to Core Learning Spaces and Other Noise-Sensitive Spaces

5.11.2.4 INTERIOR GLAZING

Glazing located at office/conference room fronts or at Core Learning Spaces can be an acoustical "weak link." When glazing is located adjacent to a door (e.g., a sidelite), 1/2" thick glazing is sufficient. However, if glazing is located in a partition without a door or a wall is fully glazed, then a more robust glazing system (e.g., dual pane with 2" airspace) will be necessary.

5.11.2.5 OPERABLE PARTITIONS

If operable partitions are added, close coordination with the operable partition design is important to verify that the perimeter conditions (e.g., head, base, sides) of the operable partition do not compromise the sound isolation performance of the operable partition. Generally, an operable partition should have an STC rating equal to or higher than that of a standard framed wall. For most adjacencies, an operable partition should have a minimum STC rating of 50 and NIC rating of 42. The STC rating listed by operable partition manufacturers should be for the assembly, and not only the panel.

Depending on its location, it may be recommended that the facing of the operable partition incorporate acoustically absorptive materials to reduce reverberation in the space.

5.11.2.6 FLOOR-CEILING ASSEMBLY SOUND ISOLATION

We assume the building structural system will be steel deck with concrete fill. Where hard-surface floors are planned, an acoustical underlayment will be necessary. The thickness and type of underlayment is as follows:

- Carpet tile with pad: no underlayment required. Pad underneath carpet must be minimum 1/4-inch thick.
- Vinyl: 2mm thick Pliteq RST, Ecore, or Acousticork or cushioned vinyl should be used. If a third-party underlayment is used, the flooring manufacturer needs to review the assembly. See figure below:

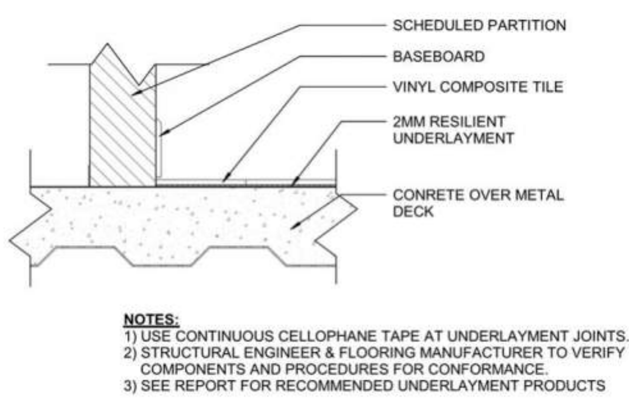


Figure 5.11.2.20 Floor Assembly with Vinyl Flooring and Underlayment

- Hardwood or Tile: 5mm thick Pliteq RST, Ecore, or Acousticork
- Polished Concrete: Will require a topping slab with underlayment if there is no suspended ceiling below (see figure below)

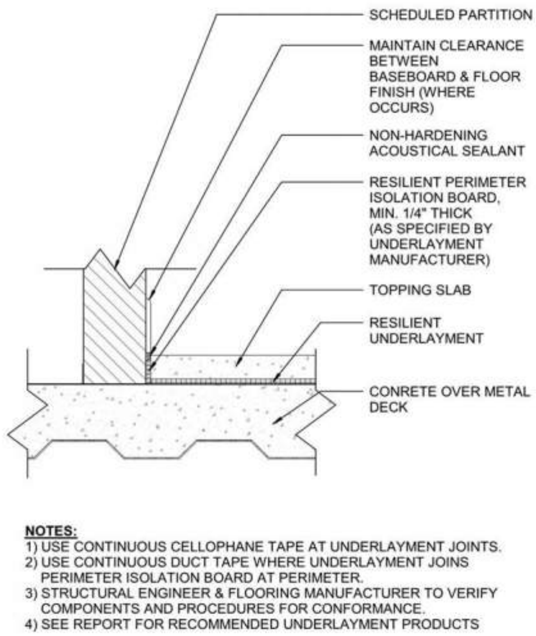


Figure 5.11.2.21 Floor Assembly with Topping Slab (for Polished Concrete)

To meet the STC 50 criterion between core learning spaces, a composite metal-concrete deck with a total thickness of at least 5-1/2" inches (measured from bottom of flute to top of concrete) is necessary. Alternately, minimum 6-inch thick concrete slab is needed.

5.11.2.7 ROOM ACOUSTICS

To achieve the reverberation time criteria, acoustically absorptive finish materials are required. Typically, this is accomplished by specifying a sound absorbing ceiling (e.g., a suspended acoustical tile ceiling). Where a suspended acoustical tile ceiling is not planned, surface applied wall panels or ceiling panels can be specified (e.g., Autex, Kirei, Euromat). The minimum NRC rating of the selected acoustically absorptive material should be NRC 0.75 and most spaces require approximately 70 to 80% of the room's ceiling area (in terms of square feet) in absorptive materials to achieve the criteria. The acoustic ceiling tile products (e.g., Armstrong Ultima High NRC, Certainteed Performa, Armstrong Optima, USG Mars) can meet NRC 0.75.

Acoustical tiles in classrooms should have a minimum rating of NRC 0.85 (1.0 preferred per the District standards). Armstrong Optima or similar should be considered. Where a hard-lid gypsum board ceiling is used, surface mounted 2" thick acoustical panels with a arting of minimum NRC 0.80 should be used.

Acoustical wall panels with a minimum rating of NRC 0.75 and 2" thick should be considered in classrooms. Where possible, apply wall panels on two perpendicular walls and in the wall area between seated and standing ear height.

When less than 100% of the ceiling area is not acoustically treated, then a remaining equivalent area of acoustical panels should be applied to the walls. If "front-firing" loudspeakers are being considered, the wall opposite the loudspeakers should be fully covered with acoustical wall panels as feasible. If wood finishes are desired, consider perforated or kerfed acoustic panels having minimum NRC 0.80 such as by

RGP Corporation, or slats or grills such as 9Wood Company.

Reverberation time calculations should be performed when floor finish selections are made.

You may consider the addition of acoustically absorptive materials in corridors and circulation spaces to reduce noise build-up and disruption to adjacent classes/spaces. The necessity for this is dependent on whether there will be large numbers of people utilizing the corridors while class is in session. This can also be considered as a "Day 2" (post-construction) option. For budgeting purposes, assume that the required number of square feet is equal to the floor area (absorptive materials can be placed on the ceiling or upper wall areas).

Where it is important to utilize acoustically absorptive materials that can be easily cleaned, product options include Conwed Metro Rebound, Decoustics High Impact Resistant, Kinetics High Impact Hardside (PVC face).

5.11.2.8 MECHANICAL / HVAC NOISE AND VIBRATION

Note: These guidelines should be considered general in nature and it may be necessary to modify these guidelines to meet fire, structural, and/or other project requirements.

- Where possible, ducts should be sized to limit maximum air velocities as indicated in Table 3 below, to ensure that regenerated noise due to air movement does not cause the relevant design noise criteria to be exceeded.

Location	Noise Criterion - NC				
	45	40	35	30	25
In Shaft or Above Gypsum Board Ceiling	3500 (Rect.) / 5000 (Rnd.)	3000 (Rect.) / 4250 (Rnd.)	2500 (Rect.) / 3500 (Rnd.)	2100 (Rect.) / 3000 (Rnd.)	1700 (Rect.) / 2500 (Rnd.)
Above Acoustical Tile Ceiling	2500 (Rect.) / 4500 (Rnd.)	2125 (Rect.) / 3750 (Rnd.)	1750 (Rect.) / 3000 (Rnd.)	1475 (Rect.) / 2500 (Rnd.)	1200 (Rect.) / 2000 (Rnd.)
Exposed Duct (No Ceiling)	2000 (Rect.) / 3900 (Rnd.)	1725 (Rect.) / 3250 (Rnd.)	1450 (Rect.) / 2600 (Rnd.)	1200 (Rect.) / 2150 (Rnd.)	950 (Rect.) / 1700 (Rnd.)
Supply Diffuser - 'free' velocity	625	560	500	425	250
Return Grille - 'free' velocity	750	675	600	500	425

Notes:
1. We recommend designing the system to be self-balancing.
2. Branch ducts should have airflow speeds of about 80% of values listed.
3. Air speeds in final runouts to outlets should be 50% of values or less.
4. Elbows and other fittings can increase airflow noise substantially, depending on type. Thus, duct airflow speeds should be reduced accordingly.

Table 5.11.2 Design Guidelines for Maximum Air Velocities in Ducts in Feet Per Minute (FPM)

- Supply air diffusers and return air grilles should be selected with manufacturer's noise rating 5 NC points below the HVAC design noise criterion of the area served. Where possible, connections to diffusers should utilize lined flex-duct to reduce any noise generated by flow through individual take-offs.
- Where possible, flex-duct should consist of a flexible vapor barrier jacket with a wire reinforced inner core containing 1 1/2-inch thick resilient glass fiber insulation faced with reinforced coasted glass fabric; conforming to NFPA Standard 90A. Regenerative noise due to air turbulence within the duct shall not exceed the following sound power levels for a 12-inch diameter duct with an air speed of 1,000 FPM.

	Sound Power Levels, dB re: 10-12 Watts, at each octave band center frequency, Hz				
	125	250	500	1k	2k
Max. Regenerative Noise, dB	30	31	30	22	20

- Acoustically acceptable flex-duct products include:
  a. Genflex IL
  b. Casco Silentflex
  c. Cody West type NILS
  d. Flexmaster Acoustical Flex
  e. Casco Acoustical Flex Duct (SF-181M)
  f. Thermaflex Acoustical Flexible Air Duct
- The need for duct silencers (sound traps) and internal duct lining should be evaluated as the design progresses. A sufficient length of ductwork should occur between the AC unit and the silencer. Typically, there should be at least one and preferably two duct "diagonal(s)" of straight duct at either end of the attenuator prior to connections to equipment or fittings such as elbows. Silencers should be sized for a maximum pressure drop of 0.25 inches w.g.
- Fan coil units should not be located above any space with noise criteria of NC 30 or lower. Otherwise, a solid gypsum board ceiling or enclosure will be needed.
- Supply and return ductwork for the fan coil units should be internally lined with 1" duct lining. There should be 5 feet of acoustical flex duct at diffusers and grilles.
- VAV boxes and ducted indoor VRF or mini-split system should be designed to 0.5" or less static pressure.
- Where possible, volume control boxes should not be located within the acoustically sensitive rooms, and in general should be selected with a manufacturer's noise rating 10 NC points below that of the room served and the room over which the box is located for both discharge and radiated noise.
- A combination of acoustically lined ductwork and standard flexible duct will typically be required downstream of the VAV box to control discharge noise. If this cannot be accommodated, boxes may need to be oversized to reduce the overall noise levels generated.
- As far as is practical, HVAC systems serving acoustically sensitive occupied areas should be "self-balancing." Balancing dampers should not be located immediately upstream of diffusers. There should be a minimum of 5 feet of acoustical flexible duct or internally lined sheet metal duct between the damper and the connection to the diffuser. Dampers should not be incorporated into grilles, and diffuser blades should not be used for balancing of the air system.
- Recommendations for crosstalk control between occupied spaces should be provided as the design develops. It is acoustically preferred that return air systems be fully ducted where crosstalk is a concern. If this is not the case, crosstalk control may be required at air transfer openings.
- At open returns (i.e., where the return grille opens to the ceiling plenum) in enclosed, noise-sensitive rooms, duct boots should be used to reduce cross-talk. The duct boot opening should be pointed in the opposite direction from the entry door and not connected to the transfer grille; see image below.

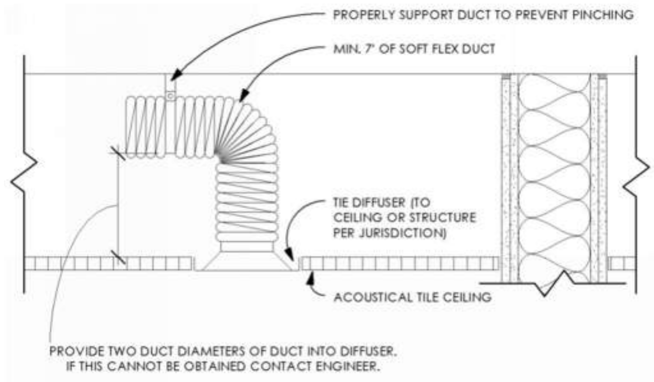


Figure 5.11.2.22 Duct Boot at Plenum Returns

- Return air transfer grilles at enclosed, noise-sensitive spaces (i.e., conference rooms, meeting rooms, and spaces with automatic door bottoms) should incorporate a transfer grille silencer, such as the Commercial Acoustics TS-4 or Ruskin GSV4 or use a lined transfer elbow (see image below). Transfer grilles should be located above doors and not located in sound-rated partitions (e.g., partitions separating adjacent classrooms, conference rooms, etc.) without doors.

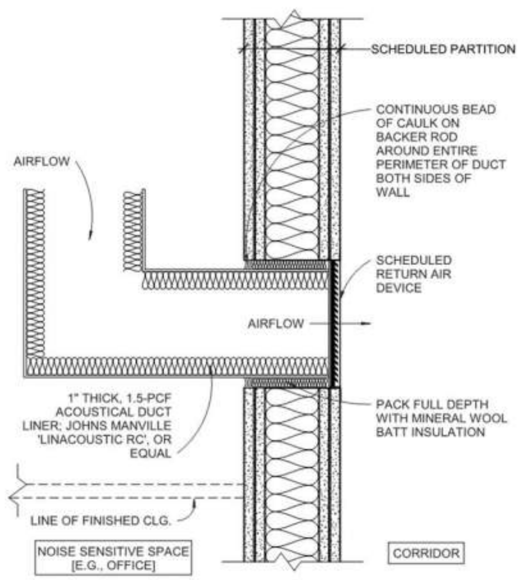


Figure 5.11.2.23 Return Air Transfer Duct Grille

- The following vibration isolation recommendations are based on ASHRAE guidelines.
    1. All spring mounts should be unhoused and incorporate a neoprene pad or cup. We recommend that floor-mounted springs be Mason Type SLFH or equal; where necessary, Mason Z-1225 seismic snubbers or restrained springs equal to Mason Type SLR should be used.
    2. Spring hangers should have a spring in series with neoprene and must allow for up to 30 degrees of misalignment; spring hangers should be Mason 30N or equal. Where equipment requires springs and is mounted on a roof curb, the roof curb should include integral springs (e.g., Mason RSC).

3. Double deflection neoprene should have a molded unit type neoprene element with a projecting bushing lining rode clearance hole. The neoprene element should be a minimum 1 3/4 inch (45 mm) thick with a steel retaining box encasing the neoprene mounting; neoprene should be Mason HD or equal.
4. Neoprene waffle pad should have a ribbed or waffled design, with a minimum thickness of 0.75-inch (19 mm). Pads should be selected for adequate durometer to handle loads and reduce over compression. We recommend that pads be Mason Super W or equal.
5. All connections to vibration isolated equipment should be flexible; this includes electrical service, plumbing/piping, and duct. Where possible, service loops should be provided. Duct connections should be canvas style, high pressure fluid lines should be twin sphere (e.g., Mason SFDEJ) or steel braided with a minimum length of 12 inches. Generator flue exhaust should utilize an open pitch style steel braided hose with a length equal to four (4) times the diameter, with a minimum length of 12 inches and a maximum length of 24 inches.
6. Suspended piping and pipe risers will be resiliently isolated from the building structure.
7. Table below provides vibration isolation guidelines for various types of mechanical equipment; the structural engineer should confirm that the deflection of the support structure due to the weight of the mechanical equipment is no more than 8-10% of the specified vibration isolator deflection.

(On grade and above-grade installations with spans < 20ft and speeds > 500 RPM)		
Equipment Type	**Isolator Type**	**Static Deflection (inches)**
Fans (including AHU, ERU, RTU)	Spring & Neoprene	2
Horizontal Fan Coil Units / Heat Pumps	Spring & Neoprene	1
Vertical Fan Coil Units	Neoprene	0.3
Dry coolers, Air-Cooled Condenser, Air-Cooled Chillers, Air-Cooled Equipment	Spring & Neoprene	2
Mechanical & Domestic Pumps ≥ 5hp (Concrete Inertia Base)	Spring & Neoprene	2
Mechanical & Domestic Pumps less than 5hp	Double-deflection Neoprene	0.3
Condensate Pumps	Neoprene Waffle Pad	0.1
Heat Exchangers	Spring & Neoprene	1
Boilers	Neoprene	0.3
Hot Water Generators, Boilers (Skid Mounted)	Spring & Neoprene	1
Air Compressors	Spring & Neoprene	1
Generators	Spring & Neoprene	2
Transformers < 150 kVA	Double-deflection Neoprene	0.3
Transformers ≥ 150 kVA	Spring & Neoprene	1

Table 5.11.3 Vibration Isolation Guidelines

- Do not penetrate sound-rated partitions with flex duct.
- Where possible, rooftop units should not be located above acoustically sensitive spaces. Locate equipment to avoid increased noise levels within the building.
- Ducts should be properly sealed to avoid leaks which generate duct whistling/airflow noise.
- Exhaust fans should be isolated with springs.
- Screen all rooftop and ground mounted equipment from street views.

5.11.2.9 PLUMBING NOISE AND VIBRATION

- Plumbing should not be routed through partitions at rooms designated as NC 30 or below.
- To reduce water-flow noise at sensitive spaces, all supply, hot-water heating, waste, HVAC, and drain piping must be vibration isolated when located adjacent to sensitive spaces.
- For pipes one inch diameter or less, Acousto-Plumb or Hubbard Holdrite Silencer clamps should be used.
- For waste pipes and supply pipes greater than one-inch diameter, isolate riser clamps with neoprene waffle pads and/or utilize the Armaflex or Trisolator isolators.

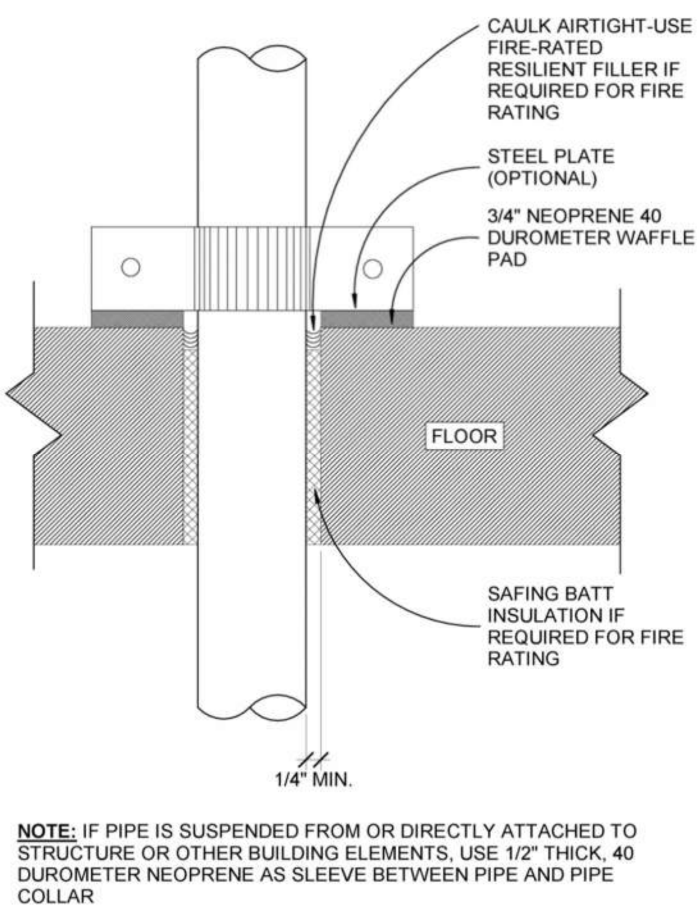


Figure 5.11.2.24 Plumbing Riser Isolation

- For trapeze piping supports, utilize combination neoprene/spring isolators at trapeze or other pipe hangers for the first three points of support or 50 feet (whichever is greater) after a pump or other vibration isolated equipment if the connection to the equipment is not flexible. See image below. For pipes greater than five-inches in diameter, flexible connections should be used at the outlet of the pump or other vibration-generating equipment.

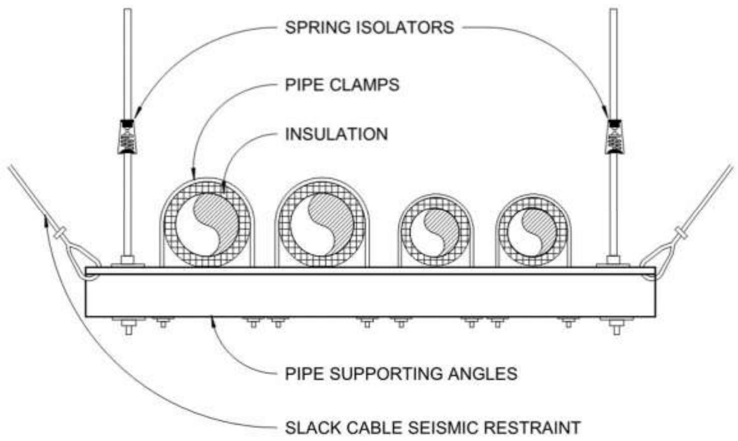


Figure 5.11.2.25 Trapeze Piping Acoustic Isolation

- Do not allow piping, pipe connectors, pipe hangers, or valves to directly touch the structure, studs, gypsum board, or other pipes.
- Support pipe as required by Uniform Plumbing Code.
- Plumbing penetrations should be sealed airtight with acoustical sealant.

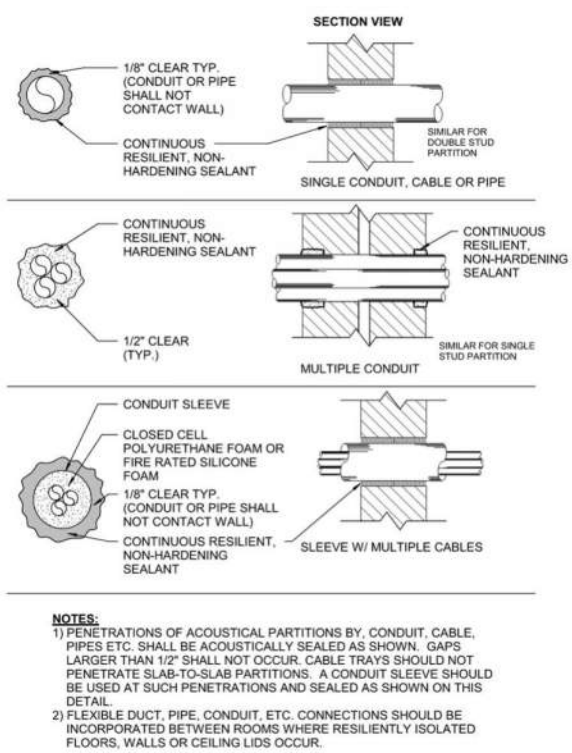


Figure 5.11.2.26 Partition Penetration Details

- Cast iron waste pipe is recommended; if ABS or other lightweight/thin wall material is planned, then pipe must be wrapped with Lowry's pipe wrap.
- Horizontal, cast-iron sanitary waste pipes above noise-sensitive spaces (e.g., classrooms, conference rooms, etc.) should be wrapped with pipe wrap such as Lowry's pipe wrap.
- Size supply piping for a maximum water-flow rate as shown in Table below.

Pipe Diameter (in.)	Maximum Water Flow Velocity (fps)	Maximum flow rate (gpm)
1/2	4	3
3/4	4	6
1	4	10
1-1/4	4	15
1-1/2	4	25
2	4	42
2-1/2	5	74
3	6	138
4	7	277
6	8	720

Table 5.11.4 Maximum Plumbing Flow Rates

- Plumbing walls should be sized to permit installation of piping, clamps and brackets without contact with studs or wallboard. Do not locate supply or wastewater pipes closer than one inch from gypsum board in walls or ceilings of sensitive spaces (e.g., conference rooms, etc.). All stud bays containing plumbing piping adjacent to sensitive spaces should contain batt insulation.

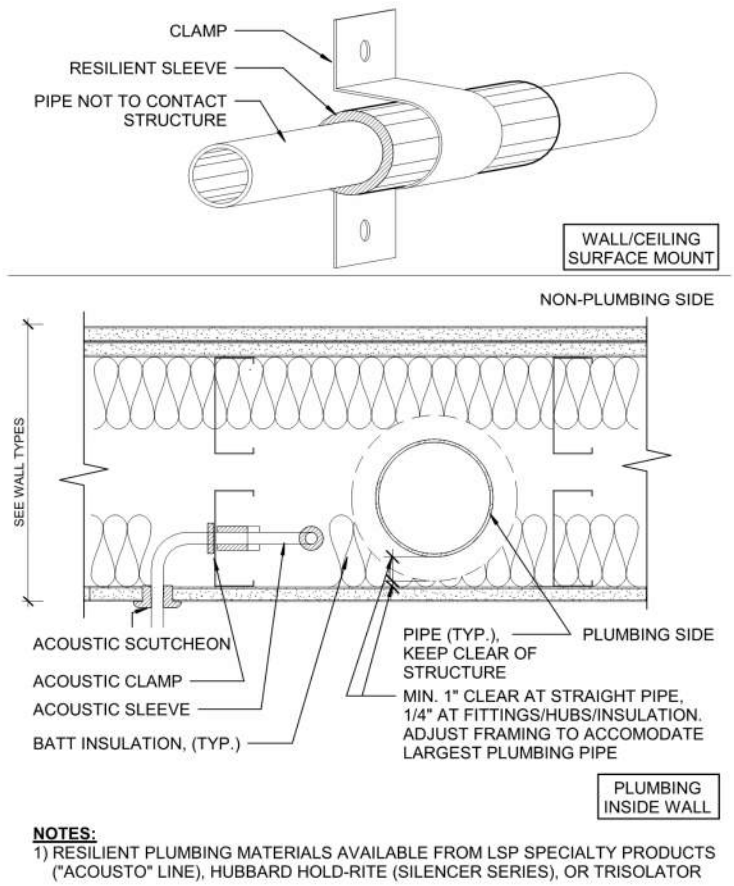


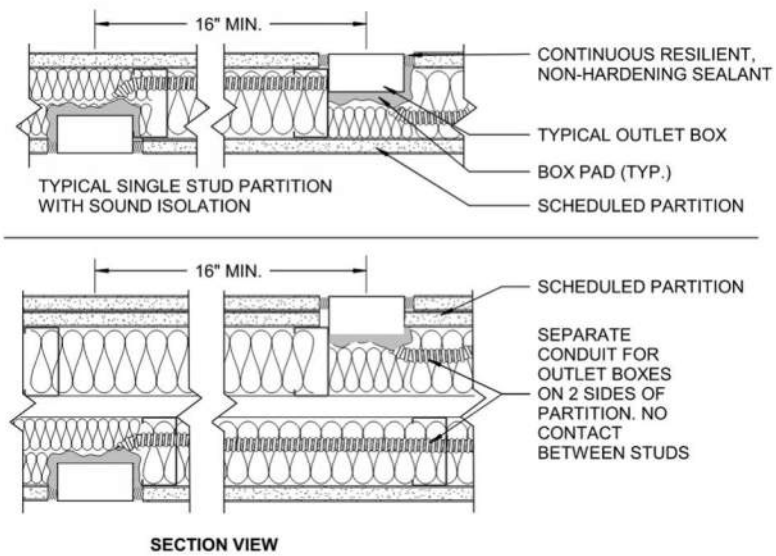
Figure 5.11.2.27 Plumbing Isolation at Noise-Sensitive Spaces

- Walls at sensitive spaces containing plumbing should have batt insulation in the stud or joist cavity containing the piping.
- Piping, clamps, or brackets must not bridge stud rows in double-stud walls.
- Holes cut in plates should be big enough to allow 1/2-inch clearance around pipe. It may be necessary to use a 6-inch, rather than 4-inch, plate to achieve this.
- Avoid placing rainwater leaders in sound-rated partitions at sensitive spaces.
- Stormwater and waste pipes should not be routed over or through noise-sensitive spaces and should be cast iron.
- Base-mounted pumps should be isolated with springs having a two-inch static deflection; inline pumps should be isolated with springs having one-inch static deflection.

5.11.2.10 ELECTRICAL NOISE AND VIBRATION

- Isolate all transformers as shown in Table 5.11.4. Transformers should be floor mounted.
- Transformers should not be mounted on framed walls that are adjacent to sensitive spaces.
- Place inverters at least 2 feet from any gypsum board framed wall (if associated with public/sensitive space) and vibration isolate similar as the transformers.

- Electrical connections to HVAC units, motors or other rotating equipment should be made with flexible conduit.
- In double-stud partitions, conduit should not bridge stud rows. Conduit should be routed only in the studs on the side of the unit served and should not be placed in the gap between stud rows.
- Outlet boxes on opposite sides of sound-rated partitions should be separated by at least 16 inches and provide backing equivalent to Lowry's outlet box pads. See image below. Ring-and-string for low voltage cabling is not allowed in sound-rated partitions. A traditional junction box should be used.



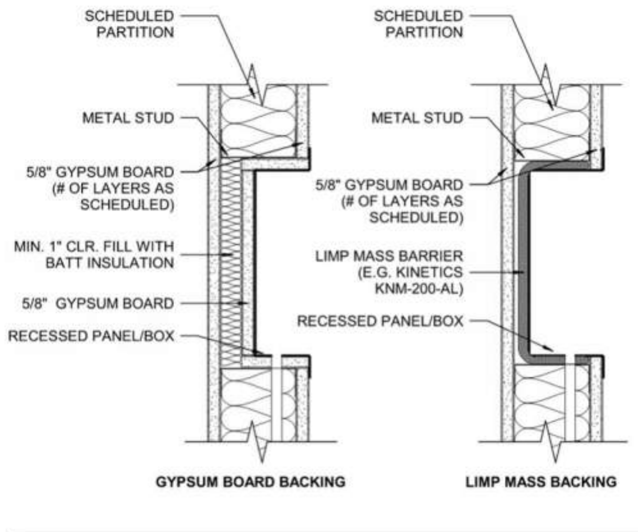
TYPICAL DOUBLE STUD PARTITION
WITH SOUND ISOLATION (SIMILAR FOR STAGGERED STUDS)

NOTES:
1) PLACE OUTLET BOXES IN SEPARATE STUD SPACES
2) BACK-TO-BACK OUTLETS NOT RECOMMENDED.
3) PLUG ALL UNUSED KNOCK-OUTS IN OUTLET BOXES WITH KNOCK-OUT CAPS.
4) PROVIDE BACKING EQUIVALENT TO "LOWRY'S" OUTLET BOX PADS (HARRY A. LOWRY & ASSOCIATES INC. (800) 225-8231)
5) DEPTH OF OUTLET BOX MUST BE COMPATIBLE WITH STUD SIZE IN ORDER TO ACCOMMODATE BOX PAD.
6) ACOUSTICAL BOX PAD REQUIREMENT APPLIES TO ALL PARTITIONS WITH UNFACED BATT INSULATION (MIN 1.5 PCF DENSITY).
7) USE OF MUD RINGS WITHOUT ELECTRICAL BOXES SHOULD NOT BE ALLOWED.

APPLIES TO POWER, PHONE, COMMUNICATIONS, ETC.

Figure 5.11.2.28 Junction Box Treatment

- Recessed panels, etc. should be treated as shown in image below.
- Do not allow electrical conduit or boxes to come into contact with plumbing.
- Cable tray and conduit penetrations in partitions should be packed tightly with heavy density putty once the cables are pulled.



NOTES:
1) LIMP MASS BARRIER AVAILABLE FROM ACOUSTHETICS (415) 753-1301

Figure 5.11.2.29 Recessed Panels and Fixtures

5.11.3 APPENDIX A: DEFINITION OF TERMS

ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; Chapter 49. Noise and Vibration Control.

Ceiling Attenuation Class (CAC): CAC rates a ceiling panel's noise reduction performance; higher values correspond to increased noise reduction.

Impact Insulation Class (IIC): A single-number laboratory rating which quantifies the property of a floor/ceiling construction to reduce footfall-generated noise. Increasing IIC values correspond to improved impact insulation.

Noise Criteria (NC): Noise Criteria ratings approximate the human perception of "noisiness" within buildings. The NC rating is based on 8 octave band sound pressure level measurements in which building machinery normally produce sound which can be annoying to the occupants. These eight measurements are compared with a family of curves. The highest curve under which all the data fall is the rating. This rating is not applicable to pure tones where a penalty must be added since they are perceived to be more "noisy." High NC ratings are louder and an increase by 10 points approximates a doubling of perceived loudness.

Noise Reduction Coefficient (NRC): A measure of the acoustical absorption performance of a material, calculated by averaging its sound absorption coefficients at 250, 500, 1000 and 2000 Hz, expressed to the nearest integral multiple of 0.05.

Reverberation Time (RT60): The time it takes for sound to decay 60 dB in a room. Large rooms with hard surfaces, such as concert halls, have reverberation times around 2 seconds. Smaller rooms with sound absorbing surfaces have shorter reverberation times. Music sounds richer in rooms with long reverberation times, but speech may be difficult to understand. Speech is more intelligible in rooms with shorter reverberation times, but music may sound dry.

Mid-frequency Reverberation Time (Tmf): The average reverberation times in the 500 Hz, 1 kHz and 2 kHz octave bands; it is an appropriate metric for speech communication.

Sound Transmission Class (STC): A single-figure laboratory rating used to compare walls, floor-ceiling assemblies and doors for their sound insulating properties with respect to reducing airborne noise.

A-Weighted Sound Level: A term for the A-Weighted sound pressure level. The sound level is obtained by use of a standard sound level meter and is expressed in decibels. Sometimes the unit of sound level is written as dB(A).

L_{eq}: The time-weighted average noise level during the stated measurement period.

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5.12 FIRE ALARM

5.12.1 FIRE ALARM SYSTEM SUMMARY

The renovation of the existing Engineering and Technology (E+T) building shall comply with the 2022 edition of the California Building Code (CBC), California Fire Code (CFC), DSA requirements, and all other referenced codes and standards.

5.12.2 APPLICABLE CODES AND STANDARDS

See section 6 for a full list of applicable codes and standards.

5.12.3 FIRE ALARM CONTROL PANEL

The main fire alarm control panel (FACP) will be located in the main electrical room.

5.12.4 FIRE ALARM SYSTEM INITIATION

Spot-type and duct smoke detection will be provided throughout the building where required by CBC and NFPA 72. Activation of any spot smoke detector will transmit an alarm signal to the fire alarm control panel.

Activation of a manual pull station will initiate an alarm condition for the fire alarm system. Manual pull stations will be provided within five feet of all exit doors and enclosures. Where permitted by the AHJ, a single manual pull station may be provided at an approved location as permitted by DSA requirements for an automatic fire alarm system.

5.12.5 OCCUPANT NOTIFICATION

Visible and audible occupant notification will be provided throughout the building via strobes, horns, and combination horn/strobe appliances. Audible notification devices shall be horns or combination horn/strobe devices where applicable. Horns shall be spaced to provide an alarm signal that is at least 15 dB above the ambient noise level.

All notification appliances will be ceiling mounted unless otherwise indicated. Devices will be white in color and marked with "FIRE" in red lettering. Strobes will be synchronized and have field-selectable candela ratings. Combination horn/strobe devices will be provided where possible. Weatherproof audible notification appliances will be provided at exterior areas.

5.12.6 FIRE ALARM ZONING

The entire building will be considered a single fire alarm zone. A general evacuation strategy will be used in the building such that all notification appliances will activate upon alarm signal at the fire alarm control panel.

5.12.7 FIRE ALARM WIRING

All fire alarm wiring will be classified and supervised in accordance with Class B criteria. Wiring between control panels will be installed in accordance with Class X criteria.

Intermediate Metal Conduit (IMC) conduit shall be used in mechanical rooms and anywhere that may be exposed to damage and in all locations required by NFPA 70 and 72. Electrical Metallic Tubing (EMT) conduit is acceptable for use above ceilings and when concealed from harm. Compression type fittings are required for EMT.

5.12.8 POWER SUPPLY

Secondary power will be provided for the fire alarm system by means of a battery backup, which will have sufficient capacity to provide a minimum of 24-hour standby service under normal conditions followed by not less than 5 minutes in alarm. Battery backup shall be provided for the fire alarm system as the building is not equipped with an emergency generator.

06
CODE ANALYSIS

6.1 PRELIMINARY BUILDING CODE ANALYSIS

The renovation of the existing Engineering and Technology (E+T) building shall comply with the 2022 edition of the California Building Code (CBC,) California Fire Code (CFC) and all other referenced codes and standards.

6.2 APPLICABLE CODES AND STANDARDS

The proposed building will comply with the applicable codes and standards as outlined below:

2022 California Building Standards Code Title 24 and California Code of Regulations (C.C.R)

- California Administrative Code, Title 24 C.C.R., Part 1
- California Building Code (CBC), Title 24 C.C.R., Part 2
- California Electrical Code (CEC), Title 24 C.C.R., Part 3 (2017 National Electrical Code Of The National Fire Protection Association, NFPA)
- California Mechanical Code (CMC), Title 24 C.C.R., Part 4 (2018 Uniform Mechanical Code of the International Association of Plumbing and Mechanical Officials, IAPMO)
- California Plumbing Code (CPC), Title 24 C.C.R., Part 5 (2018 Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials, IAPMO)
- California Energy Code, Title 24 C.C.R., Part 6
- California Fire Code (CFC), Title 24 C.C.R., Part 9
- California Green Building Standards, Title 24 C.C.R., Part 11
- California Referenced Standards, Title 24 C.C.R., Part 12

National Fire Protection Association (NFPA)

- NFPA 10, Portable Fire Extinguishers, 2021 edition
- NFPA 13, Automatic Sprinkler Systems, 2022 Edition
- NFPA 70, National Electrical Code, 2017 edition
- NFPA 72, National Fire Alarm Code, 2022 edition
- NFPA 110, Standard for Emergency and Standby Power Systems, 2019 edition

The scope of work will comply with the new construction requirements of the CBC and existing building requirements of CFC, Chapter 11.

6.3 OCCUPANCY CLASSIFICATION

The area of work will be classified as a business occupancy (Group B) per CBC Chapter 3. The building is considered a non-separated, mixed-use building per CBC Section 508.3. The primary occupancy in the building is Group B with accessory Group A-3 spaces.

6.4 BUILDING CONSTRUCTION TYPE, HEIGHT AND AREA

The construction type of the building is assumed to be Type III-B per CBC 601 and the provided as-built documents. The existing allowable and actual height and area values for Group B occupancies are tabulated below:

Table 6.4.1 Existing Building Height and Area

	Allowable	**Actual**
Building Height (Ft)	*55 ft*	*21 ft 3/8 in*
Building Height (No. of Stories)	*3*	*1*
Building Area (SF)[1]	*33,250 sf*	*32,540 sf*

The building is more than 30 feet from the property line and adjacent buildings; therefore, a frontage increase may be applied. A frontage factor of 0.75 is used as all exterior walls are more than 30 feet from adjacent buildings or property lines.

6.5 FIRE RESISTANCE RATINGS

STRUCTURAL FIRE RESISTANCE

In accordance with CBC Table 601, the fire resistance ratings in hours for building elements per construction type are summarized in the table below:

Table 6.5.1 Fire-Resistance Rating (hours) Requirements for Building Elements per CBC Table 601.

Building Element	**Type IIIB**
Primary structural frame	*0 hours*
Bearing Walls	
Interior	*0 hours*
Exterior	*2 hours*
Nonbearing Walls *Interior* *Exterior*	*0 hours*
Floor construction and associated secondary members	*0 hours*
Roof construction and associated secondary members	*0 hours*

ADDITIONAL FIRE RESISTANCE RATINGS

Electrical rooms shall be rated for 1 hour when they contain dry-type transformers with a capacity of 112.5 kVa or greater.

CBC Section 602 requires that a property line be established between separate buildings for the purposes of determining fire resistance rating requirements for exterior walls based on fire separation distance.

Fire Separation Distance = X (feet)	Construction Type	Rating (hours) Group A-3, B
X < 5	*All*	*1*
5 ≤ X < 10	*IA*	*1*
	IB, IIA, IIB	*1*
10 ≤ X < 30	*IA, IB*	*1*
	IIB	*0*
	IIA	*1*
X > 30	*All*	*0*

Table 6.5.2 Fire Resistance Rating (hours) Requirements for Exterior Walls based on Fire Separation Distance.

*Where Table 705.8 (below) permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.

The allowable areas of windows and doors in exterior walls are also determined utilizing the fire separation distance from the property line and CBC Table 705.8 below.

Table 6.5.3 - Table 705.5 Maximum Area of Exterior Wall Openings (unprotected, nonsprinklered) based on Fire Separation Distance.

FIRE SEPARATION DISTANCE X (ft)	ALLOWABLE AREA
0 < X < 3	*Not Permitted*
3 < X < 5	*15%*
5 < X < 10	*25%*
10 < X < 15	*45%*
15 < X < 20	*75%*

20 < X < 25	*No Limit*
25 < X < 30	*No Limit*
X > 30	*No Limit*

Note that the existing building is greater than 30 feet away from adjacent buildings and public ways. See the permitted core and shell drawings for each building for further information on exterior wall ratings.

6.6 INTERIOR FINISHES

Minimum interior finish requirements for walls will be provided in accordance with CBC Table 803.13, provided below:

Table 6.6.1 - Interior Finish Requirements

Occupancy	Component	Rating
A-3	*Exit enclosures*	*A*
	Corridors, exit access	*A*
	Rooms and enclosed spaces	*C*
B	*Exit enclosures*	*A*
	Corridors, exit access	*B*
	Rooms and enclosed spaces	*C*

The most restrictive finish requirements will apply throughout the building. All interior floor finishes will be either Class II or materials complying with ASTM D2859.

6.7 FIRE PROTECTION AND LIFE SAFETY SYSTEMS

Portable fire extinguishers will be existing to remain or relocated according to the proposed layout. The maximum floor area per fire extinguisher will be 11,250 square feet, and the maximum travel distance to the closest fire extinguisher will not exceed 75 feet. Additional fire extinguishers will be provided in all shop areas, electrical rooms, mechanical rooms, and other higher hazard spaces. Fire extinguishers will be placed in cabinets or surface-mounted, and any fire extinguisher cabinets in rated walls will have an equivalent fire resistance rating as the wall.

A sprinkler system is not required in the building per CFC 1103.5. A manual fire alarm system shall be installed throughout the building in accordance with CBC 1103.7 and DSA guidelines. Refer to the fire alarm section of this narrative for further information.

6.8 MEANS OF EGRESS

The following means of egress requirements are applicable and based on 2022 CBC and Chapter 11 of the CFC.

OCCUPANT LOAD

The occupant loads for all building areas will be calculated based on the following occupant load factors:

Table 6.8.1 - Select Occupant Load Factors.

Function of Space	Rooms/Areas Included	Occupant Load Factor
Accessory storage areas, mechanical equipment rooms	*Mechanical, electrical, and IT rooms, storage rooms*	*300 gross*
Assembly *Unconcentrated*	*Conference rooms, break rooms, group collaboration areas*	*15 net*
Business areas	*Circulation, private offices*	*150 gross*
Shops and vocational areas	*Laboratories*	*50 net*

NUMBER AND REMOTENESS OF EXITS

The number of exits and exit arrangement provided will be in accordance with CBC Section 1006.3. Where two exit or exit accesses are required, they are separated from each other by at least one-half the maximum overall diagonal distance of the building in accordance with CBC Section 1007.1.1. Rooms and areas requiring two or more exits will also be separated by one-half the maximum diagonal distance of the room or area served.

EXIT CAPACITY

The capacity of means of egress components for the area served will be sufficient for the occupant load served by the exits. The building is not protected with an automatic sprinkler system or emergency voice/ alarm communication system. The following exit capacity factors are applicable:

- Stairways: 0.30 inches of clear stair width per person
- Doorways, corridors, and ramps: 0.20 inches of clear door width per person

ARRANGEMENT OF MEANS OF EGRESS

Maximum travel distance, common path of travel and dead ends will be provided in accordance with criteria shown in the following:

Table 6.8.2 - Travel Distances by Occupancy.

Occupancy	Maximum Travel Distance (feet)	Maximum Common Path of Travel (feet) – Occupant Load		Maximum Dead End (feet)
		OL $\leq$ 30	OL $\geq$30	
Assembly, A-3	*200*	*75*	*75*	*20*
Business, B	*200*	*100*	*75*	*20*

DOORS

New doors shall have a minimum clear width of 32 inches. Doors will swing in the direction of exit travel when serving an occupant load greater than 50 people or serving a high-hazard space, including main electrical rooms. Positive latching door hardware will be provided on all fire resistance rated doors. All exit doors will remain accessible for use whenever the building is occupied.

MARKING OF MEANS OF EGRESS

Exits and exit access paths will be provided with approved exit signs. Exit signs will be placed throughout rooms and exit access routes such that the maximum distance from any point to an exit sign will not exceed 100 feet. Directional indicators will be provided on exit signs where the direction of travel to nearest exit is not apparent. Exit signs will be designed and placed such that they are readily visible and provide contrast with decorations, interior finishes, or other signs. Exit signs may be internally illuminated in accordance with UL 924 or externally illuminated to provide no less than 5 foot-candles (54 lux). Exit signs will employ a contrast ratio of not less than 0.5 and be provided with an emergency power source, either via batteries or connection to the building emergency power system.

A sign stating EXIT in visual characters, raised characters, and Braille and complying with ICC A117.1 will be provided adjacent to each door to an area of refuge, an exterior area for assisted rescue, an exit stairway or ramp, an exit passageway, and the exit discharge.

MEANS OF EGRESS ILLUMINATION

All means of egress will have artificial lighting to provide minimum of one foot-candle (11 lux) at the walking surface under normal power. Exit illumination will be arranged such that the failure of any one single lighting unit, such as the burning out of a bulb, will not leave the area or space in total darkness.

Emergency lighting facilities will be arranged to provide illumination that is not less than an average of one foot-candle (11 lux) and a minimum at any point of 0.1 foot-candle (1 lux) measured along the path of egress at floor level. Illumination levels will be permitted to decline to 0.6 foot-candle (6 lux) average and a minimum at any point of 0.06 foot-candle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 will not be exceeded.

ACCESSIBLE MEANS OF EGRESS

Accessible means of egress will comply with CBC Section 1009 and Chapter 11B.

6.9 STRUCTURAL - CODES AND STANDARDS

Because this project is a community college it falls under the regulatory statues governed by the Division of State Architecture (DSA). The most important codes governing this project will include:

- 2022 California Administrative Code
- 2022 California Building Code (with DSA Amendments)
- ASCE 41-17 Seismic Evaluation and Retrofit of Existing Buildings
- DSA Publication IR EB-3 Evaluation and Design Criteria Report
- DSA Publication IR EB-4 Rehabilitation Required by Cost

6.10 MECHANICAL - CODES AND STANDARDS

The project design will be in accordance with the following codes and standards:

- 2022 California Building Standards Administrative Code.
- 2022 California Building Code.
- 2022 California Mechanical Code.
- 2022 California Energy Code.
- 2022 California Fire Code.
- 2022 California Green Code, CALGreen.
- 2022 California Reference Standards Code.
- ASHRAE Standard 55: Thermal Environmental Conditions for Human Occupancy.
- ASHRAE Standard 62.1: Ventilation for Acceptable Indoor Air Quality.
- SMACNA – Fire and Smoke Damper Installation Guide.
- SMACNA – Guidelines for Seismic Restraints of Mechanical Systems.
- SMACNA – Standards for Duct Construction.
- Illuminating Engineering Society of North America.
- American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Handbooks.
- American Society for Testing and Materials (ASTM).
- American National Standards Institute (ANSI).
- Occupational Safety and Health Administration (OSHA).
- NFPA 54 National Fuel Gas Code.
- NFPA 101 Life Safety Code.
- NFPA 110 Standard for Emergency and Standby Power Systems.
- ANSI Z9.5 American National Standard for Laboratory Ventilation.
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
- American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation
- ASHRAE Standard 15 Safety Code for Mechanical Refrigeration.
- ASHRAE Standard 62 Ventilation for Acceptable Indoor Air Quality.
- ASHRAE Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings.
- ASHRAE Standard 110 Method of Testing Performance of Laboratory Fume Hoods.
- NIH Mechanical Design and Construction Standards & Guidelines.
- Air Conditioning and Refrigeration Institute (ARI).
- Air Diffusion Council (ADC).

- Air Movement and Control Association (AMCA).
- American Gas Association (AGA).
- American National Standards Institute (ANSI).
- American Society for Testing and Materials (ASTM).
- American Water Works Association (AWWA).
- Associated Air Balance Council (AABC).
- Manufacturers Standardization Society of Valve and Fitting Industry (MSS).
- American Society of Mechanical Engineers (ASME).
- ANSI/SMACNA HVAC Duct Construction Standards.
- SMACNA Seismic Restraint Manual

6.11 PLUMBING - CODES AND STANDARDS

The latest version of the following codes and standards will be used as references in the plumbing system design:

- 2022 California Building Code (Title 24, Part 2) with Supplements
- 2022 California Mechanical Code (Title 24, Part 4) with Supplements
- 2022 California Plumbing Code (Title 24, Part 5) with Supplements
- 2022 California Energy Code (Title 24, Part 6) with Supplements
- 2022 California Fire Code (Title 24, Part 9) with Supplements
- 2017 National Electrical Code (NEC)
- 2018 National Fire Protection Association (NFPA)
- American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Handbooks
- American Society of Mechanical Engineers (ASME) Boiler & Pressure Vessel Code
- American Society for Testing and Materials (ASTM)
- American National Standards Institute (ANSI)
- Occupational Safety and Health Administration (OSHA)
- American Water Works Association (AWWA)
- Underwriters' Laboratories (UL)
- American Society of Plumbing Engineers
- American Society of Sanitary Engineers
- NFPA 13 Standard for the Installation of Sprinkler Systems
- NFPA 30 Flammable and Combustible Liquids Code
- NFPA 45 Standard on Fire Protection for Laboratories Using Chemicals
- NFPA 54 National Fuel Gas Code
- National Fire Protection Association (NFPA) Standards
- U.S. Green Building Council Leadership in Energy and Environmental Design (LEED)
- Sheet Metal and Air-Conditioning Contractors National Association (SMACNA) Standards

6.12 ELECTRICAL - CODES AND STANDARDS

The latest version, or current adopted version, of the following building codes and standards will be used as references in the electrical alterations and additions to the ET building.

- 2022 California Building Code
- 2022 Title 24 – Part 3 – California Electrical Code
- 2022 Title 24 – Part 6 – California Energy Code
- 2022 Title 24 – Part 11 – California Green Building Standards Code
- Pleasant Hill Municipal Code
- National Fire Protection Association (NFPA)
- Institute of Electrical and Electronic Engineers (IEEE)
- Insulated Cable Engineers Association (ICEA)
- Illuminating Engineering Society of North America (IESNA)
- Americans with Disabilities Act (ADA)
- American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Handbook
- American Society for Testing and Materials (ASTM)
- American National Standards Institute (ANSI)
- Occupational Safety and Health Administration (OSHA)
- Underwriters' Laboratories (UL)

6.13 AV / IT / TELECOMMUNICATIONS / SECURITY - CODES AND STANDARDS

- **AVIXA**
- **California Building Code (CBC)**
- **National Electric Code (NEC)**
- **National Fire Protection Association (NFPA)**
- **Federal Communications Commission (FCC)**
- **City, and other local codes and requirements**
- **UL -** Underwriters' Laboratories
- **ASTM -** American Society for Testing Materials
- **NEMA -** National Electrical Manufacturer's Association
- **ANSI -** American National Standards Institute
- **ETL -** Electrical Testing Laboratories
- **SMPTE -** Society of Motion Picture and Television Engineers
- **EIA -** Electronic Industries Association
- **ISO -** International Standards Organization
- **Sound Systems Engineering, 2nd Ed.**, Davis and Davis, Howard W. Sams Co., 1987.
- The electronic security system implementation will comply with national, state, local and other binding building and fire codes, including the following:
    - **National Fire Protection Agency (NFPA)**
        - **NFPA 75,** "Protection of Information Technology Equipment"
    - **California Code of Regulations (CCR) Title 24,** California Building Standards Code
        - Part 2, "California Building Code" (CBC)
        - Part 3, "California Electrical Code" (CEC)
        - California Fire Code (CFC)
        - California Mechanical Code (CMC)
    - **FCC Regulations:**
        - Part 15 – Radio Frequency Devices & Radiation Limits
        - Part 68 – Connection of Terminal Equipment to the Telephone Network

6.14 ACOUSTICS - CODES AND STANDARDS

- **ASTM C 423** "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method"
- **ASTM E 90** "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements"
- **ASTM E 336** "Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings"
- **ASTM E 413** "Classification for Rating Sound Insulation"
- **ASTM E 1007** "Test Method for Field Measurement of Tapping Machine Impact"
- **ANSI Standard S12.60-2010 –** Performance Criteria, Design Requirements and Guidelines for Schools, Part 1: Permanent Schools.
- **LEED v4.1** for Existing Buildings and Schools
- **ASHRAE (2019) –** Chapter 49 Noise and Vibration Control
- Diablo Valley College (Contra Costa Community College District) Classroom Design Standards final report dated January 19, 2018

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

DIABLO VALLEY COLLEGE
ENGINEERING TECHNOLOGY BUILDING RENOVATION+ MATH AND ENGINEERING STUDENT CENTER

CRITERIA DOCUMENT
27 SEPTEMBER 2023

APPENDIX


EOPS
DVC

07

APPENDIX

7.1 LIST OF REFERENCED DOCUMENTS

- ET Building - As-Built Drawings (11/19/1971)
- Pre-renovation Hazardous Materials Survey - Terracon RN: R1227901 (03/27/2023)
- 2022 4DC Districwide Energy & Sustainability Goals
- ET Building Design Project - Curated Portfolio of Findings and Planning Principles (2022)
- DVC Classrooms Design Standards - WRNS Studio - (01/19/2018)
- DVC Campus Wayfinding - Sign System V 1.0 - (06/28/2017)
- 4CD Security Design Guidelines - (03/2018)
- Building Automation Standard Specifications - (02/24/2022)
- DVC ET Building - Structural Feasibility Study - Thornton Tomasetti - (01/31/2023)

7.2 ROOM DATA SHEETS

A Room Data Sheet has been completed for most of the spaces identified in the Space Program. The Room Data Sheets are intended to be graphic representations of potential room layouts, including equipment, laboratory benches, office furniture, etc. Also indicated on each sheet are preferred overall room dimensions, shown to the inside face of each wall. Detailed room services, such as electrical and data outlets, are intentionally not shown at this time and will be developed during future design phases. These room diagrams are the basis for understanding the capacity of the space program as well as testing the program on the proposed site. They are not intended to be the final layout.

7.2.1 SUPPORT SPACES

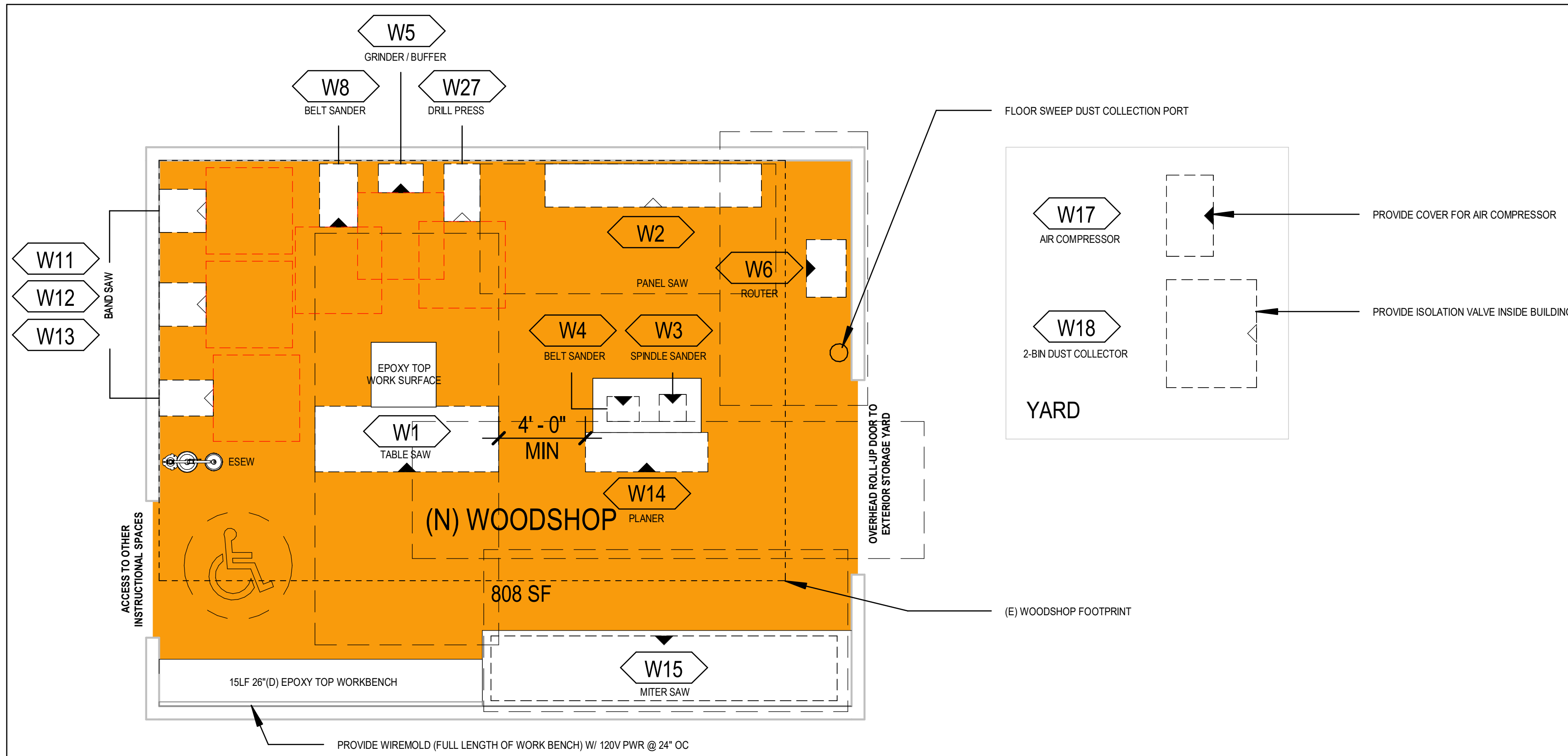
1. (N) WOODSHOP
2. (N) MACHINE SHOP
3. (N) CNC FAB LAB
4. (N) 3D PRINT & LASER CUT

7.2.2 INSTRUTIONAL SPACES

1. (N) DESIGN STUDIO
2. CONSTRUCTION LAB
3. (N) ELECTRICAL / ELECTRONICS LAB
4. (N) ELECTRICAL / ELECTRONICS LAB
5. (N) ELECTRICAL / ELECTRONICS LAB
6. (N) TESLA START (ROBOTICS) LAB
7. (N) TESLA START (MOTOR)
8. (N) MATERIAL TESTING LAB
9. (N) TYP. COMPUTER LAB
10. (N) TYP. CLASSROOM
11. (N) HYBRID CLASSROOM/COMPUTER LAB
12. OPEN STUDY - FOCUS STUDY - TUTORING & OFFICE HOURS
13. DROP-IN COMPUTER LAB - INSTRUCTIONAL COMPUTER LAB

7.2.3 OFFICES

14. (N) TYP. OFFICE
15. (N) OFFICE WORKSTATIONS
16. OPEN STUDY - FOCUS STUDY - TUTORING & OFFICE HOURS



GENERAL NOTES:

- STANDARD CLEAR OPERATOR SPACE (RED DASH) IN FRONT OF MACHINES IS 48" X 48" UON.

- CRITICAL EQUIPMENT CLEARANCE SHOWN IN BLACK DASHED LINES SURROUNDING EQUIPMENT

- WHERE CLEARANCE FOR INFREQUENTLY - MACHINES CAN OVER-LAP WHERE INDICATED.

- MAINTAIN MIN 24" DISTANCE BETWEEN MACHINES, EXCEPT AS OTHERWISE SHOWN IN LAYOUT PLAN.

- MAINTAIN 48" MIN WALKING PATH BETWEEN EQUIPMENT

***ITEMS FROM EQUIPMENT LIST NOT INCLUDED IN PLAN:**
- W7: SCROLL SAW
- W10: MORTISER
- W16: LATHES

NOTE TO DBE: WORK W/ CONSTRUCTION DEPT FOR REDUCED SQUARE FOOTAGE VERSION (560SF)

GRAPHIC SCALE: 1/8" = 1'-0"

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415.227.0100
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ARCHITECTURAL NOTES:
- FLOOR: SEALED CONCRETE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD & 1" ACOUSTIC PANELS, MIN NRC 0.8
- CEILING: MIN NRC 0.75
- DOORS: 72" DOUBLE DOOR (FULLY GASKETED) W/ VISION PANEL; POWERED OVERHEAD ROLL-UP DOOR
- FURNISHING: POWDERCOATED METAL LAB CASEWORK W/ WOOD WORK SURFACE / TOP; LAB STOOLS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- DUST COLLECTOR AT POINT OF USE
- FLOOR SWEEP DUST COLLECTOR

PLUMBING NOTES:
- EMERGENCY SHOWER / EYE WASH
- COMPRESSED AIR
- DOMESTIC COLD WATER

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY AT WORKBENCH FOR POWER
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS
- PROVIDE CONVIENCE 120V DUPLEX RECEPTACLE

LIGHTING NOTES:
- 100FC AT TASK

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 60*; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40
- ROOM ACOUSTICS - INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE - NC 40

* IF IT CAN BE DEMONSTRATED THAT EQUIPMENT IN THESE ROOMS MEETS THE BACKGROUND NOISE LIMITS SPECIFIED IN THE ADJACENT SPACE, STC RATING OF WALL CAN BE REDUCED TO NO LOWER THAN STC 50 (IF ADJACENT TO CLASSROOMS / TEACHING ROOMS) AND STC 45 (AT OTHER ADJACENCIES).

AV / IT:
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

WOODSHOP
SKETCH TITLE

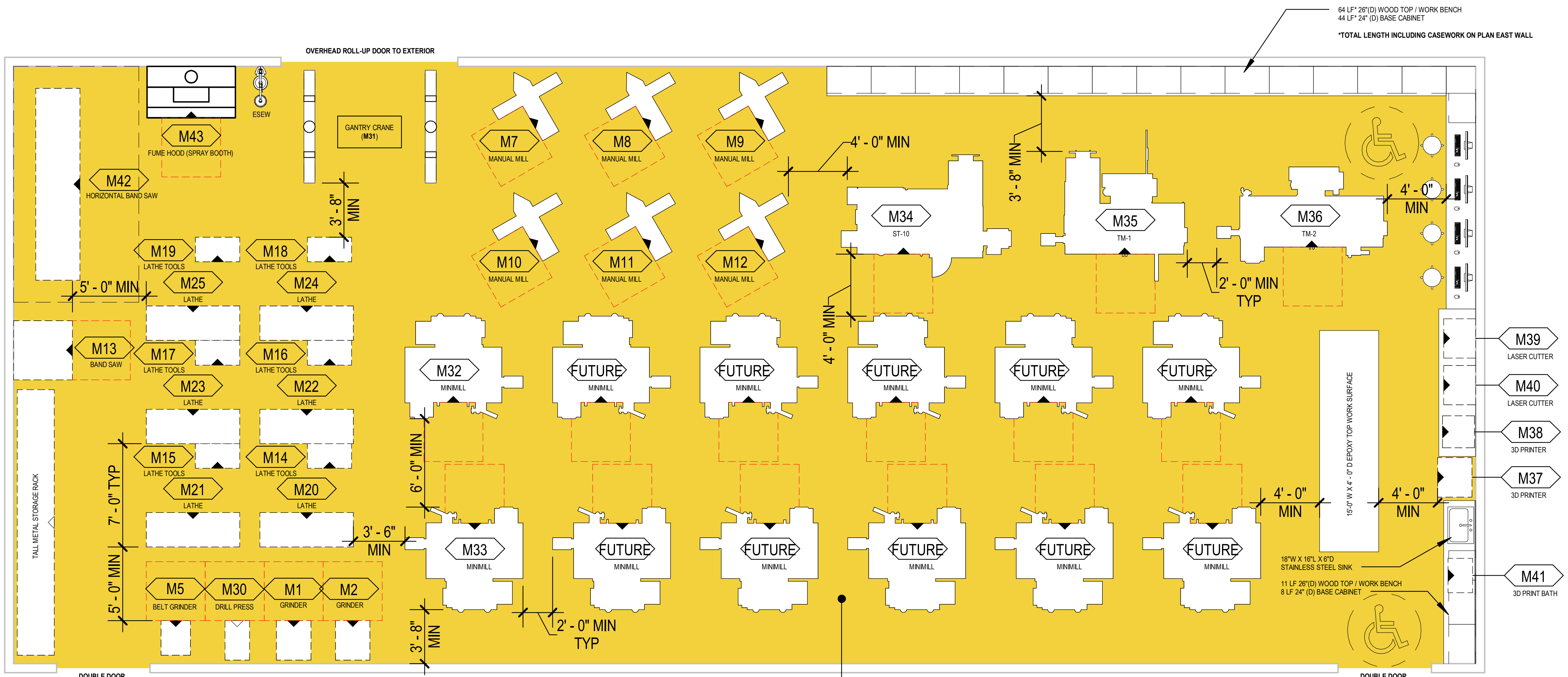
1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-1
SKETCH NUMBER

Plot Date: 8/10/2023 4:57:20 PM



(N) MACHINE SHOP

4016 SF

GENERAL NOTES:

- STANDARD CLEAR OPERATOR SPACE (IN RED DASH) IN FRONT OF MACHINES IS 48" X 48" UON.

- CRITICAL EQUIPMENT CLEARANCE SHOWN IN BLACK DASHED LINES SURROUNDING EQUIPMENT

- WHERE CLEARANCE FOR INFREQUENTLY - MACHINES CAN OVER-LAP WHERE INDICATED.

- MAINTAIN MIN 24" DISTANCE BETWEEN MACHINES, EXCEPT AS OTHERWISE SHOWN IN LAYOUT PLAN.

- MAINTAIN 48" MIN WALKING PATH BETWEEN EQUIPMENT, EXCEPT AS OTHERWISE INDICATED

***ITEMS FROM EQUIPMENT LIST NOT INCLUDED IN PLAN:**
- M3 - M4: GRINDER
- M6: TOOL GRINDER
- M27 - M29: DRILL PRESS
- M44: PRESS BRAKE
- M45 HYDRAULIC PRESS

8' 4' 0' 8' 16'

GRAPHIC SCALE: 1/8" = 1'-0"

Plot Date: 8/10/2023 4:57:20 PM

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smithgroup.com

ARCHITECTURAL NOTES:
- FLOOR: SEALED CONCRETE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD & 1" ACOUSTIC PANELS W/ MIN NRC 0.8
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR (FULLY GASKETED) W/ VISION PANEL; 72" DOUBLE DOOR (FULLY GASKETED) W/ VISION PANEL; POWERED OVERHEAD ROLL-UP DOOR
- FURNISHING: POWDERCOATED METAL LAB CASEWORK W/ WOOD WORK SURFACE / TOP; LAB STOOLS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- UTILITY POLE TO CNC MILLS & LATHES

PLUMBING NOTES:
- UTILITY POLE TO CNC MILLS & LATHES
- EMERGENCY SHOWER / EYE WASH
- STAINLESS STEEL SINK
- COMPRESSED AIR
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- SEE EQUIPMENT SCHEDULE FOR COMPRESSED AIR REQUIREMENTS

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY W/ POWER AT PERIMETER WORK SURFACE
- UTILITY POLE TO CNC MILLS & CNC LATHES
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS
- PROVIDE CONVIENCE 120V DUPLEX RECEPTACLE

LIGHTING NOTES:
- 100FC AT TASK

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 60*; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 40

* IF IT CAN BE DEMONSTRATED THAT EQUIPMENT IN THESE ROOMS MEETS THE BACKGROUND NOISE LIMITS SPECIFIED IN THE ADJACENT SPACE, STC RATING OF WALL CAN BE REDUCED TO NO LOWER THAN STC 50 (IF ADJACENT TO CLASSROOMS / TEACHING ROOMS) AND STC 45 (AT OTHER ADJACENCIES).

AV / IT:
- UTILITY POLE TO CNC MILLS & CNC LATHES
- SURFACE MOUNTED RACEWAY AT WORKSTATION: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- 3D PRINTERS, CNC MILL & LASER CUTTERS: (1) X 2-CABLE DROP (BLUE JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

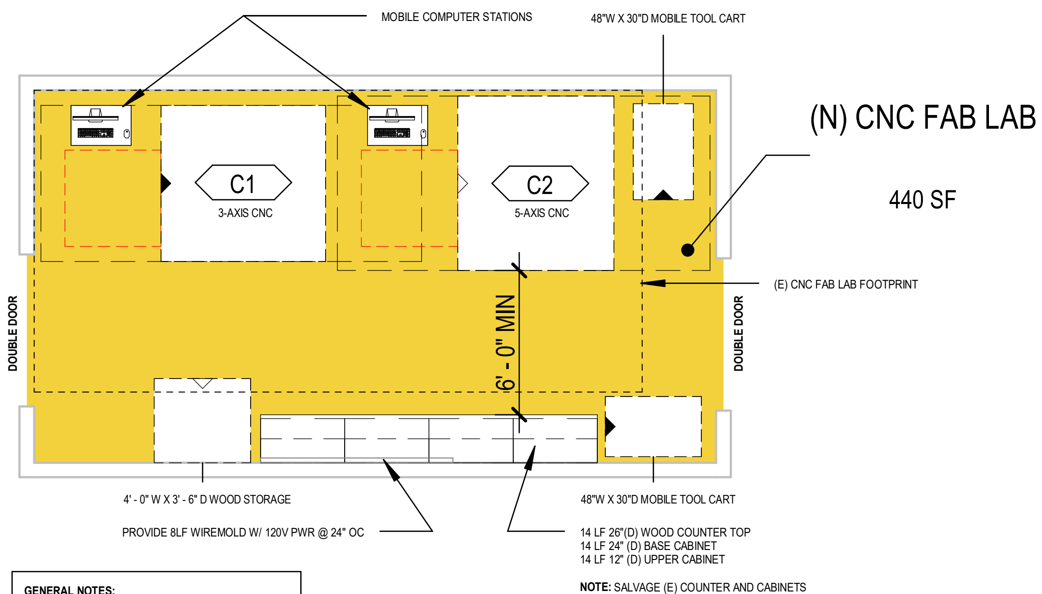
MACHINE SHOP
SKETCH TITLE

1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-2
SKETCH NUMBER



GENERAL NOTES:

- STANDARD CLEAR OPERATOR SPACE (RED DASH) IN FRONT OF MACHINES IS 48" X 48" UON.

- CRITICAL EQUIPMENT CLEARANCE SHOWN IN BLACK DASHED LINES SURROUNDING EQUIPMENT

8' 4' 0' 8' 16'

GRAPHIC SCALE: 1/8" = 1'-0"

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ARCHITECTURAL NOTES:
- FLOOR: SEALED CONCRETE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD & 1" ACOUSTIC PANELS, MIN NRC 0.8
- CEILING: MIN NRC 0.85
- DOORS: 72" DOUBLE DOOR (FULLY GASKETED) W/ VISION PANEL
- FURNISHING: POWDERCOATED METAL LAB CASEWORK W/ WOOD WORK SURFACE / TOP; LAB STOOLS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- DUCTED EXHAUST / DUST COLLECTOR

PLUMBING NOTES:
- COMPRESSED AIR

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY AT WORKSTATIONS FOR POWER & DATA
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS
- PROVIDE 8LF CONTINUOUS RACEWAY AT COUNTER

LIGHTING NOTES:
- 100FC AT TASK

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 65*; AT CORRIDORS / OPEN PLAN - STC 45; STC 45 ACOUSTICAL DOORS
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 40

* IF IT CAN BE DEMONSTRATED THAT EQUIPMENT IN THESE ROOMS MEETS THE BACKGROUND NOISE LIMITS SPECIFIED IN THE ADJACENT SPACE, STC RATING OF WALL CAN BE REDUCED TO NO LOWER THAN STC 50 (IF ADJACENT TO CLASSROOMS / TEACHING ROOMS) AND STC 45 (AT OTHER ADJACENCIES).

AV / IT:
- SURFACE MOUNTED RACEWAY AT WORKSTATION: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- CNC MACHINES: (1) X 2-CABLE DROP (BLUE JACKS)
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

CNC FAB LAB
SKETCH TITLE

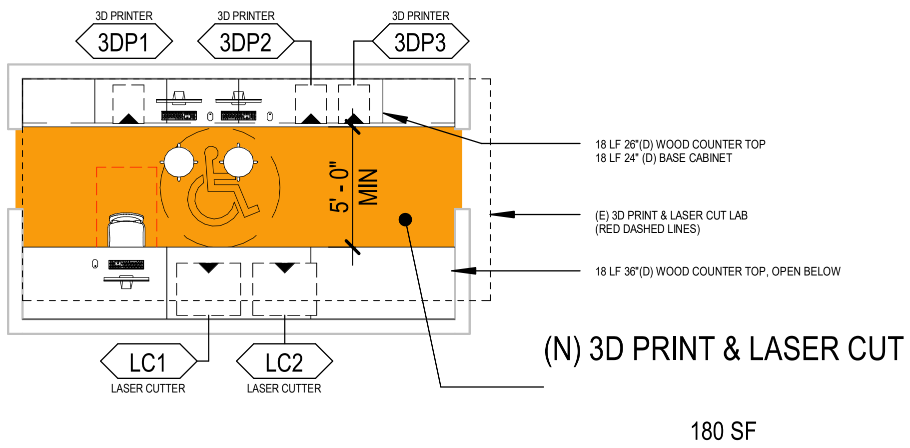
1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-3
SKETCH NUMBER

Plot Date: 8/10/2023 4:57:20 PM



GRAPHIC SCALE: 1/8" = 1'-0"

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- FLOOR: SEALED CONCRETE, RESILIENT FLOORING, OR CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR (FULLY GASKETED) W/ VISION PANEL
- FURNISHING: ARCHITECTURAL CASEWORK W/ WOOD WORK SURFACE / TOP; LAB STOOLS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- DUCTED EXHAIST FOR LASER PRINTERS

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY W/ POWER & DATA
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 50FC AT TASK

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 60*; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 40

* IF IT CAN BE DEMONSTRATED THAT EQUIPMENT IN THESE ROOMS MEETS THE BACKGROUND NOISE LIMITS SPECIFIED IN THE ADJACENT SPACE, STC RATING OF WALL CAN BE REDUCED TO NO LOWER THAN STC 50 (IF ADJACENT TO CLASSROOMS / TEACHING ROOMS) AND STC 45 (AT OTHER ADJACENCIES).

AV / IT:
- SURFACE MOUNTED RACEWAY AT WORKSTATION: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- 3D PRINTERS & LASER CUTTERS: (1) X 2-CABLE DROP (BLUE JACKS)
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

3D PRINTING & LASER CUT ROOM
SKETCH TITLE

1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-4
SKETCH NUMBER

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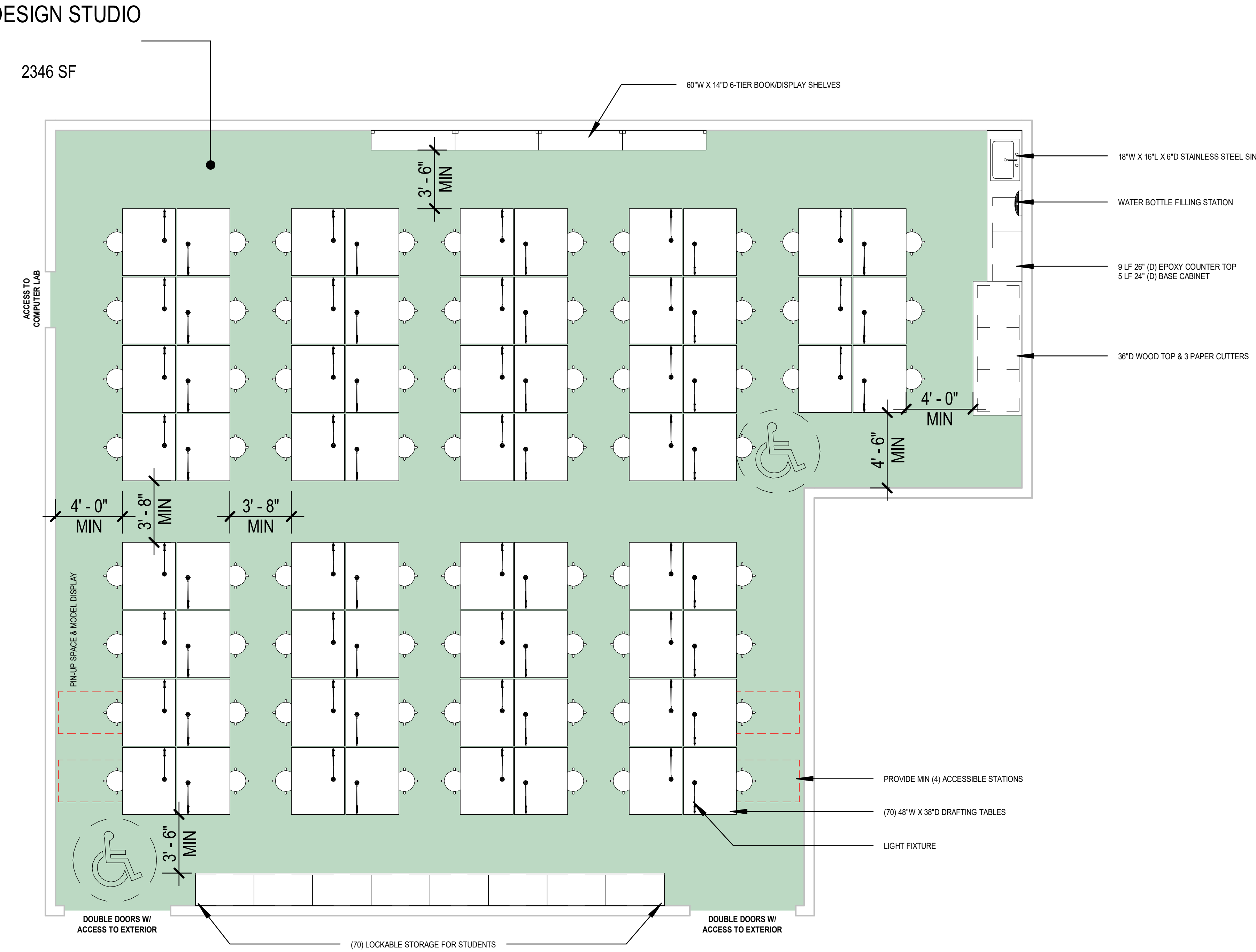


SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: MIN (70)
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 72" DOUBLE DOOR W/ VISION PANEL; 36" SINGLE LEAF DOOR W/ VISION PANEL
- FURNISHING: 48"W DRAFTING TABLE W/ DATA & POWER; DRAFTING STOOLS; SWING ARM LAMPS; (70) LOCABLE STUDENT STORAGE; 6-TIER BOOK/DISPLAY SHELVES; ARCHITECTURAL CASEWORK W/ WOOD WORK SURFACE / TOP
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- STAINLESS STEEL SINK
- WATER BOTTLE FILLING STATION
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER

ELECTRICAL NOTES:
- PROVIDE POWER FLOOR BOXES, COORDINATED WITH DESK LOCATIONS

LIGHTING NOTES:
- 50 FC AT TASK

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 45; AT CLASSROOMS / TEACHING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 0.6 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

AV / IT:
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

GRAPHIC SCALE: 1/8" = 1'-0"

DESIGN STUDIO
SKETCH TITLE

1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

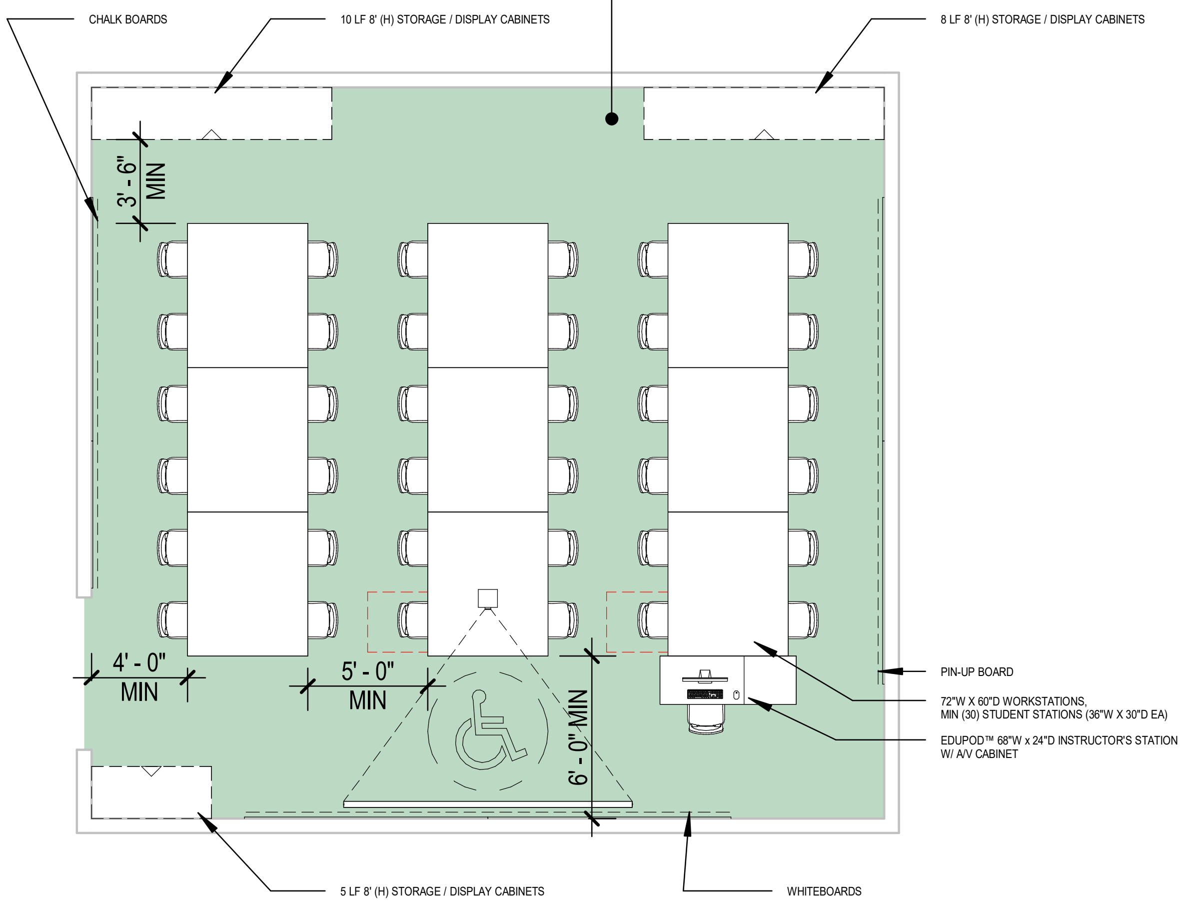
14519.000
PROJECT NUMBER

RDS-5
SKETCH NUMBER

Plot Date: 8/10/2023 4:57:22 PM

CONSTRUCTION LAB

1004 SF



GENERAL NOTES:

- EVALUATE WITH USERS IF AN ALTERNATE /CUSTOMIZED DESK IS PREFERRED. WHAT IS SHOWN IS THE DVC STANDARD, COORDINATED WITH DISTRICT AV SUPPORT.

- SOME END USERS HAVE EXPRESSED PREFERENCE FOR EXISTING FURNITURE LAYOUT FOR CONSTRUCTION LAB (CURRENTLY 120B). HOWEVER, EXISTING CONFIGURATION DOES NOT PROVIDE FOR 30 STUDENTS. REVIEW AND CONFIRM PREFERENCES OF 30 STUDENTS VS CURRENT WORK TABLE LAYOUT WITH END USERS.

8' 4' 0' 8' 16'

GRAPHIC SCALE: 1/8" = 1'-0"

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: MIN (30)
- FLOOR: SEALED CONCRETE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 72" DOUBLE DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 20LF); 8'(H) STORAGE & DISPLAY CABINET; WOOD WORK SURFACE / TOP; CHAIRS; REVIEW CHALKBOARD & PIN-UP BOARD REQURIEMENTS W/ END USERS.
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- POWER VIA CEILING MOUNT CHORD REELS TO SERVE ALL STATIONS
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS

LIGHTING NOTES:
- 50 FC AT TASK, 75 FC AT DEMONSTRATION

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 60*; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 40

* IF IT CAN BE DEMONSTRATED THAT EQUIPMENT IN THESE ROOMS MEETS THE BACKGROUND NOISE LIMITS SPECIFIED IN THE ADJACENT SPACE, STC RATING OF WALL CAN BE REDUCED TO NO LOWER THAN STC 50 (IF ADJACENT TO CLASSROOMS / TEACHING ROOMS) AND STC 45 (AT OTHER ADJACENCIES).

AV / IT:
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- PROVIDE DATA PATHWAYS FOR POSSIBLE FUTURE INCORPORATION OF DATA AT WORK STATIONS
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

CONSTRUCTION LAB
SKETCH TITLE

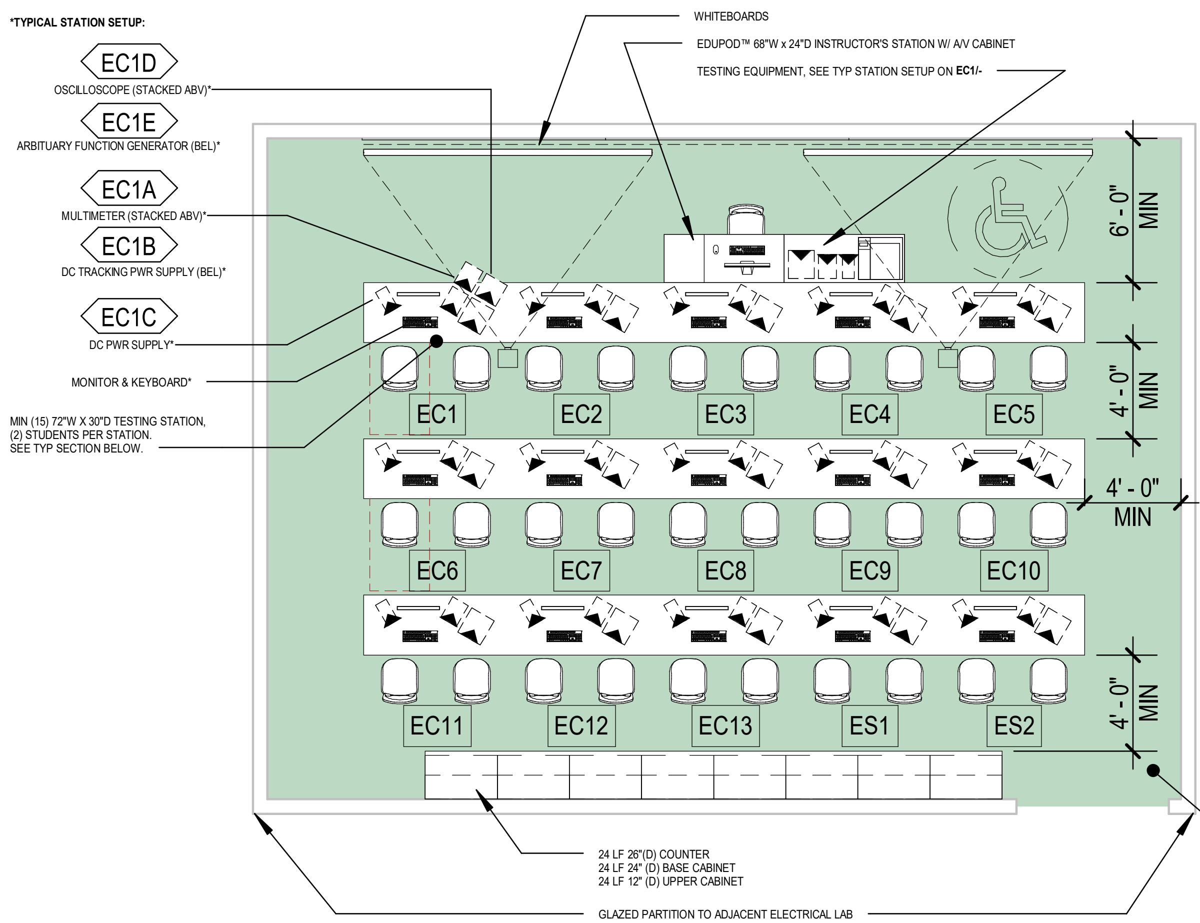
1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

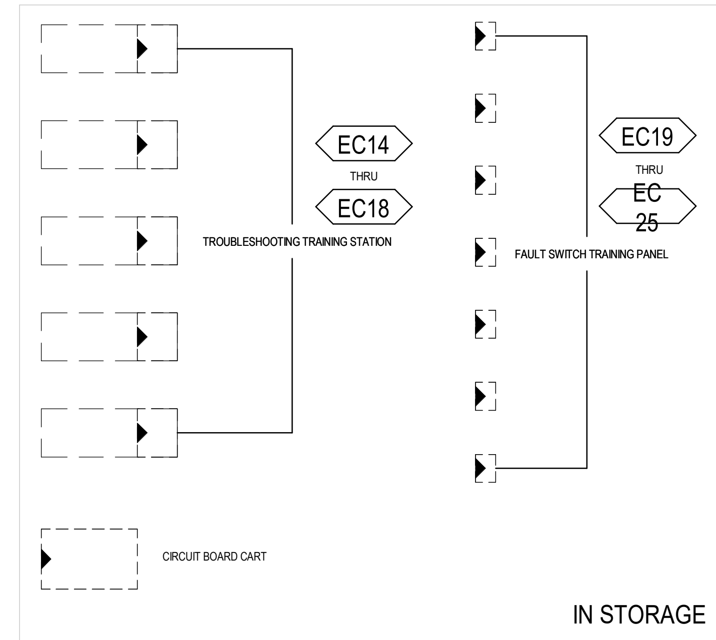
14519.000
PROJECT NUMBER

RDS-6
SKETCH NUMBER

Plot Date: 8/10/2023 4:57:23 PM

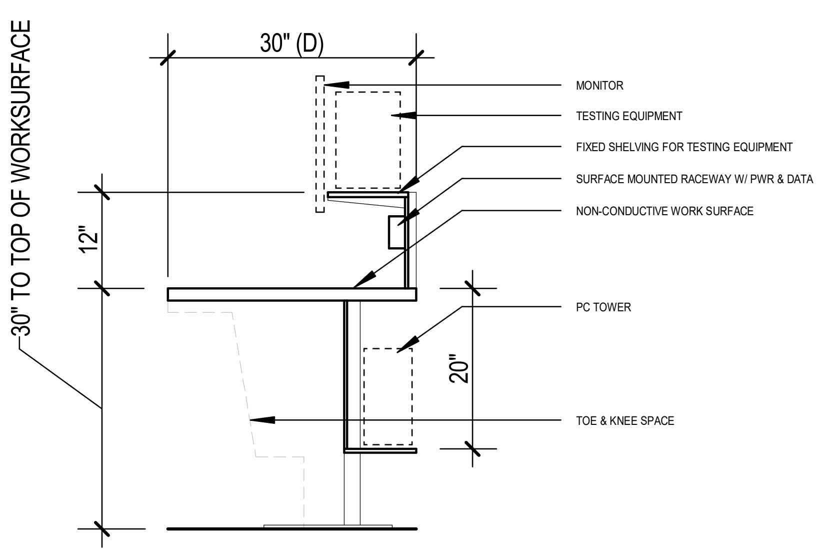


OPTION 1: PAIRED 6FT STATIONS



(N) ELECTRICAL / ELECTRONICS LAB

1045 SF



TYP SECTION - ELECTRICAL TESTING STATION

8' 4' 0' 8' 16'

GRAPHIC SCALE: 1/8" = 1'-0"

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: MIN (30)
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: INTERIOR - 36" SINGLE LEAF DOOR W/ VISION PANEL; EXTERIOR / LOADING - 72" DOUBLE DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 30LF); POWDERCOATED METAL LAB CASEWORK W/ NON-CONDUCTIVE WORK SURFACE / TOP; NON-CONDUCTIVE WOIRK SURFACE W/ POWER & DATA; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY W/ POWER & DATA AT EACH STATION
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 50FC AT TASK, 75FC AT DEMONSTRATION

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

AV / IT:
- SURFACE MOUNTED RACEWAY AT STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

ELECTRICAL & ELECTRONICS LAB

SKETCH TITLE

As indicated

SCALE

DVC ET BLDG CRITERIA DOCUMENTATION

PROJECT NAME

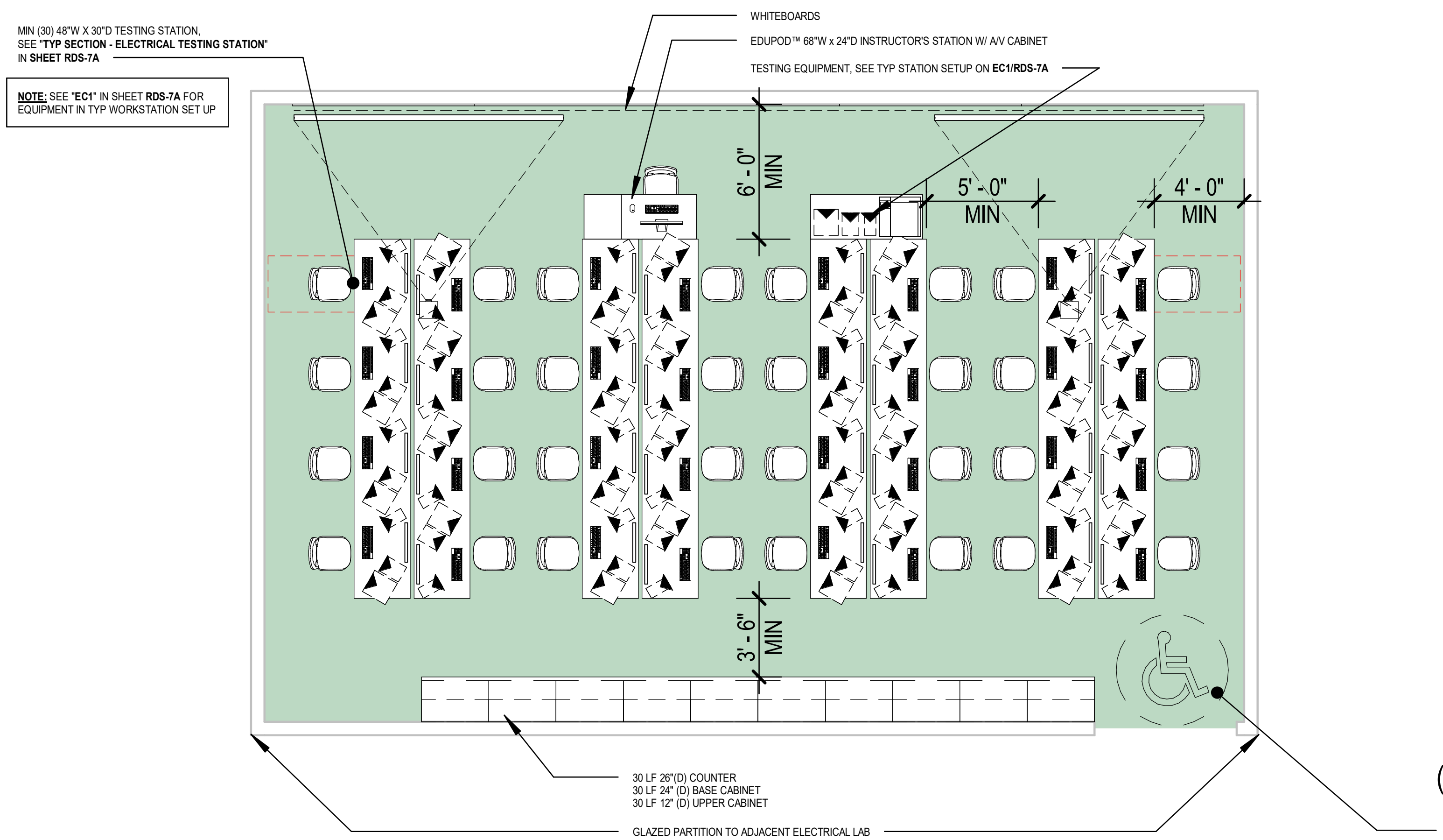
14519.000

PROJECT NUMBER

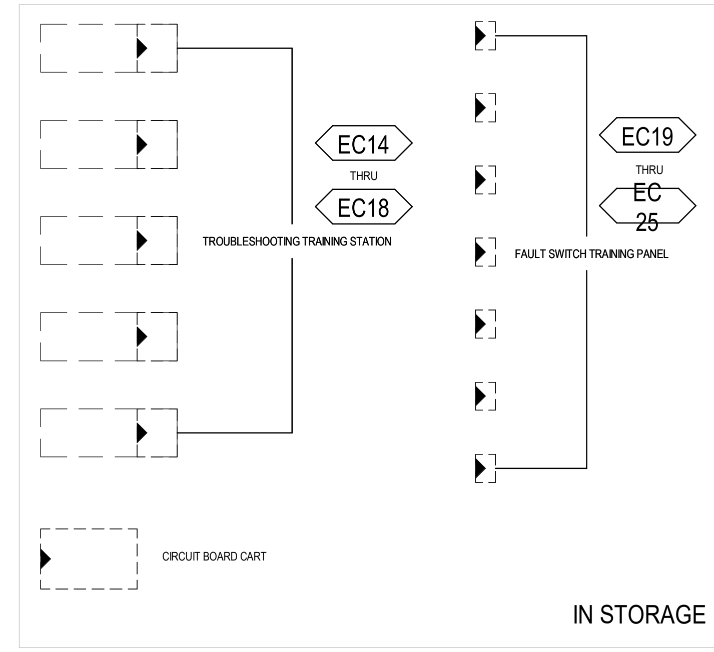
RDS-7A

SKETCH NUMBER

Plot Date: 8/10/2023 4:57:24 PM



(N) ELECTRICAL / ELECTRONICS LAB



OPTION 2: ROTATED 4 FT STATIONS

1201 SF

GRAPHIC SCALE: 1/8" = 1'-0"

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: MIN (30)
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: INTERIOR - 36" SINGLE LEAF DOOR W/ VISION PANEL; EXTERIOR / LOADING - 72" DOUBLE DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 30LF); POWDERCOATED METAL LAB CASEWORK W/ NON-CONDUCTIVE WORK SURFACE / TOP; NON-CONDUCTIVE WOIRK SURFACE W/ POWER & DATA; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY W/ POWER & DATA AT EACH STATION
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 50FC AT TASK, 75FC AT DEMONSTRATION

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

AV / IT:
- SURFACE MOUNTED RACEWAY AT STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

ELECTRICAL & ELECTRONICS LAB

SKETCH TITLE

1/8" = 1'-0"

SCALE

DVC ET BLDG CRITERIA DOCUMENTATION

PROJECT NAME

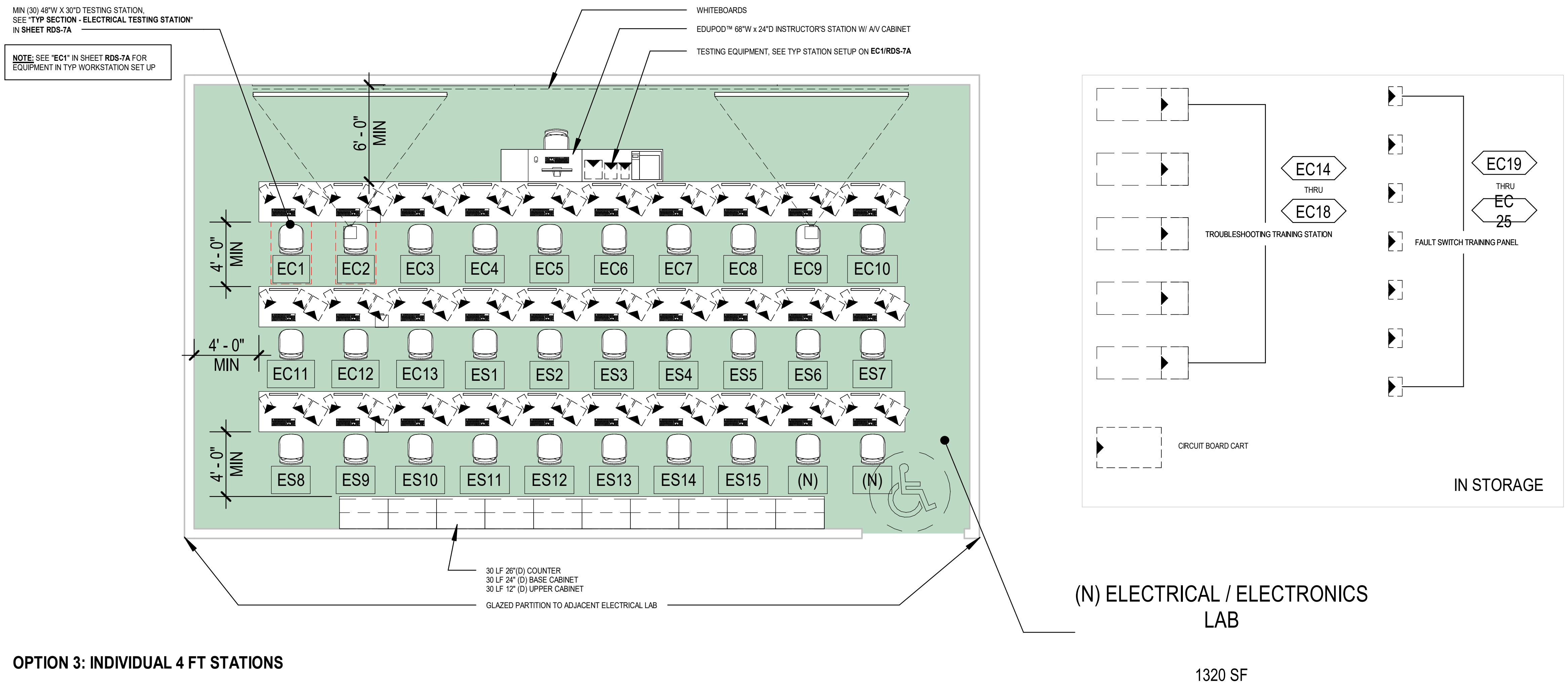
14519.000

PROJECT NUMBER

RDS-7B

SKETCH NUMBER

Plot Date: 8/10/2023 4:57:26 PM



OPTION 3: INDIVIDUAL 4 FT STATIONS

GRAPHIC SCALE: 1/8" = 1'-0"

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: MIN (30)
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: INTERIOR - 36" SINGLE LEAF DOOR W/ VISION PANEL; EXTERIOR / LOADING - 72" DOUBLE DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 30LF); POWDERCOATED METAL LAB CASEWORK W/ NON-CONDUCTIVE WORK SURFACE / TOP; NON-CONDUCTIVE WOIRK SURFACE W/ POWER & DATA; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY W/ POWER & DATA AT EACH STATION
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 50FC AT TASK, 75FC AT DEMONSTRATION

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

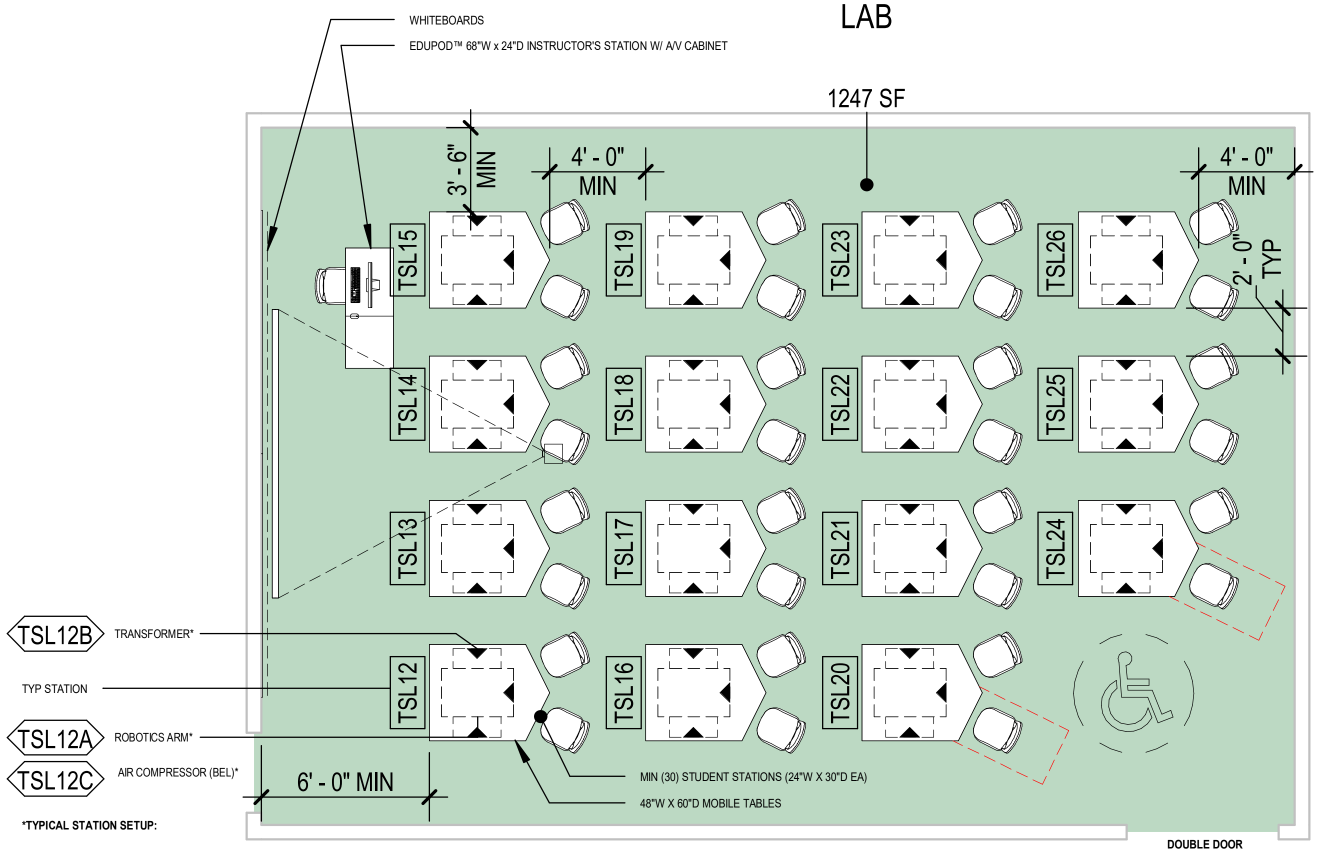
AV / IT:
- SURFACE MOUNTED RACEWAY AT STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

ELECTRICAL & ELECTRONICS LAB	SKETCH TITLE
1/8" = 1'-0"	SCALE
DVC ET BLDG CRITERIA DOCUMENTATION	PROJECT NAME
14519.000	PROJECT NUMBER
RDS-7C	SKETCH NUMBER

Plot Date: 8/10/2023 4:57:28 PM

(N) TESLA START (ROBOTICS) LAB



GRAPHIC SCALE: 1/8" = 1'-0"

Plot Date: 8/10/2023 4:57:30 PM

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: (30)
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 72" DOUBLE DOOR W/ VISION PANEL; 36" SINGLE LEAF DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 20 LF); TABLES W/ POWER & DATA; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- SEE EQUIPMENT SCHEDULE FOR COMPRESSED AIR REQUIREMENTS

ELECTRICAL NOTES:
- POWER & DATA CONNECTION AT EACH STATION, FLOOR BOXES TO EACH TABLE LOCATION
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 50FC AT 3FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

AV / IT:
- STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

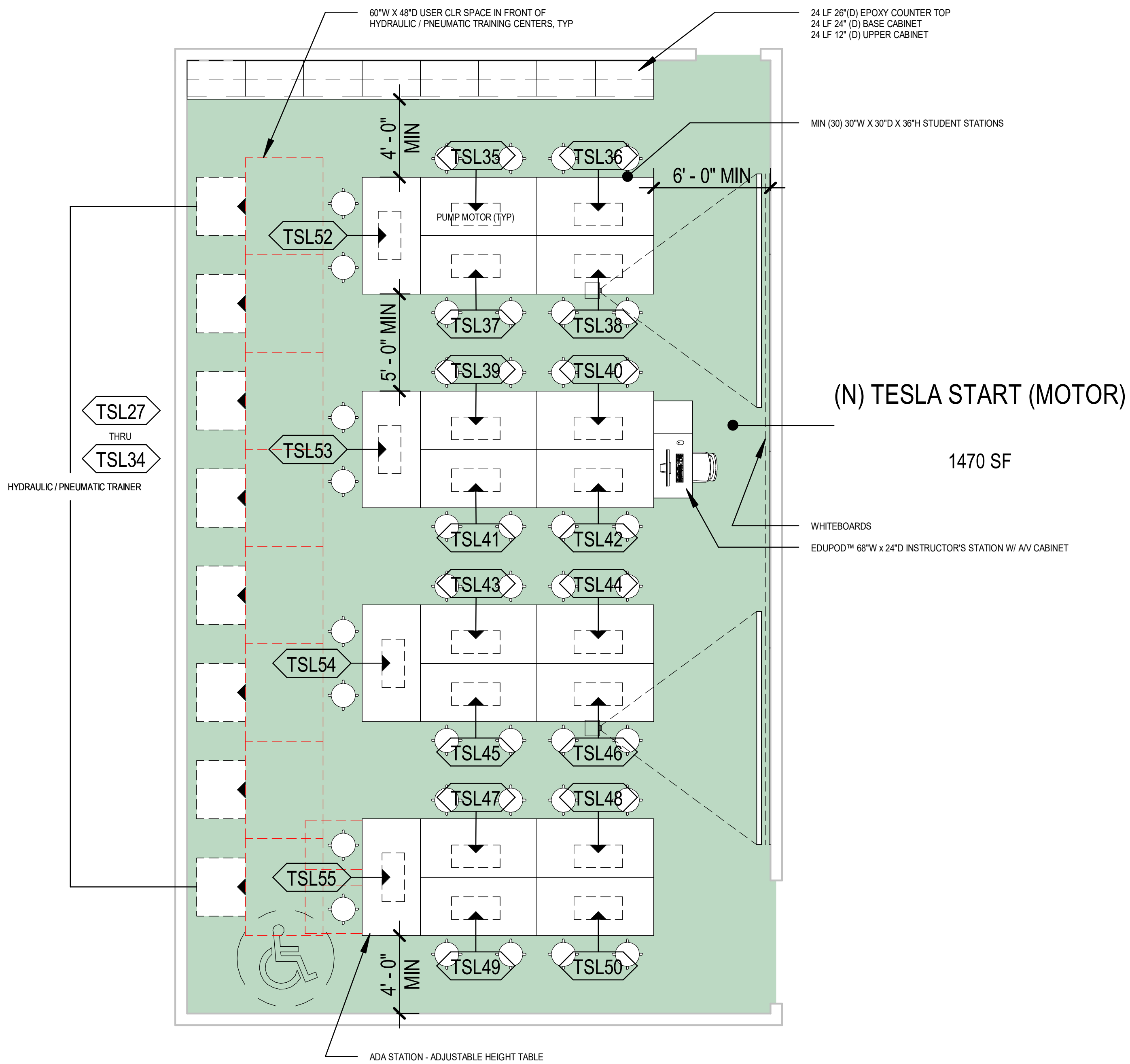
TESLA START LAB (ROBOTICS)
SKETCH TITLE

1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-8
SKETCH NUMBER



***ITEMS FROM EQUIPMENT LIST NOT INCLUDED IN PLAN:**
- TSL55 - TSL64: DAC PUMP MOTORS (DEMO)

GRAPHIC SCALE: 1/8" = 1'-0"

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301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: (40), MIN (30)
- FLOOR: SEALED CONCRETE OR RESILIENT FLOORING
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD- CEILING: MIN NRC 0.75
- DOORS: 72" DOUBLE DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 35 LF); POWDERCOATED METAL LAB CASEWORK W/ WOOD WORK SURFACE / TOPS; STOOLS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- COMPRESSED AIR, SEE EQUIPMENT SCHEDULE FOR REQUIREMENTS

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY W/ POWER & DATA
- POWER & DATA CONNECTION AT EACH STATION, FED FROM BELOW
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 50FC AT 3FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 60*; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 40

* IF IT CAN BE DEMONSTRATED THAT EQUIPMENT IN THESE ROOMS MEETS THE BACKGROUND NOISE LIMITS SPECIFIED IN THE ADJACENT SPACE, STC RATING OF WALL CAN BE REDUCED TO NO LOWER THAN STC 50 (IF ADJACENT TO CLASSROOMS / TEACHING ROOMS) AND STC 45 (AT OTHER ADJACENCIES).

AV / IT:
- STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

TESLA START LAB
(MOTOR TECH)
SKETCH TITLE

1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-9
SKETCH NUMBER

Plot Date: 8/10/2023 4:57:30 PM

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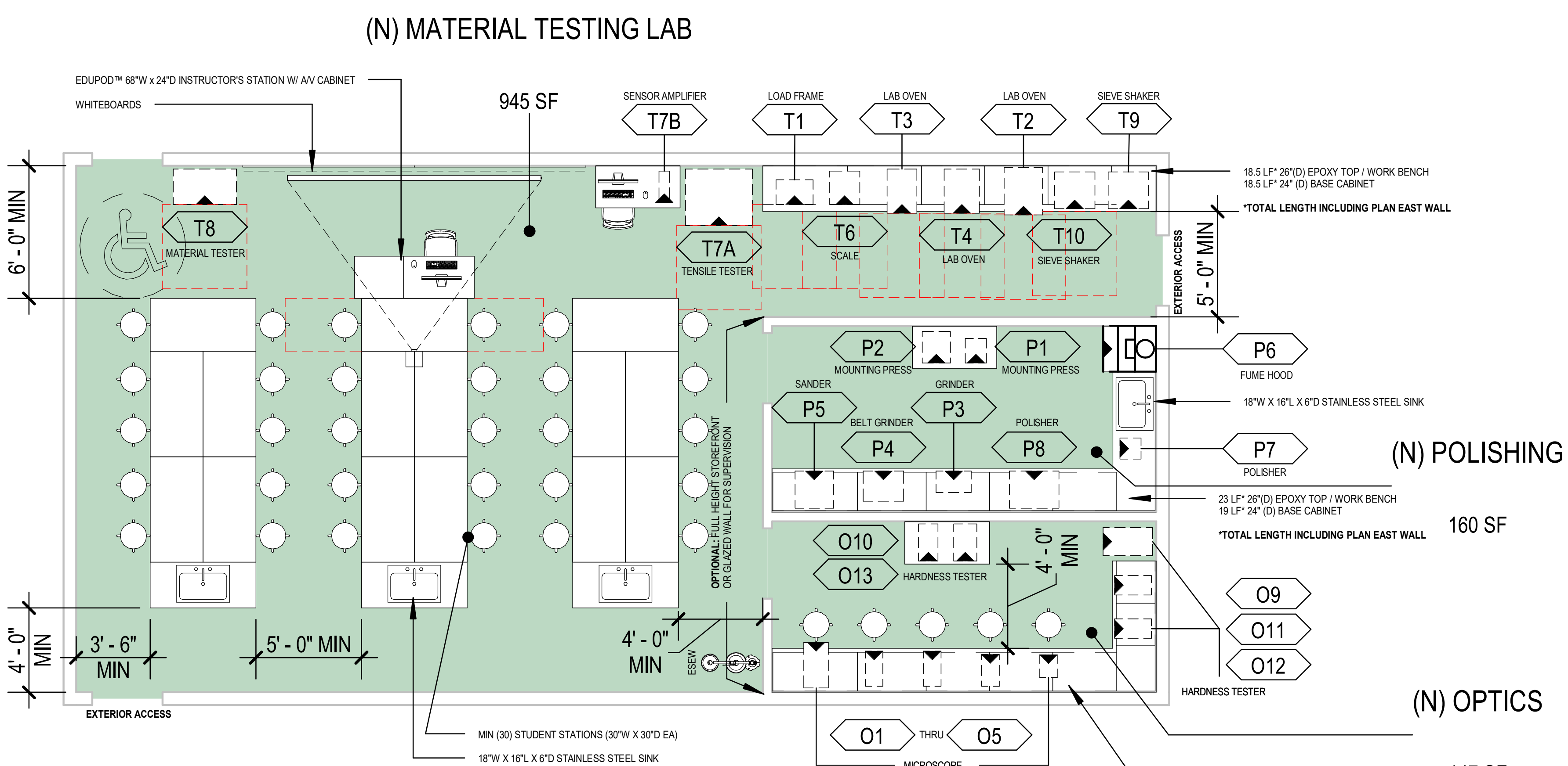


GENERAL NOTES:

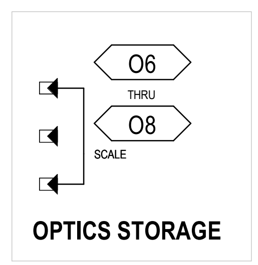
- STANDARD CLEAR OPERATOR SPACE (IN RED DASH) IN FRONT OF MACHINES IS 48" X 48" UON.

- CRITICAL EQUIPMENT CLEARANCE SHOWN IN BLACK DASHED LINES SURROUNDING EQUIPMENT

- WHERE CLEARANCE FOR INFREQUENTLY - MACHINES CAN OVER-LAP WHERE INDICATED.

- MAINTAIN MIN 24" DISTANCE BETWEEN MACHINES, EXCEPT AS OTHERWISE SHOWN IN LAYOUT PLAN.

***ITEMS FROM EQUIPMENT LIST NOT INCLUDED IN PLAN:**
- T5: ABRASIVE CUTTER



GRAPHIC SCALE: 1/8" = 1'-0"

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4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
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ARCHITECTURAL NOTES:
- # OF STUDENTS: MIN (30) IN MATERIAL TESTING
- FLOOR: SEALED CONCRETE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD, EPOXY PAINT AT POLISHING
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR W/ VISION PANELS
- FURNISHING: POWDERCOATED METAL LAB CASEWORK W/ EPOXY WORK SURFACE / TOP; 48" TABLE; CHAIRS; LAB STOOLS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- SNORKEL & FUME HOOD EXHAUST AT OVENS

PLUMBING NOTES:
- EMERGENCY SHOWER / EYE WASH
- STAINLESS STEEL SINKS
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- COMPRESSED AIR

ELECTRICAL NOTES:
- SURFACE MOUNTED RACEWAY W/ POWER AT PERIMETER WORK SURFACE
- BENCH-MOUNTED POWER: 1 DPX EACH STUDENT STATION
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 50FC AT 3FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 60*; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 40

* IF IT CAN BE DEMONSTRATED THAT EQUIPMENT IN THESE ROOMS MEETS THE BACKGROUND NOISE LIMITS SPECIFIED IN THE ADJACENT SPACE, STC RATING OF WALL CAN BE REDUCED TO NO LOWER THAN STC 50 (IF ADJACENT TO CLASSROOMS / TEACHING ROOMS) AND STC 45 (AT OTHER ADJACENCIES).

AV / IT:
- TENSILE STRENGTH TESTER (T7A) & SENSOR AMPLIFIER (T7B): (1) X 2-CABLE DROP (BLUE JACKS)
- STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

MATERIAL TESTING, OPTICS, & POLISHING

SKETCH TITLE

1/8" = 1'-0"

SCALE

DVC ET BLDG CRITERIA DOCUMENTATION

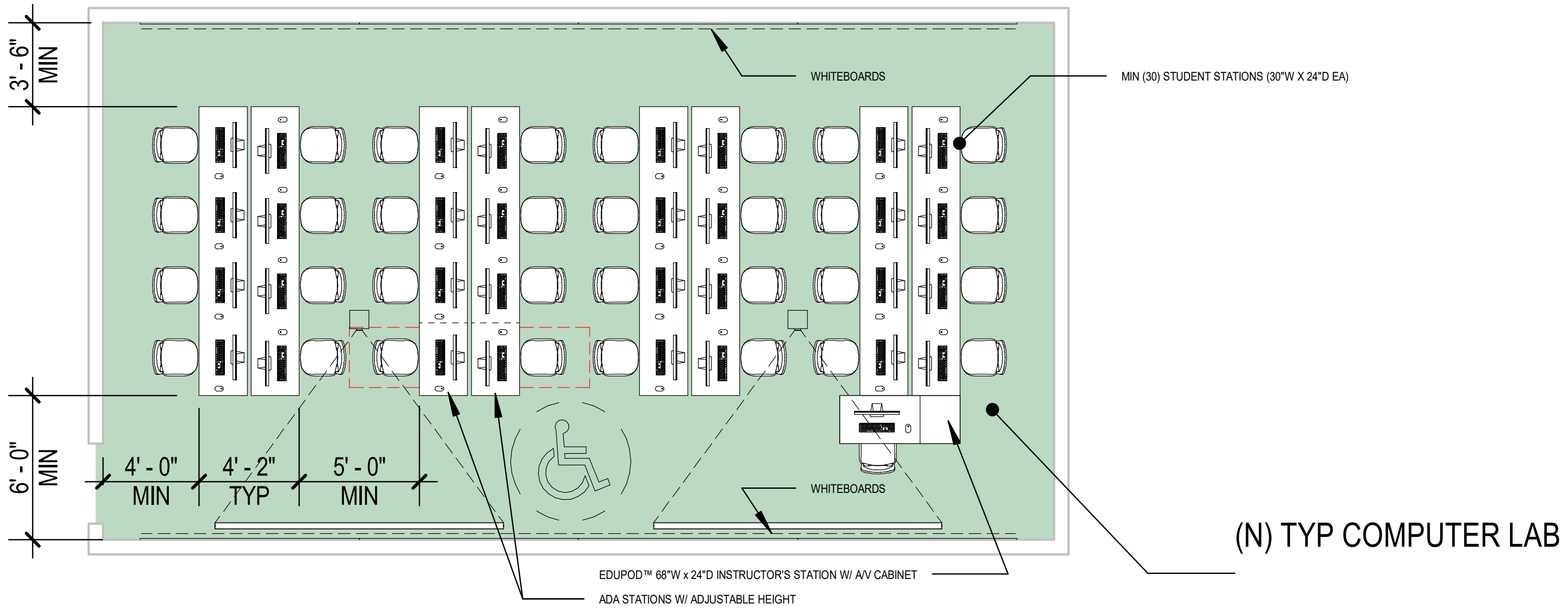
PROJECT NAME

14519.000

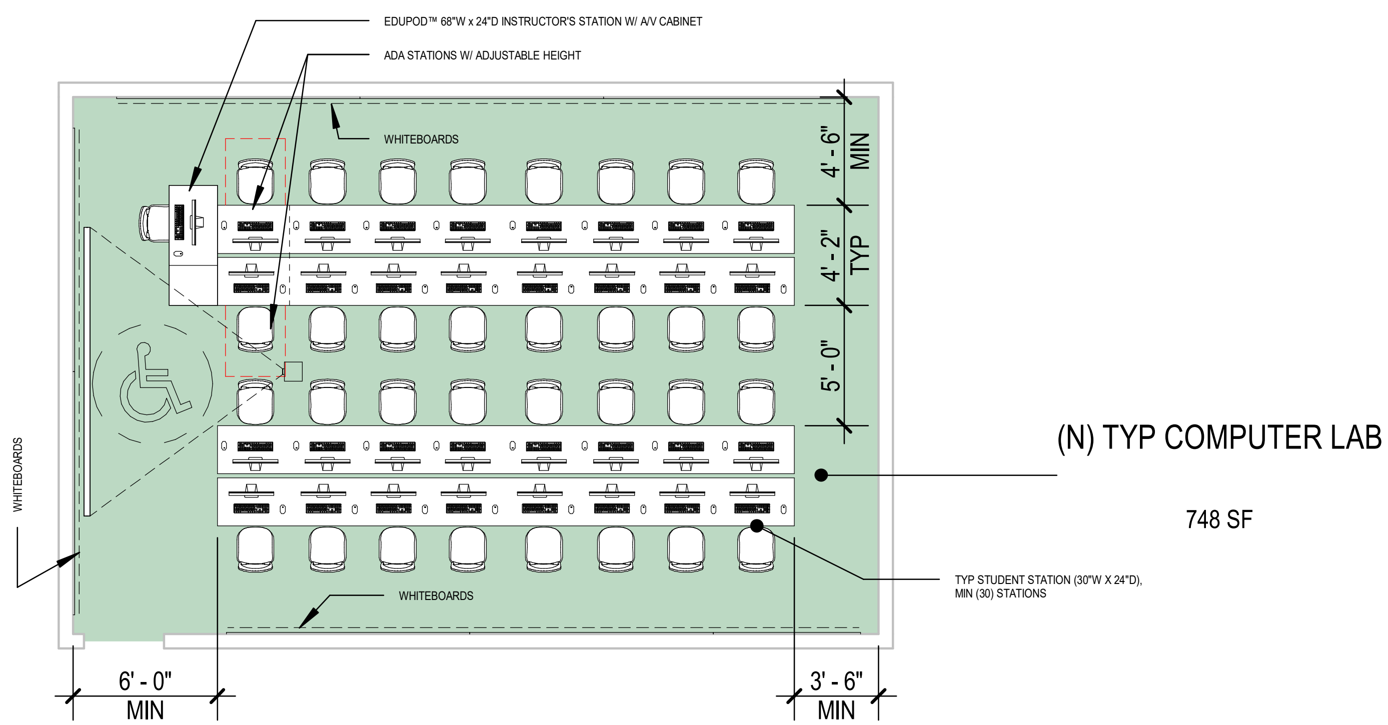
PROJECT NUMBER

RDS-10

SKETCH NUMBER



OPTION 1



OPTION 2

8' 4' 0' 8' 16'

GRAPHIC SCALE: 1/8" = 1'-0"

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: (32), MIN (30)
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR W/ VISION PANEL OR ALL GLAZED
- FURNISHING: WHITEBOARDS (MIN 50 LF); WOOD WORK SURFACE W/ POWER & DATA; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- POWER & DATA CONNECTION AT EACH STATION
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS

LIGHTING NOTES:
- 15-30FC AT 2.5FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

AV / IT:
- STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

TYP COMPUTER LAB
SKETCH TITLE

1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

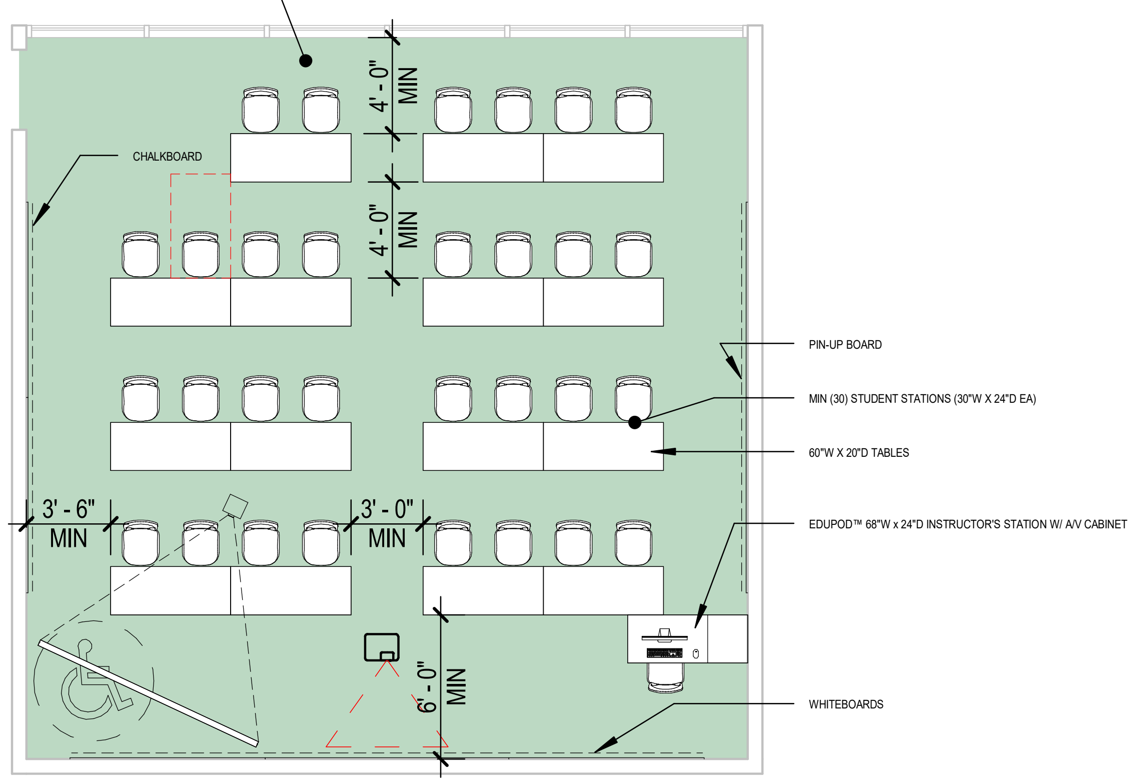
14519.000
PROJECT NUMBER

RDS-11
SKETCH NUMBER

Plot Date: 8/10/2023 4:57:34 PM

(N) TYP CLASSROOM

908 SF



NOTE: CLASSROOM BASED ON DVC 1028 STANDARD

8' 4' 0' 8' 16'

GRAPHIC SCALE: 1/8" = 1'-0"

Plot Date: 8/10/2023 4:57:35 PM

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4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
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ARCHITECTURAL NOTES:
- # OF STUDENTS: (30)
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 10LF); CHALKBOARD (MIN 10LF); PIN-UP BOARD (MIN 10LF); WORK SURFACE W/ POWER & DATA CONNECTIONS OR MOBILE TABLES; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- POWER & DATA CONNECTION AT EACH STATION
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS

LIGHTING NOTES:
- 40FC AT 2.5FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 0.6 SECONDS.
- HVAC BACKGROUND NOISE: NC 30

AV / IT:
- INTERACTIVE SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- TEACHING ORIENTED WALL & ALL OTHER NON-TEACHING WALLS: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

TYP CLASSROOM
SKETCH TITLE

1/8" = 1'-0"
SCALE

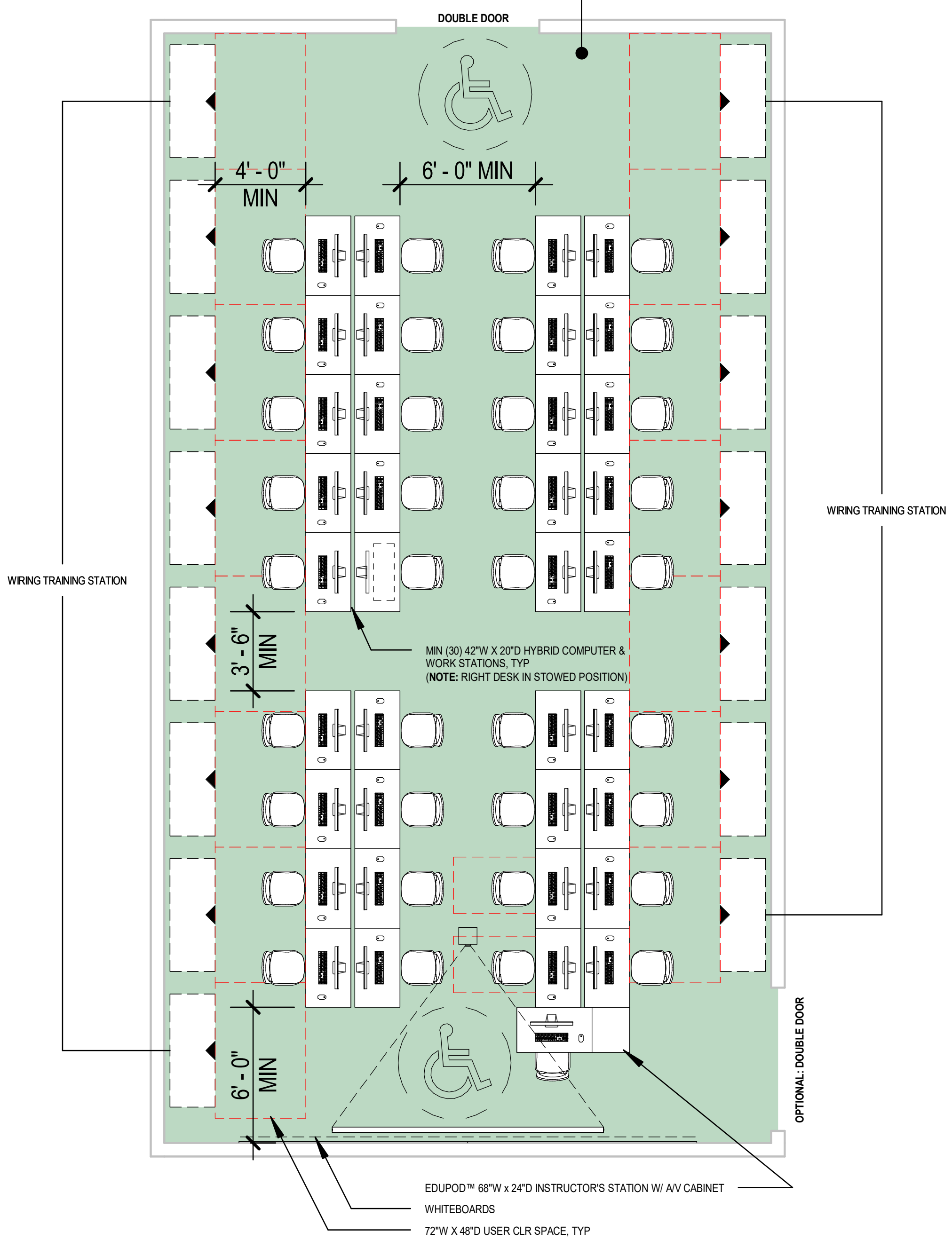
DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-12
SKETCH NUMBER

(N) HYBRID CLASSROOM / COMPUTER LAB

1317 SF



GENERAL NOTES:

- THIS SPACE IN THE BASELINE PROGRAM TO OCCUPY AREA CURRENTLY OCCUPIED BY 125/127

- CONSIDER OPPORTUNITIES TO UTILIZE NEW BUILDING INFRASTRUCTURE FOR DEMONSTRATION PURPOSES, I.E. REMOTE SENSORS PROVIDING REAL TIME DATA ON MECHANICAL EQUIPMENT, LIGHTING, AND EQUIPMENT POWER.

GRAPHIC SCALE: 1/8" = 1'-0"

Plot Date: 8/10/2023 4:57:37 PM

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301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
smithgroup.com

ARCHITECTURAL NOTES:
- # OF STUDENTS: (36), MIN (30)
- FLOOR: SEALED CONCRETE, RESILIENT FLOORING, OR CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 72" DOUBLE DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 20 LF); HYBRID COMPUTER WORK STATIONS W/ POWER & DATA; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- POWER & DATA CONNECTION AT EACH STATION
- SURFACE MOUNTED RACEWAY AT PERIMETER WALL (EXCEPT SOUTH WALL) FOR WIRING TRAINING STATIONS
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS
- SEE EQUIPMENT SCHEDULE FOR POWER REQUIREMENTS

LIGHTING NOTES:
- 15-40FC AT 2.5FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

AV / IT:
- STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- TEACHING ORIENTED WALL & ALL OTHER NON-TEACHING WALLS: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

HYBRID COMPUTER / WIRING TRAINING LAB

SKETCH TITLE

1/8" = 1'-0"

SCALE

DVC ET BLDG CRITERIA DOCUMENTATION

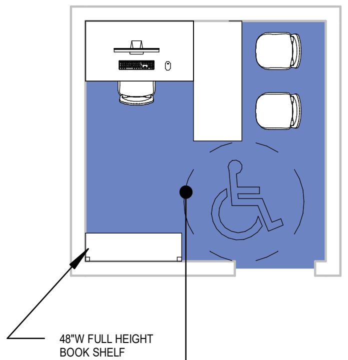
PROJECT NAME

14519.000

PROJECT NUMBER

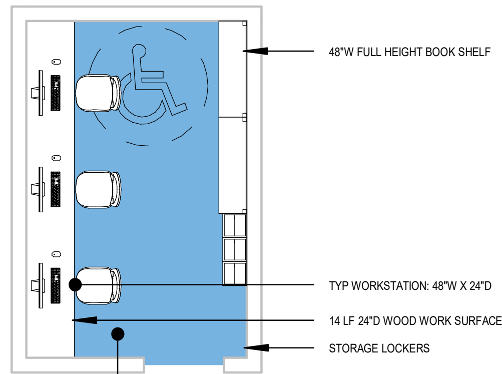
RDS-13

SKETCH NUMBER



(N) TYP OFFICE

100 SF



(N) OFFICE WORKSTATIONS

128 SF

GRAPHIC SCALE: 1/8" = 1'-0"

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ARCHITECTURAL NOTES:
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR W/ VISION PANEL
- FURNISHING: TABLE / WORK SURFACE W/ POWER & DATA; CHAIRS; 48"(W) FULL HEIGHT BOOKSHELVES; LOCKERS*; CHAIRS

*OFFICE WORKSTATIONS ONLY

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- POWER & DATA CONNECTION AT EACH STATION

LIGHTING NOTES:
- 30FC AT TASK

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 45; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 0.6 SECONDS.
- HVAC BACKGROUND NOISE: NC 35, NC 30 (FOR LEED)

AV / IT:
- MODULAR FURNITURE: (1) X 3-CABLE DROP (BLUE JACKS)
- OFFICE: (2) X 3-CABLE DROP (YELLOW JACKS) ON OPPOSING NON-DOOR WALLS, COORDINATE W/ MULTIMEDIA PLAN- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- STAFF WORKSTATIONS: (1) X 3-CABLE (BLUE JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

TYP OFFICE & WORKSTATIONS
SKETCH TITLE

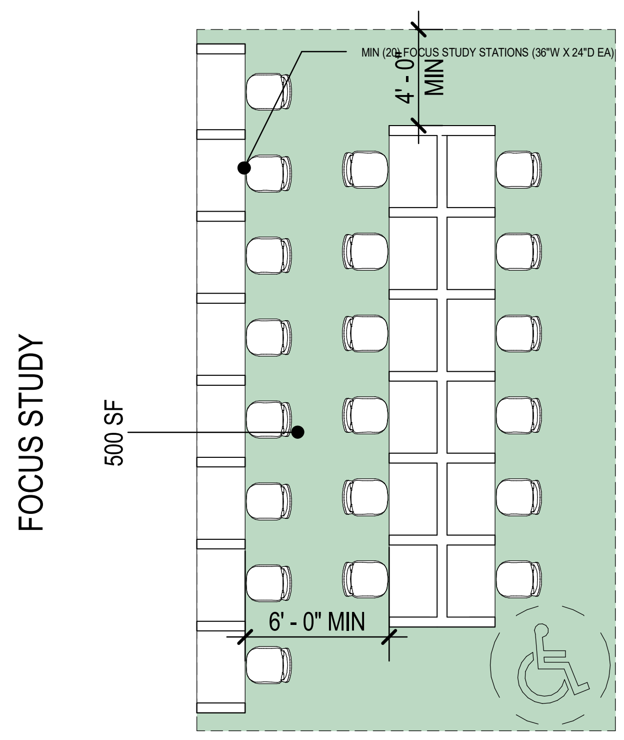
1/8" = 1'-0"
SCALE

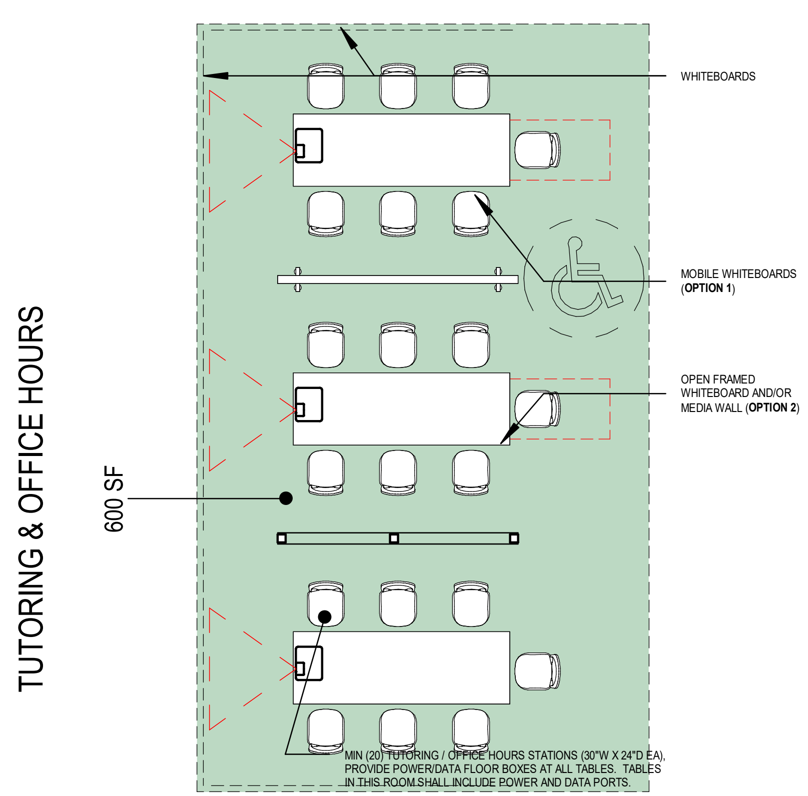
DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

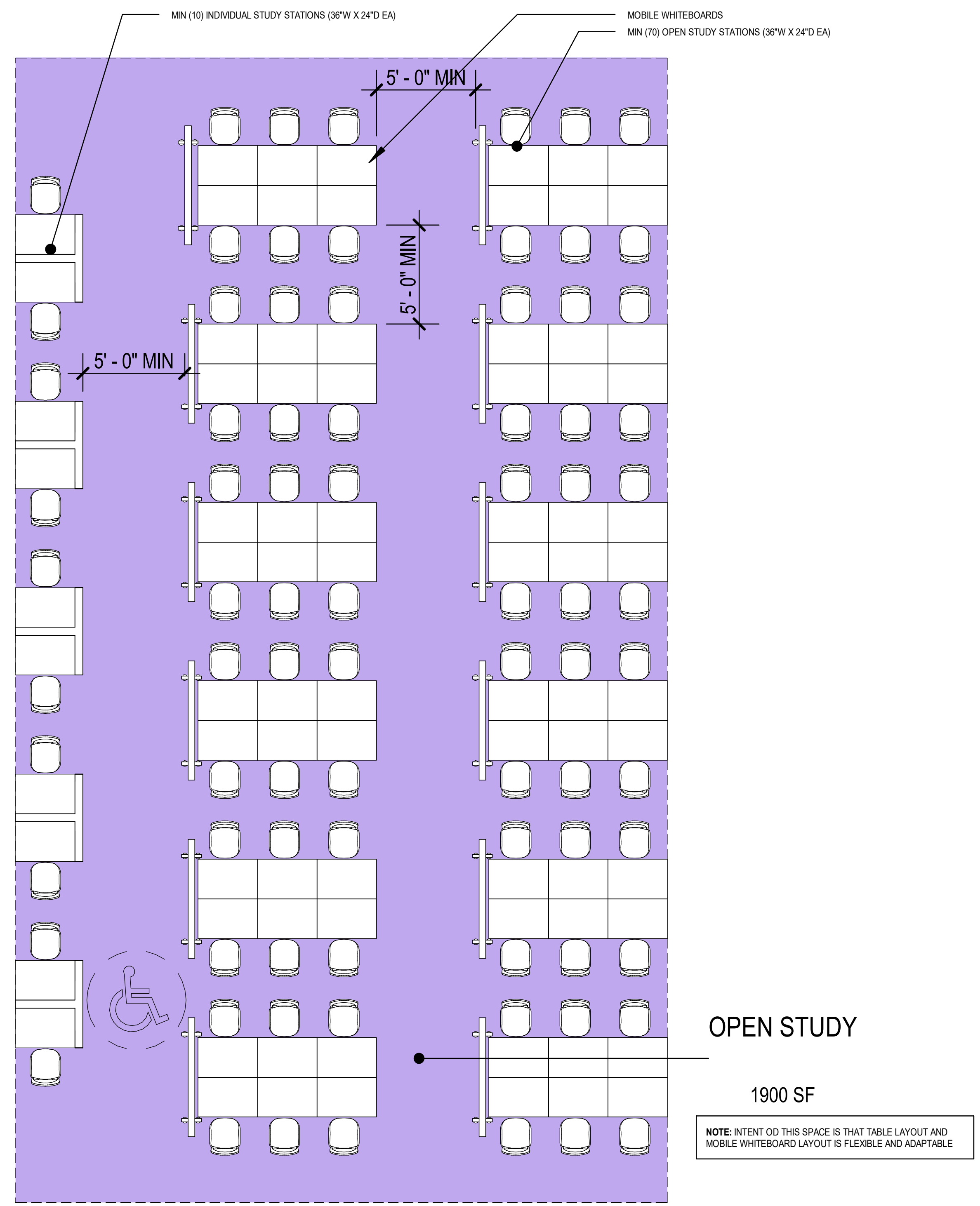
14519.000
PROJECT NUMBER

RDS-14
SKETCH NUMBER

Plot Date: 8/10/2023 4:57:37 PM







NOTE: INTENT OD THIS SPACE IS THAT TABLE LAYOUT AND MOBILE WHITEBOARD LAYOUT IS FLEXIBLE AND ADAPTABLE

GRAPHIC SCALE: 1/8" = 1'-0"

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ARCHITECTURAL NOTES:
- # OF STUDENTS: (130) TOTAL - (72) GROUP OPEN STUDY, (10) INDIVIDUAL OPEN STUDY, (21) FOCUS, (27) TUTORING & OFFICE HOURS
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: PTD GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR W/ VISION PANEL
- FURNISHING BY ROOM:

OPEN STUDY AREA:
- GROUP WORKSTATIONS W/ POWER & DATA
- INDIVIDUAL WORKSTATIONS
- CHAIRS
- MOBILE WHITEBOARDS

FOCUS STUDY AREA:
- INDIVIDUAL WORKSTATIONS W/ POWER & DATA
- CHAIRS

TUTORING & OFFICE HOURS:
- WHITEBOARDS (MIN 30LF WALL MTD & EITHER MOBILE OR MTD ON OPEN FRAME BETWEEN STATIONS
- TABLES W/ POWER & DATA CONNECTIONS
- CHAIRS

- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- OPEN AREA: FLOOR BOXES (APX 12) DISTRIBUTED IN AREA WITH POWER AND DATA.
- FIXED STATIONS: PROVIDE POWER AND DATA AT EACH STATION
- POWER & DATA CONNECTION AT EACH STATION FOR INDIVIUDUAL STUDY STATIONS & FOCUS STUDY ROOM
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTORS IN TUTORING / OFFICE HOURS ROOM

LIGHTING NOTES:
- 30FC AT TASK

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 45; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.80 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 0.8 SECONDS.
- HVAC BACKGROUND NOISE: NC 40

AV / IT:
- INTERACTIVE SHORT THROW PROJECTOR, CEILING MOUNTED*: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- INDIVIDUAL & FOCUS STUDY STATIONS: (1) X 1-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

*TUTORING / OFFICE HOURS ROOM ONLY

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

OPEN & FOCUS STUDY, TUTORING / OFFICE HRS

SKETCH TITLE

1/8" = 1'-0"

SCALE

DVC ET BLDG CRITERIA DOCUMENTATION

PROJECT NAME

14519.000

PROJECT NUMBER

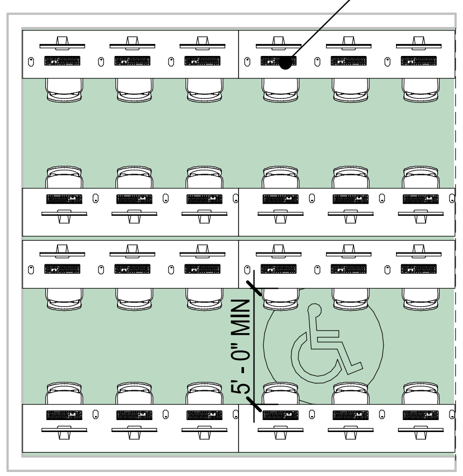
RDS-15

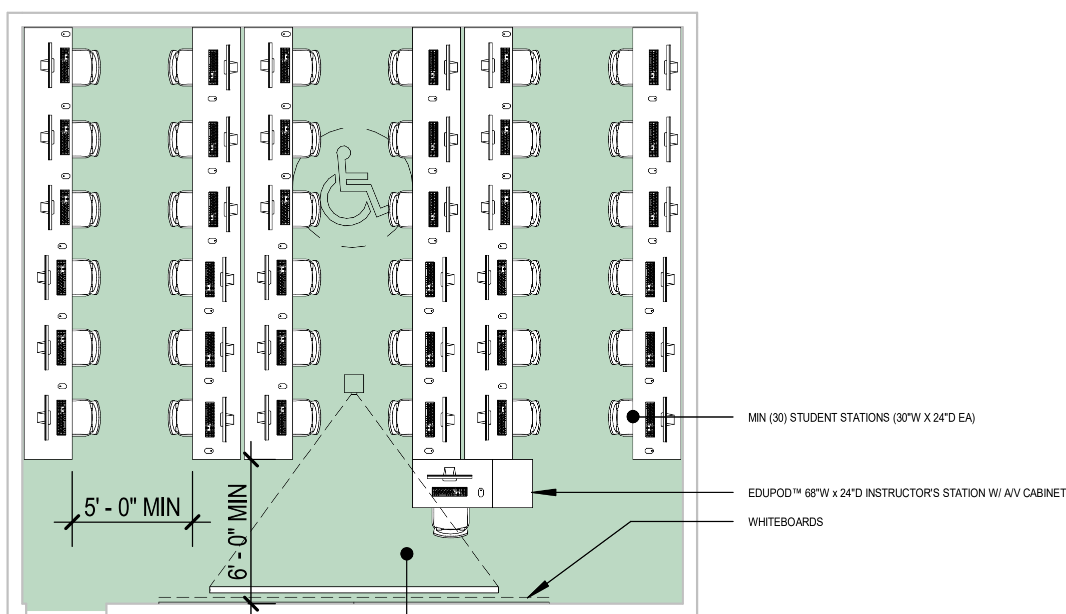
SKETCH NUMBER

Plot Date: 9/25/2023 11:41:45 AM

DROP-IN COMPUTER LAB

320 SF





INSTRUCTIONAL COMPUTER LAB

660 SF

8' 4' 0' 8' 16'

GRAPHIC SCALE: 1/8" = 1'-0"

Plot Date: 9/25/2023 11:41:48 AM

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4TH FLOOR
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ARCHITECTURAL NOTES:
- # OF STUDENTS: (24) DROP-IN & (36) INSTRUCTIONAL COMP LAB
- FLOOR: CARPET TILE
- WALL BASE: RUBBER BASE
- WALLS: GYPSUM BOARD
- CEILING: MIN NRC 0.75
- DOORS: 36" SINGLE LEAF DOOR W/ VISION PANEL
- FURNISHING: WHITEBOARDS (MIN 16 LF)*; INSTRUCTOR'S STATION*; WORK SURFACE W/ POWER & DATA; CHAIRS
- EQUIPMENT: SEE EQUIPMENT LIST

*INSTRUCTIONAL COMPUTER LABS ONLY

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- N/A

ELECTRICAL NOTES:
- POWER & DATA CONNECTION AT EACH STATION
- CEILING MOUNTED POWER & DATA CONNECTION FOR PROJECTOR*

*INSTRUCTIONAL COMPUTER LAB ONLY

LIGHTING NOTES:
- 15-40FC AT 2.5FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 50; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 45; FLOOR-CEILING - IIC 45
- ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.75 MINIMUM) AND MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
- HVAC BACKGROUND NOISE: NC 35

AV / IT:
- STUDENT STATIONS: (1) X 2-CABLE DROP & (1) SPARE DROP PER GROUPING PER STUDENT WORKSTATIONS (YELLOW JACKS)
- INTERACTIVE SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- SHORT THROW PROJECTOR, CEILING MOUNTED: (1) X 2-CABLE DROP (BLUE JACKS), COORDINATE W/ MULTIMEDIA PLAN
- 144"W PROJECTOR SCREEN, MOTORIZED
- A/V CABINET (APPROX 21"W X 23"D) MAY BE INCORPORATED INTO INSTRUCTOR'S STATION: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- TEACHING ORIENTED WALL & ALL OTHER NON-TEACHING WALLS: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

DROP-IN & INSTRUCTION COMPUTER LABS

SKETCH TITLE

1/8" = 1'-0"

SCALE

DVC ET BLDG CRITERIA DOCUMENTATION

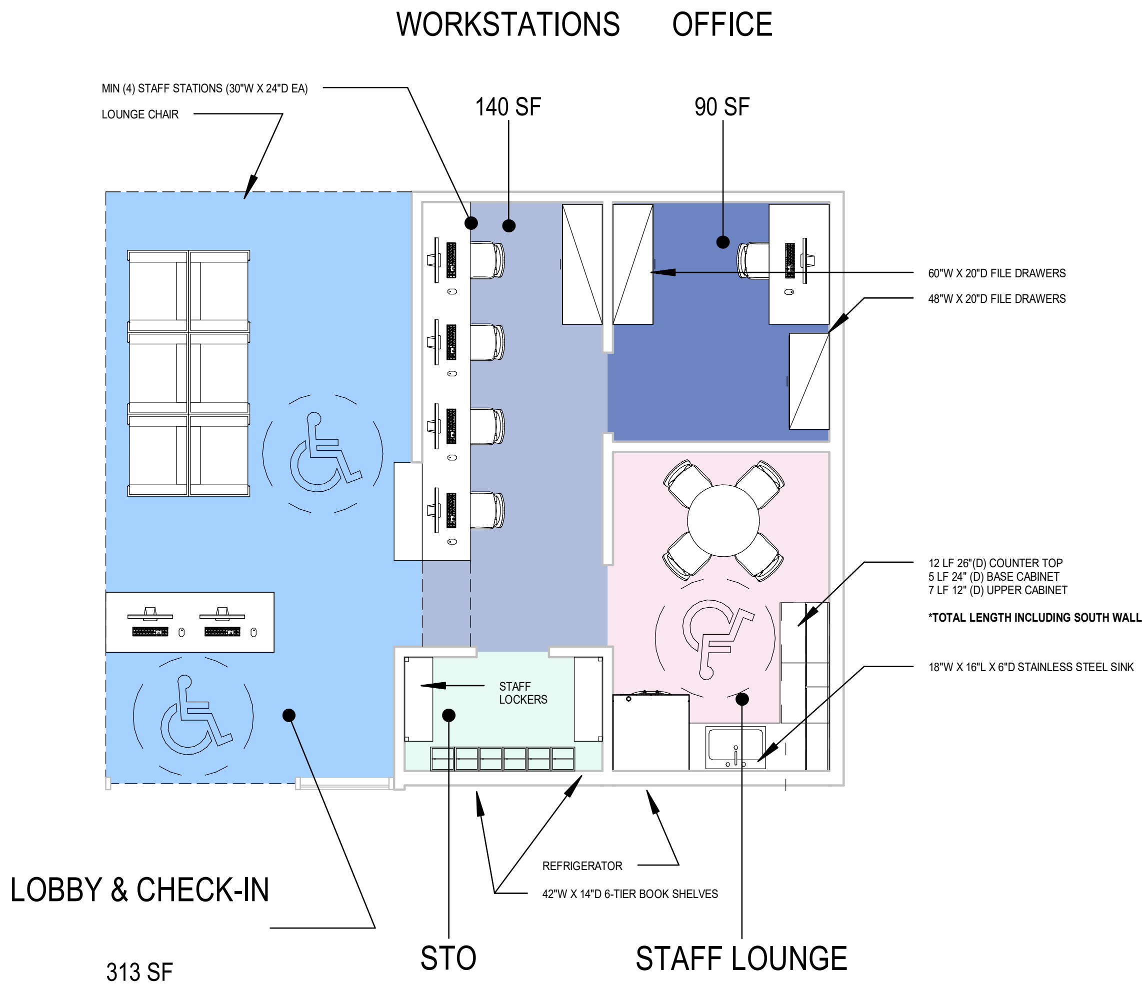
PROJECT NAME

14519.000

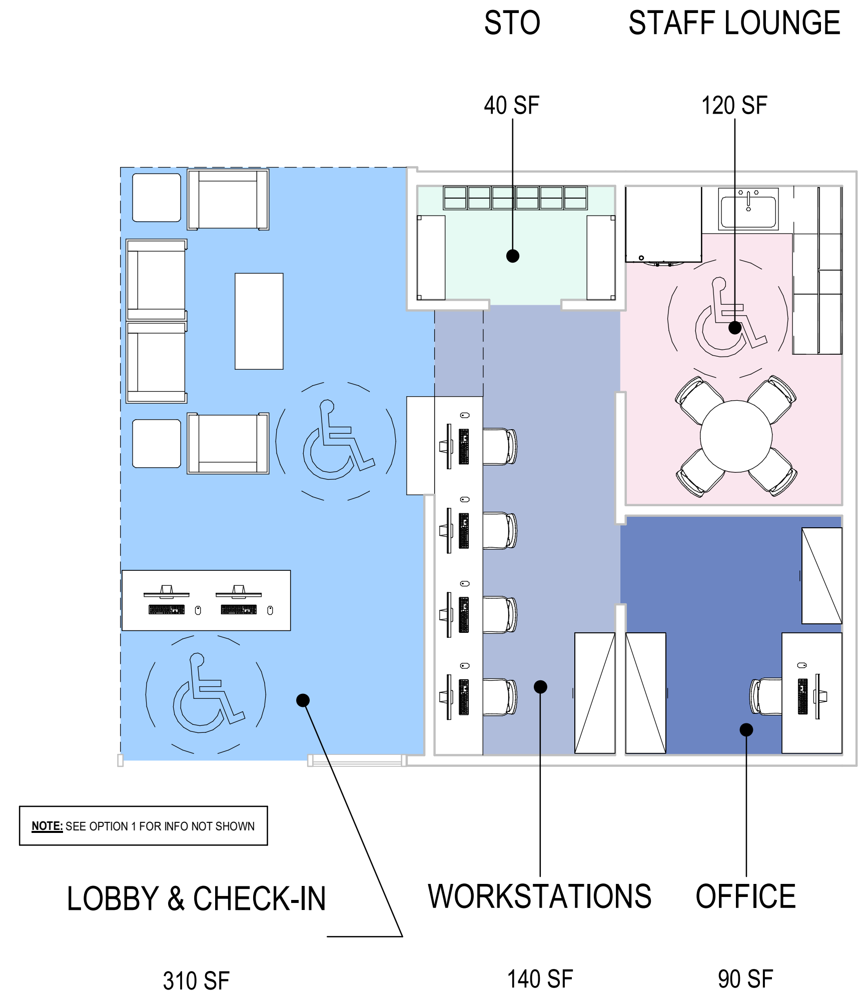
PROJECT NUMBER

RDS-16

SKETCH NUMBER



OPTION 1: BASE



OPTION 2: FLIPPED

LOW VOLTAGE / SECURITY NOTES:
- DOOR POSITION SWITCH(ES) ON ALL EXTERIOR OPENINGS AND IDF/MDF/DATA ROOMS.
- HARDWIRED CARD READERS ON EXTERIOR ENTRANCES AND IDF/MDF/DATA ROOMS.
- HARDWIRED LOCKDOWN BUTTON FOR EXTERIOR DOORS.
- LOCAL ALARM ON EMERGENCY EXIT DOORS.
- ASSA ABLOY WIRELESS CARD READER WITH INTEGRATED LOCKSET ON INTERIOR OPENINGS.
- CAMERA COVERAGE/CALL UPS OF LOCKDOWN BUTTON, DURESS BUTTON, LOCAL ALARM, DOOR CONTACT ALARM, DOOR FORCED, OR DOOR HELD ALARM.
- REFER TO DESIGN CRITERIA FOR AREAS REQUIRING CAMERA COVERAGE.
- GLASS BREAKS SHALL COVER ALL FIRST FLOOR WINDOWS/GLAZING.
- MOTION DETECTORS AT MAIN PERIMETER ENTRY, PERIMETER ENTRANCES, ROOMS WITH WINDOWS, SMART CLASSROOMS, COMPUTER LABS, AND IN HIGH VALUE ASSET AREAS.
- IDS KEYPAD WITH ARM/DISARM KEYPAD AT MAIN PERIMETER ENTRY, EMPLOYEE ENTRANCE, AND HIGH VALUE ASSET AREAS

GRAPHIC SCALE: 1/8" = 1'-0"

Plot Date: 9/25/2023 11:41:50 AM

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ARCHITECTURAL NOTES:
- # OF USERS: (8) STUDENTS & (9) STAFF
- FLOOR: SEAMLESS VINYL FLOORING
- WALL BASE: INTERGRATED VINYL BASE
- WALLS: GYPSUM BOARD, EPOXY PAINTED
- CEILING: MIN NRC 0.8
- DOORS: 36" SINGLE LEAF DOOR (W/ VISION PANEL, 72" DOUBLE DOOR TO EXTERIOR
- FURNISHING BY ROOM:

LOBBY & CHECK-IN:
- CHECK-IN STATION W/ POWER & DATA CONNECTIONS
- LOUNGE CHAIRS
- COFFEE TABLE
- END TABLE

STAFF WORKSTATIONS:
- WORK SURFACE W/ POWER & DATA CONNECTIONS
- CHAIRS
- FILE CABINET/DRAWERS

OFFICE:
- 60"W DESK W/ POWER & DATA CONNECTIONS
- CHAIR
- FILE CABINET/DRAWERS

STAFF LOUNGE:
- TABLE
- CHAIRS
- BASE & UPPER CABINETS
- COUNTER
- MICROWAVE
- REFRIGERATOR

STORAGE:
- LOCKERS
- 48"(W) FULL HEIGHT BOOKSHELF
- EQUIPMENT: SEE EQUIPMENT LIST

MECHANICAL NOTES:
- NONE

PLUMBING NOTES:
- STAINLESS STEEL SINK IN STAFF LOUNGE
- DOMESTIC COLD WATER IN STAFF LOUNGE
- DOMESTIC HOT WATER IN STAFF LOUNGE

ELECTRICAL NOTES:
- POWER & DATA CONNECTION AT EACH STATIONS
- POWER CONNECTION ABOVE COUTER SPACE & BEHIND REFRIGERATOR IN STAFF LOUNGE

LIGHTING NOTES:
- OFFICE/WORKSTATIONS: 30FC AT TASK
- STAFF LOUNGE: 20 FC AT 2.5FT
- LOBBY & CHECK-IN: 20FC AT 2.5FT
- STORAGE: 20FC AT 2.5FT

ACOUSTICAL:
- SOUND ISOLATION: DEMISING - STC 45; AT RESTROOMS - STC 55; AT CORRIDORS / OPEN PLAN - STC 40; FLOOR-CEILING - IIC 45
ROOM ACOUSTICS: INCORPORATE ACOUSTICALLY ABSORPTIVE CEILING (NRC 0.80 MINIMUM) OR MAXIMUM REVERBERATION TIME OF 1.0 SECONDS.
HVAC BACKGROUND NOISE: NC 40; OFFICE - NC 35; NC 30 (FOR LEED)

AV / IT:
- STAFF WORKSTATIONS: (1) X 3-CABLE (BLUE JACKS)
- OFFICE: (2) X 3-CABLE DROP (YELLOW JACKS) ON OPPOSING NON-DOOR WALLS, COORDINATE W/ MULTIMEDIA PLAN- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- CHECK-IN STATIONS: (1) X 3-CABLE DROP (YELLOW JACKS), COORDINATE W/ MULTIMEDIA PLAN
- CLASSROOM NOITIFICATION SPEAKER, IF INSTALLED: (1) X 2-CABLE DROP (ORANGE JACKS)
- WIRELESS ACCESS POINT, IF INSTALLED: (1) X 2-CABLE DROP (GREEN JACKS)
- WIRELESS NETWORK CONNECTIONS TO EQUIPMENT AND COMPUTER WORKSTATIONS NOT PERMITTED

LOW VOLTAGE / SECURITY:
- SEE NOTES BELOW DWG

LOBBY/CHECK-IN & STAFF AREA
SKETCH TITLE

1/8" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

RDS-17
SKETCH NUMBER

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7.3 PRELIMINARY LEED SCORE CARD

The sustainability goals for the new MESC and ET Renovation project include LEED Gold certified. The preliminary score card is a starting point for strategizing the LEED compliance path, and highlights which LEED points should be considered as improbable based on previous projects at DVC.

LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: DVC
Date: Sep 2023

Y	?	N				
1			d	Credit	Integrative Process	1

Y	?	N				
4	**0**	**13**			**Location and Transportation**	**16**
		0	d	Credit1	LEED for Neighborhood Development Location	16
1			d	Credit2	Sensitive Land Protection	1
		2	d	Credit3	High Priority Site	2
2		3	d	Credit4	Surrounding Density and Diverse Uses	5
		5	d	Credit5	Access to Quality Transit	5
		1	d	Credit6	Bicycle Facilities	1
1		1	d	Credit7	Reduced Parking Footprint (LEED V4.1)	1
		1	d	Credit8	Green Vehicles	1
6	**2**	**2**			**Sustainable Sites**	**10**
Y			c	Prereq1	Construction Activity Pollution Prevention	Required
1			d	Credit1	Site Assessment	1
	1	1	d	Credit2	Site Development - Protect or Restore Habitat	2
	1		d	Credit3	Open Space	1
2		1	d	Credit4	Rainwater Management	3
2			d	Credit5	Heat Island Reduction	2
1			d	Credit6	Light Pollution Reduction	1
5	**4**	**2**			**Water Efficiency**	**11**
Y			d	Prereq1	Outdoor Water Use Reduction	Required
Y			d	Prereq2	Indoor Water Use Reduction	Required
Y			d	Prereq3	Building-Level Water Metering	Required
1	1		d	Credit1	Outdoor Water Use Reduction	2
3	3		d	Credit2	Indoor Water Use Reduction	6
		2	d	Credit3	Cooling Tower Water Use	2
1			d	Credit4	Water Metering	1
15	**14**	**4**			**Energy and Atmosphere**	**33**
Y			c	Prereq1	Fundamental Commissioning and Verification	Required
Y			d	Prereq2	Minimum Energy Performance	Required
Y			d	Prereq3	Building-Level Energy Metering	Required
Y			d	Prereq4	Fundamental Refrigerant Management	Required
6			c	Credit1	Enhanced Commissioning	6
8	10		d	Credit2	Optimize Energy Performance	18
1			d	Credit3	Advanced Energy Metering	1
		2	d	Credit4	Demand Response	2
	3		d	Credit5	Renewable Energy Production	3
	1		d	Credit6	Enhanced Refrigerant Management	1
		2	c	Credit7	Green Power and Carbon Offsets	2

Y	?	N				
5	**1**	**7**			**Materials and Resources**	**13**
Y			d	Prereq1	Storage and Collection of Recyclables	Required
Y			c	Prereq2	Construction and Demolition Waste Management Planning	Required
	1	4	d	Credit1	Building Life-Cycle Impact Reduction (LEED V4.1)	5
1		1	c	Credit2	Building Product Disclosure and Optimization - Environmental Product Declarations	2
1		1	c	Credit3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1		1	c	Credit4	Building Product Disclosure and Optimization - Material Ingredients	2
2			c	Credit5	Construction and Demolition Waste Management	2
7	**2**	**7**			**Indoor Environmental Quality**	**16**
Y			d	Prereq1	Minimum Indoor Air Quality Performance	Required
Y			d	Prereq2	Environmental Tobacco Smoke Control	Required
1	1		d	Credit1	Enhanced Indoor Air Quality Strategies	2
3			c	Credit2	Low-Emitting Materials	3
1			c	Credit3	Construction Indoor Air Quality Management Plan	1
1		1	c	Credit4	Indoor Air Quality Assessment	2
		1	d	Credit5	Thermal Comfort	1
1		1	d	Credit6	Interior Lighting (LEED V4.1)	2
		3	d	Credit7	Daylight	3
		1	d	Credit8	Quality Views	1
	1		d	Credit9	Acoustic Performance (LEED V4.1)	1
5	**3**	**0**			**Innovation**	**6**
					To achieve all five innovation points, team must achieve at least one pilot credit, at least one innovation credit and no more than two exemplary performance credits.	
	1		d	Credit1-1	Exemplary Performance: Optimize Energy Performance	1
	1		d	Credit1-2	Exemplary Performance: Renewable Energy Production	
	1		d	Credit1-3	Exemplary Performance: Indoor Water Use Reduction (55% or more reduction)	1
1			d	Credit1-4	Innovation: PC136- Safety First: Re-Enter Your Workspace	1
1			d	Credit1-5	Innovation: Innovation- Building as a Learning Tool	
1			d	Credit1-6	Innovation: Purchasing lamps (Low Mercury Lighting)	1
1			d	Credit1-8	Innovation: Walkable project site	1
1			d	Credit2	LEED Accredited Professional	1
3	**1**	**0**			**Regional Priority**	**4**
1			d	Credit1	Regional Priority: WE-c2-Indoor Water Use (Threshold=4 points)	1
		1	d	Credit2	Regional Priority: SS-c4 Rainwater Management (Threshold=3 points)	1
1			d	Credit3	Regional Priority: WE-c1 Outdoor water use reduction (Threshold=2 points)	1
		1	d	Credit4	Regional Priority: LT-c5 Access to Quality Transit (Threshold=5 points)	
1			d	Credit5	Regional Priority: MR-c3 Sourcing of Raw Materials (Threshold=1 point)	
	1		d	Credit6	Regional Priority: EA-c2 Optimize Energy Performance (Threshold=10 points)	1
51	**27**	**35**			**TOTALS** Possible Points:	**110**

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

7.4 EQUIPMENT LIST

7.4.1 WOODSHOP

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical									Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	KW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
W1	???	???	???	**10" Table Saw (SawStop Industrial Cabinet Saw)**	121B	Woodshop	Jet	ICS53230	1	85.25	36.5	34	Floor	230	3	60	12	5	???	N	???	1	N	Y	N	4 x 8 Panels. 8' clearance front/back of blade		
W2	???	???	???	Panel Saw	121B	Woodshop	Safety Speed Cut	SR 5	1	120	22	90	Floor / Wall	120	1	60	13	2.5	???	N	???	1	N	N	N	8' panels		
W3	???	???	???	**Oscilating Spindle Sander**	121B	Woodshop	Jet	JBOS-5	1	15	15	24	Bench	115	1	???	???	0.5	???	N	???	1	N	Y	N			
W4	???	???	???	**Disk/Belt Sander**	121B	Woodshop	Shop Series	RK7866	1	14.5 (10.6)	18 (12.6)	12 (21.7)	Bench	120	1	60	4.3	???	???	N	???	1	N	Y	N			
W5	???	???	???	Grinder-Buffer	121B	Woodshop	Baldor	810ZW	1	25	18	50	Floor (Stand)	115	1	60	8.6	0.75	???	N	???	1	N	N	N			
W6	???	???	???	Router (ProFence)	121B	Woodshop	Rockler	7518	1	36 (32)	24	42	Floor	120	1	60	16	N/A	???	N	???	1	N	Y	N			
W7	???	???	???	*20" Scroll Saw*	121B	Woodshop	DeWalt	DW788	1	34 (19.5)	16 (29.5)	54 (12)	Bench	120	1	60	1.3	N/A	???	N	???	1	N	N	N			
W8	???	???	???	**Belt Sander**	121B	Woodshop	Kalamazoo	CM3537	1	22	36	58	Floor	230/460	3	???	2/1	0.5	???	N	???	1	N	Y	N			
W9	???	???	???	**Drill Press**	121B	Woodshop	Delta	48ALFCCW402	1	24	27	70	Floor	120	1	60	8	0.75	???	N	???	1	N	N	N			
W10	???	???	???	*Mortiser*	121B	Woodshop	Woodtek	A49428 (900881)	1	16	16	30	Bench	110	1	60	12	1	???	N	???	1	N	N	N			
W11	???	???	???	**14" Band Saw**	121B	Woodshop	Jet	JWBS-14CS	1	24	26	75 (68)	Floor	115	1	60	10	1	???	N	???	1	N	Y	N			
W12	???	???	???	**14" Band Saw**	121B	Woodshop	Jet	JWBS-14DXPRO	1	34 (29)	26	70 (77)	Floor	115	1	60	12	1.25	???	N	???	1	N	Y	N			
W13	???	???	???	**Bandsaw**	121B	Woodshop	Laguna	MBand1412-175	1	34	26	70	Floor	115	1	60	14	1.75	1.3	N	???	1	N	Y	N			
W14	???	???	???	Planer	121B	Woodshop	MiniMax	FS30 Classic	1	69	36 (22)	43	Floor	230	3	60	21	4.8	???	N	???	1	N	Y	N	Clearance for 8' boards each side		
W15	???	???	???	**12" Miter Saw**	121B	Woodshop	Bosch	GCM12SD	1	27	36 (32)	28	Bench	120	1	50/60	15	???	???	N	???	1	N	Y	N	Clearance for 8' lumber each side		
W16	???	???	???	*Lathe*	121B	Woodshop	Rockwell	46-525	1	58	22	53	Floor	230	3	???	3	0.75	???	N	???	1	N	N	N			
W17	???	???	???	Air Compressor	121B	Woodshop	Ingersoll Rand	54441456	1	45	26	34	Bench	115	1	60	40 (Max)	2	???	N	???	1	Y	N	N			
W18	???	???	???	Dust Collector	121B	Woodshop	Murphy Rodgers	MRM9-2d	1	60	50	118 + 24	Floor	240	3	???	30	7.5	???	N	???	1	N	Y	N			
				Tool Bench						52	24	??																
				BOLD = Most Used Equipment			1344									Complete to extent possible with info available												
				Italic = Least Used Equipment																								

7.4.2 CNC FAB LAB

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical									Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	KW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
C1	???	???	???	3-Axis CNC Machine	121A	CNC Fabrication Lab	ShopBot	AT/MT 1073-070	1	78	82	77	Floor	208	3	300	7,5	???	???	Y	Direct Connect	1	Y	Y	N	Clearance for 4' panels both sides. 6' clearance min bertween CNC machines. High noise levels.		
C2	???	???	???	5-Axis CNC Machine	121A	CNC Fabrication Lab	ShopBot	10242-01	1	87	78	116	Floor	230/110	3/1	60	6.9	2.04	1.5	Y	Direct Connect	1	Y	Y	N	Clearance for 4' panels from front required. High noise levels.		
C3	???	???	???	Dust Collector	121A	CNC Fabrication Lab	???	???	1	N/A	N/A	N/A	N/A	220	1	???	???	???	???	N	Direct Connect	1				Share with woodshop?		

7.4.3 LASER CUT & 3D PRINT

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical									Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	KW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
3DP1 - 3DP3	???	???	???	3D Printer	118	3D Printer & Laser Cut	UltiMaker	S3	3	16	22	24	Bench	115	???	50-60	4	???	???	Y	standard	1			Y			
LC1 & LCS2	???	???	???	Laser Cutter	118	3D Printer & Laser Cut	Universal Laser Systems	VLS3.50DT	2	35	29 (25)	14.5 (30.5 When Fully Open)	Bench	115	???	???	10/5	???	???	Y	standard	1			N			

7.4.4 MATERIAL TESTING

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical										Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	KW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Electrical Notes	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
T1	5	N	MP	Load Frame	120B	Material Testing Lab	ELE	1223 D0010	1	21	14	42	Bench	N/A	N/A	N/A	N/A	N/A	N/A	N	???	N/A							
T2	5	N	MP	Lab Oven	120B	Material Testing Lab	Blue M Electric	OV-18A	1	27	27	30	Bench	115	1	60	???	???	1.75	N	???								
T3	5	N	MP	Lab Oven	120B	Material Testing Lab	CarboLite	RWF 12/13 (21-500447)	1	17	24	26	Bench	208	1	50-60	24	???	5	N	???								
T4	5	N	MP	Lab Oven	120B	Material Testing Lab	CarboLite	RWF 12/23 (21-500448)	1	20	27	27.5	Bench	208	1	50-60	24	???	7	N	???								
T5	1	N	MP	Abrasive Cutter	120B	Material Testing Lab	Buehler	SampleMet 10-1120-160	1	23	25	26	Bench	115	1	???	33.6	???	???	N	???								
T6	5	N	MP	Scale	120B	Material Testing Lab	Triner	303	1	17	19	7	Bench	N/A	N/A	N/A	N/A	N/A	N/A	N	???								
T7A	5	N	MP	Tensilet Strength Tester	120B	Material Testing Lab	Shimadzu	Autograph (AGS-100kNX)	1	39 (37)	32 (28.5)	86	Floor	200-230	3	50/60	6.5	N/A	???	Y	???								
T7B	5	N	MP	Sensor Amplifier	120B	Material Testing Lab	Shimadzu	ESA-CU200	1	6	18	14	Bench	???	???	???	???	???	???	Y	???								
T8	5	N	MP	Material Testing Machine	120B	Material Testing Lab	Tinius Olsen	126045	1	36	20	60	Floor	N/A	N/A	N/A	N/A	N/A	N/A	N	???								
T9& T10	5	N	MP	Portable Sieve Shaker	120B	Material Testing Lab	Tyler	7912	2	23	21	33	Bench	N/A	N/A	N/A	N/A	N/A	N/A	N	???								

7.4.5 POLISHING & OPTICAL

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical									Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	kW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
P1	5	y	MP	Mounting Press	???	Polishing	SimpleMet	SimpleMet II 20-1410	1	16	18	27	Bench	N/A	N/A	N/A	N/A	N/A	N/A	N	???	0						
P2	5	y	MP	Mounting Press	???	Polishing	SimpleMet	SimpleMet II	1	12	14	23	Bench	N/A	N/A	N/A	N/A	N/A	N/A	N	???	0						
P3	5	N	MP	Grinder	???	Polishing	Craftsman	397.1959	1	20	12	21	Bench	115	1	60	4.4	N/A	???	N	???	1						
P4	5	N	MP	Belt Grinder	???	Polishing	ToronTech	TT Beltgrind GP	1	23	17	10	Bench	115	1	60	???	N/A	???	N	???	1						
P5	5	N	MP	Sander	???	Polishing	Bueler	1250	1	22	21	11	Bench	115	1	60	???	???	???	N	???	1						
P6	5	N	MP	Mobile Fume Hood	???	Polishing	ItemCo	???	1	30	26	46	Bench	115	1	60	???	???	???	N	???	1						
P7	5	N	MP	Polisher	???	Polishing	Magnetik	AC Motor	1	12	12	17	Bench	115	1	60	6.4	0.25	???	N	???	1						
P8	5	N	MP	Polisher	???	Polishing	Fujian	P-2T	1	28	21	13	Bench	115	3	60	3	???	???	N	???	1						
O1	5	Y	MP	Microscope	???	Optical	Meiji	ML7000	1	10	13	21	Bench	115	1	60	???	N/A	???	N	???	1						
O2	5	Y	MP	Microscope	???	Optical	Vanguard	007939	1	10	18	17	Bench	115	1	60	???	N/A	???	N	???	1						
O3	5	Y	MP	Microscope	???	Optical	OMAX	???	1	10	20	21	Bench	115	1	60	???	N/A	???	N	???	1						
O4	5	Y	MP	Microscope	???	Optical	Bauscht Lomb	ASZ25L3	1	???	???	???	Bench	120	1	60	0.17	N/A	???	N	???	1						
O5	5	Y	MP	Microscope	???	Optical	Pace Tech.	IM-3000	1	14	26	20	Bench	115	1	???	???	N/A	???	N	???	1						
O6 - O8	5	N	MP	Scale	???	Optical	OHAUS	CS2000	3	6	9	2	Bench	115	1	60	???	N/A	???	N	???	1						
O9	5	N	MP	Hardness Tester	???	Optical	Rockwell	Model 3 Phase TP	1	16	28	66	Floor	N/A	N/A	N/A	N/A	N/A	N/A	N	???	0						
O10	5	N	MP	Hardness Tester	???	Optical	Louis Small	8A	1	13	21	29	Bench	115	1	60	???	N/A	???	N	???	1						
O11	5	N	MP	Hardness Tester	???	Optical	SPI Optical	???	1	14	21	29	Bench	N/A	N/A	N/A	???	N/A	???	N	???	0						
O12	5	N	MP	Hardness Tester	???	Optical	Fowler	???	1	11	20	31	Bench	115	1	???	3	N/A	???	N	???	1						
O13	5	N	MP	Hardness Tester	???	Optical	Clark	???	1	10	23	30	Bench	N/A	N/A	N/A	N/A	N/A	N/A	N	???	0						

7.4.6 TESLA START LAB

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical									Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	kW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
TSL1 - TSL3	5	N	JGS	Robotics Arm (Disassem/Repair Practice)	114 (Stage)	Tesla Start Lab	Fanuc	M-10iA	3	24	36	48	Bench & Floor	200-240	3	50/60	3.3	NA	0.75	Y	???							
TSL4	5	N	JGS	Robotics Arm (Disassem/Repair Practice)	114 (Stage)	Tesla Start Lab	Fanuc	M-10iB	1	24	36	48	Floor	200-240	3	50/60	3.3	NA	0.75	Y	???							
TSL5	5	N	JGS	Robotics Arm (Disassem/Repair Practice)	114 (Stage)	Tesla Start Lab	Fanuc	M-20iA	1	24	38	50	Floor	200-240	3	50/60	3.3	NA	0.75	Y	???							
TSL6 - TSL10	5	N	JGS	Transformer (Disassem/Repair Practice)	114 (Stage)	Tesla Start Lab	Fanuc	R-30iB	5	24	22	20	Bench	200-240	3	50/60	4.17	NA	???	Y	???							
TSL11	5	N	JGS	Robotics Workstation (One-Off)	114 (Stage)	Tesla Start Lab			1	50	45	72	Floor	200-240				NA			???							
TSL11A	5	N	JGS	Robotics Arm (Disassem/Repair Practice)	114 (Stage)	Tesla Start Lab	Fanuc	ER-4iA	1	24	36	50	Bench	200-240	3	50/60	3.3	NA	0.75	Y	???							
TSL11B	5	N	JGS	Transformer (Disassem/Repair Practice)	114 (Stage)	Tesla Start Lab	Fanuc	R-30iB	1	24	22	20	Bench	200-240	3	50/60	4.17	NA	???	Y	???							
TSL11C	5	N	JGS	Air Compressor	114 (Stage)	Tesla Start Lab	Califorrnia Air Tools	4610S	1	24	20	18	Bench	110	1	60	8.5	1		N	???							
TSL12 - TSL26	5	N	JGS	Robotics Workstation (Classroom)	114 (Classroom)	Tesla Start Lab	Fanuc		12 (15 W/ FUTURE PURCHASE)	48	60	72	Floor	200-240							???							
A	5	N	JGS	Robotics Arm (Disassem/Repair Practice)	114 (Classroom)	Tesla Start Lab	Fanuc	LR Mate 200iD 7L	12	24	36	50	Bench	200-240	3	50/60	3.3	NA	0.75	Y	???							
B	5	N	JGS	Transformer (Disassem/Repair Practice)	114 (Classroom)	Tesla Start Lab	Fanuc	R-30iB	12	24	22	20	Bench	200-240	3	50/60	6	NA	???	Y	???							
C	5	N	JGS	Air Compressor	114 (Classroom)	Tesla Start Lab	Califorrnia Air Tools	4610S	12	24	20	18	Bench	110	1	60	8.5	1	???	N	???							
D	5	N	JGS	Controls	114 (Classroom)	Tesla Start Lab	Fanuc	MH iPendant	12	6	18	3	Bench	125	1	50/60	10	NA	???	Y	???							
TSL27 - TSL34	5	N	JGS	Tii Hydraulic / Pneumatic Trainer	112 (Classroom)	Tesla Start Lab	Tii Tech. Edu. Sys.	Explorer I & II	8	36	30	60	Floor	110	1	60	10	NA		N	???							
TSL35 - TSL64	5	N	JGS	DAC Pump Motors Motors (DEMO)	112 Classroom / 123 (current location)	Tesla Start Lab	DAC	275E	30	30	14	16	Bench	DEMO	N/A	N/A	N/A	N/A	N/A	N	???						https://dacworldwide.com/product/pump-maintenance-with-alignment-trainer/	

7.4.3 MACHINE LAB

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical									Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	kW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
M1 - M2	5	N	JGS	Grinder (Bench)	123	Machine Lab	Setco	Cadet 602-201	2	28	32	24 (50)	Bench	208	3	60	4	1		N	???							
M3 - M4	1	N	JGS	Grinder (Bench)	123	Machine Lab	Setco	Cadet 602-201	2	28	32	24 (50)	Bench	208	3	60	4	1		N	???							
M5	5	N	JGS	Belt Grinder	123	Machine Lab	Hammond	Abrasive Belt Grinder (600-0)	1	24	28	60	Floor	208	3	60	6.8	2		N	???							
M6	1	N	JGS	Tool Grinder	123	Machine Lab	Hammond	Cadet Tool Grinder (D-6)	1	24	28	52	Floor	208	3	60	1.8	0.5		N	???							
M7 - M12	5	N	JGS	Manual Mills	123	Machine Lab	Bridgeport	Series I	6	60	60	82	Floor	208	3	50/60	6.8	2		N	???							
M13	5	N	JGS	Band Saw	123	Machine Lab	DoAll	DBW-15	1	48	48	80	Floor	240	1	50/60	30	NA		N	???							
M14 - M19	2	N	JGS	Lathe (Tools)	123	Machine Lab	LeBlond	E01063-00	6	76	36 (73)	52	Floor	208	3	60	11	7.5		N	???							
M20	2	N	JGS	Lathe	123	Machine Lab	Hardinge	HC	1	76	36	52	Floor	220	3	60	25	1		N	???							
M21	5	N	JGS	Lathe	123	Machine Lab	Hardinge	Super Precision	1	76	36	52	Floor	220	3	60	25	1		N	???							
M22 - M25	5	N	JGS	Lathe	123	Machine Lab	Clausing	Colchester 15"	4	78	30	50	Floor	208	3	60	25	8		N	???							
M26	5	N	JGS	Lathe	123	Machine Lab	Clausing	Colchester 15"	1	76	48	52	Floor	415	3	60	21	11		N	???							
M27	1	N	JGS	Drill Press	123	Machine Lab	Delta	R5024	1	12	26	65	Floor	115/230	1	60	12/6	0.75		N	???							
M28 & M29	1	N	JGS	Drill Press	123	Machine Lab	Duracraft	DP-1617	2	15	28	41	Bench	115	1	60	7.6	0.5		N	???							
M30	5	N	JGS	Drill Press	123	Machine Lab	Clausing	2878	1	22	36	74	Floor	208-230	3	60	4.2/4	1.5/0.75		N	???							
M31	5	N	JGS	Gantry Crane (2t)	123	Machine Lab	Spanco		1	60	96	104	Floor	N/A	N/A	N/A	N/A	N/A	N/A	N	???							
M32 & M33	5	N	JGS	CNC Mill	123	Machine Lab	Haas	Mini Mill	2	97 (+36 Right Clearance)	84 (+36 Rear Clearance)	96	Floor	195-250	3/1	50/60	25/40	7.5		Y	???						https://www.haascnc.com/owners/pre-install-guide/mills-pre-install/minimill.html	
M34	5	N	JGS	CNC Lathe	123	Machine Lab	Haas	ST-10	1	140 (204 Max Service Width)	100 (110 Max Service Depth)	74	Floor	195-260	3	50/60	40	15		Y	???						https://www.haascnc.com/owners/pre-install-guide/Pre-install-Guide-Template-Lathe/ST-10.html#Preinstall-Specs	
M35	5	N	JGS	CNC Mill	123	Machine Lab	Haas	TM-1	1	120 (+36 Right Clearance)	108 (124 Max Service Depth)	108	Floor	220	3/1	50/60	40	7.5		Y	???						https://www.haascnc.com/owners/pre-install-guide/mills-pre-install/TM-1.html	
M36	5	N	JGS	CNC Mill	123	Machine Lab	Haas	TM-2	1	140 (+36 Right Clearance)	80 (126 Max Service Depth)	108	Floor	220	3/1	50/60	40	7.5		Y	???						https://www.haascnc.com/machines/vertical-mills/toolroom-mills/models/tm-2.html	
M37	5	N	JGS	3D Printer	123	Machine Lab	StrataSys	F170	1	32 (34)	28	66 (64)	Floor	100-240	1	50/60	15	N/A		Y	???						https://www.goengineer.com/3d-printing/fdm/stratasys-f123-series/f170	
M38	5	N	JGS	3D Printer	123	Machine Lab	StrataSys	J35	3	26	26	32 (30.5)	Bench	100-240	1	50/60	10	N/A		Y	???						https://support.stratasys.com/en/printers/polyjet/j35-pro	
M39 & M40	5	N	JGS	Laser Cutter	123	Machine Lab	Universal Laser Systems	VLS3.60DT	2	34	26	14.5 (30.5 When Fully Open)	Bench	110/220-240	1	50/60	10/5	N/A		Y	???						https://www.ulsinc.com/products/platforms/vls3-60dt	
M41	5	N	JGS	3D Printer Bath	123A	Foundry	Branson	8510	1	28	20	24 (14.8)	Bench	117	1	60	7.5	N/A		N	???							
M42	5	N	JGS	Horizontal Band Saw	123	Machine Lab	CHYON TSEH IND	KC812W	1	60	3' + roller (12' x 2')	36	Floor	115/230	1	60	15.4/7.6	0.75		N	???					X feet clearance required		
M43	5	N	JGS	Fume Hood (Spray Booth)	123	Machine Lab Adjacent	MDI	pr	1	4'-10"	3'-6"	7'-2"	Floor	230/460	3	60	8	0.75		N	???							
M44	1	N	JGS	Press Brake	123	Machine Lab			1				Floor	NA	NA	NA	NA	NA		N	???							
M45	4	N	JGS	Hydraulic Press	123	Machine Lab			1				Floor	NA	NA	NA	NA	NA		N	???							
(FUTURE)	5		JGS	CNC Mill	123	Machine Lab	Haas	Mini Mill	10	97 (+36 Right Clearance)	84 (+36 Rear Clearance)	96	Floor	195-250	3/1	50/60	25/40	7.5		Y	???						https://www.haascnc.com/owners/pre-install-guide/mills-pre-install/minimill.html	

7.4.4 ELECTRIC CIRCUIT & SYSTEMS LAB

EQUIPMENT LIST

				Basic Information						Dimensions (Inches UON)				Electrical										Mechanical			Misc		
Equipment Number	Importance Factor (1 low - 5 high)	Equipment needs replacement? (Y/N)	Reviewed by: (initials)	Equipment Name	Room Number (Current Location)	Room Name (Current Location)	MFR	Model	Qty	W	D	H	Mounting Location (Bench, Floor, or Wall)	Voltage	Phase	Hertz	Amps	HP (if over 1.0)	kW	Telecom Data (Y/N)	Connection Type (NEMA Type or Direct Connect). Indicate "standard" if standard	Number of Power Connections	Electrical Notes	Compressed Air? (Y/N)	Dust Collection? (Y/N)	Fume / Heat Exhaust Air? (Y/N)	Comments (clearance requirements, future replacement, etc)	Links	Edited By
EC1 - EC13	???	???	???	Workstation	105	Electric Circuit Lab			13																				
A	???	???	???	Multimeter	105	Electric Circuit Lab	Fluke	45 Dual Display Multimeter	13	10	12	6	Bench	???	???	???	???	N/A		Y									
B	???	???	???	DC Tracking Power Supply	105	Electric Circuit Lab	Leader	LPS-151	13	9	12 (13)	4 (5.5)	Bench	???	???	???	???	N/A		Y									
C	???	???	???	DC Power Supply	105	Electric Circuit Lab	Long Wei	PS-3010DF	13	6 (5)	12	7 (5.7)	Bench	???	???	???	???	N/A		Y									
D	???	???	???	2-Channel Oscilloscope	105	Electric Circuit Lab	Tektronix	TDS 210	13	12	12 (4)	6	Bench	???	???	???	???	N/A		Y									
E	???	???	???	Single Channel Arituary/Function Generator	105	Electric Circuit Lab	Tektronix	AFG 3021B	13	13	14 (6.6)	7 (6.2)	Bench	???	???	???	???	N/A		Y									
F	???	???	???	Desktop PC	105	Electric Circuit Lab	Dell	???	13	22	8	18	Bench	???	???	???	???	N/A		Y									
EC14 - EC18	???	???	???	Troubleshooting Training Center	105	Electric Circuit Lab	TH Technical Education Systems	KTS100	5	24	20	20	Bench	???	???	???	???	N/A		N									
EC19 - EC25	???	???	???	Fault Switch Training Panel	105	Electric Circuit Lab	TH Technical Education Systems	???	7	14	10	12	Bench	???	???	???	???	N/A		N									
EC-26	???	???	???	Circuit Board Cart	105	Electric Circuit Lab	???	???	1	48	30	36	Floor	N/A	N/A	N/A	N/A	N/A	N/A	N									
ES1 - ES15	???	???	???	Workstation	107	Electric Systems Lab			15																				
A	???	???	???	Multimeter	107	Electric Systems Lab	Fluke	45 Dual Display Multimeter	15	10	12	6	Bench	???	???	???	???	N/A		Y									
B	???	???	???	DC Tracking Power Supply	107	Electric Systems Lab	Leader	LPS-151	15	9	12 (13)	4 (5.5)	Bench	???	???	???	???	N/A		Y									
C	???	???	???	DC Power Supply	107	Electric Systems Lab	Long Wei	PS-3010DF	15	6 (5)	12	7 (5.7)	Bench	???	???	???	???	N/A		Y									
D	???	???	???	2-Channel Oscilloscope	107	Electric Systems Lab	Tektronix	TDS 210	15	12	12 (4)	6	Bench	???	???	???	???	N/A		Y									
E	???	???	???	Single Channel Arituary/Function Generator	107	Electric Systems Lab	Tektronix	AFG 3021B	15	13	14 (6.6)	7 (6.2)	Bench	???	???	???	???	N/A		Y									
F	???	???	???	Desktop PC	107	Electric Systems Lab	Dell	???	15	22	8	18	Bench	???	???	???	???	N/A		Y									
ES16 - EC??	???	???	???	Electrician Trainer Stations	107	Electric Systems Lab	N/A	N/A	???	???	???	???	Floor	???	???	???	???	N/A		N									

Tasks for ELECT team:

- confirm equipment manufacturer / model is correct

- confirm quantity is correct.
- provide missing info marked "???"
- rank importance to the teaching program / fequency of use
-- 1) Not used or useful
-- 2) Used infrequently / not a necessesity
-- 3) Periodic Use. Maintain in project if possible.
-- 4) Regular use. Inmportant to the project program
-- 5) Critical to the success of the program.
- add initials to show review is complete.

Complete to extent possible with info available

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7.5 MEETING NOTES

PSC Meetings

- 2023/04/14 - SmithGroup - Roadmap
- 2023/05/12 - Smithgroup - Programming
- 2023/06/20 - SmithGroup - PSC Meeting
- 2023/07/27 - SmithGroup - Baseline Program and Baseline Plan

Stakeholders Meetings

- 2023/03/16 - SmithGroup - Visioning 1
- 2023/04/19 - SmithGroup - Visioning 2
- 2023/05/03 - SmithGroup - Programming 1
- 2023/06/28 - SmithGroup - Programming 2

User Group Meetings

- 2023/04/26 - SmithGroup - User Group Session1
- 2023/05/25 - SmithGroup - MESC -User Group Session 2
- 2023/05/31 - SmithGroup - User Group Session 2
- 2023/07/12 - SmithGroup - User Group Session 3

DVC Facilities

- 2023/05/11 - SmithGroup - 2035 Districtwide Goals
- 2023/06/15 - SmithGroup - Systems and Sustainability
- 2023/08/03 - SmithGroup - MEP and Systainability

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Project Steering Committee Meeting Notes

Date: April 14, 2023

Location: MS Teams Meeting

Link to Roadmap Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

• Ines Zildzic	4CD	Vice Chancellor, Facilities Planning & Construction
• PJ Roach	4CD	Director of Capital Construction Program Operations
• Tracy Marcial	4CD	Energy & Sustainability Manager
• Manuel Covarrubias	DVC	Faculty (Electrical/Electronics)
• Despina Prapavessi	DVC	Dean of Math and Engineering
• Beth Armon	DVC	Senior Dean, Career and Community Partnership
• Julie Waters	DVC	Faculty (Math)
• Chi Zhu	DVC	Architecture Faculty

2. Kitchell

• Ron Hoyle		Senior Project Manager

3. SmithGroup (SG)

• Rosa Sheng		Principal in Charge/Studio Leader
• Bill Katz		Design Principal
• David Andreini		Project Manager
• Darryl Jackson		Project Architect
• Kenta Kamei		Architect / Lab Designer

Workshop Summary

1. Overview of Workshop and Mural Board Process
   a. SG shared the DVC ET Building Project Roadmap Mural Board. This online resource is a "lar page" for the project. By keeping the URL for this site bookmarked, participants can refere this for updated information about the project. This resource will include the following:
      i. High-level summary calendar of workshops and meetings through the Criteria Documents phase (updated throughout the course of this phase for the project).
      ii. Descriptions of content for past and upcoming user engagement workshops.
      iii. Links to other relevant mural boards, including Mural Boards dedicated to the pro visioning and programming workshops.
   b. This roadmap mural board also includes a link to a mural board "Primer", which provides instructions for project participants.
   c. A prime reason SG promotes the use of the Mural is that users can participate and add comments during workshops and also between workshops. SG is able to monitor added content in order to ensure that content added between workshops are noted.
   d. User comments will remain on the mural boards but will occasionally be reorganized by SC team members.
   e. SG requests that users not "un-lock" areas of the mural board locked by the SG team.

2. Visioning Workshops Overview
    a. SG team shared how the content from Visioning Workshop #1 has been captured on the Visioning Mural Board.
    b. SG provided a preview of the material being prepared for Visioning Workshop #2 (April 19), and how the information gathered in Workshop #1 will be used in Workshop #2.

3. Programming Updates
    a. SG shared progress on understanding state of current space utilization.
        i. Site visits on March 22.
        ii. Analysis of enrollment / space utilization data.
        iii. Information to be further defined / confirmed in upcoming User Group Meetings.
    b. User Group meetings.
        i. Program User Group meetings to be held week of April 24.
        ii. Focus of these meetings will be to understand how all the current curriculum is supported by the current facilities.
        iii. Upcoming User Group meetings will <u>not</u> be used for making definitive decisions about future spaces. The purpose of these upcoming User Group meetings is continued information gathering.
    c. Growth projections:
        i. DP noted that the ET department does not have formalized growth projections for the ET academic programs.
        ii. Career partnership programs (Tesla/Autodesk) may result in potential growth needs that will be further reviewed in upcoming User Group meetings.

4. Swing Space Updates
    a. SG reported on updates on Swing Space concepts. Swing space will be temporary location for the programs for a period of approximately two years.
    b. The focus on Swing Space options has been the vacant former Arts Building. SG is in process of evaluating code and infrastructure upgrades that would be required for this space.
    c. SG will review Swing Space needs for academic programs in upcoming User Group meetings.

5. Structural Assessment
    a. DVC had engaged Thornton Tomasetti engineers to provide a structural report and high level cost estimate to evaluate the feasibility of a renovation vs a new build.
    b. Despite the mandatory structural upgrades, the 2/28/2023 Structural Feasibility Report still indicates that renovation of the existing facility is still more cost effective than all new construction.
    c. Tracy noted that renovation/remodeling is also the more environmentally sustainable approach.
    d. A summary diagram from the report showing the existing structure to remain has been provided on the mural board.

6. Next Steps
    a. Visioning Workshop #2 on April 19.
    b. SG/Kitchell to coordinate scheduling User Group Workshops for the week of April 24.

End of Notes

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Project Steering Committee Meeting Notes

Date: May 12, 2023

Location: MS Teams Meeting

Link to Roadmap Mural Board

Link to Programming Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

PJ Roach	4CD	Director of Capital Construction Program Operations
Tracy Marcial	4CD	Energy & Sustainability Manager
Jefferey Smith	DVC	Department Chair / Engineering Technology
Daniel Abbot	DVC	Architecture
Ashely Erickson	DVC	Engineering
Manuel Covarrubias	DVC	Electrical/Electronics
Adhitya Mohan	DVC	Math & Engineering Student Center
Beth Armon	DVC	Senior Dean, Career and Community Partnership

2. Kitchell

Ron Hoyle		Senior Project Manager

3. SmithGroup (SG)

Rosa Sheng		Principal in Charge/Studio Leader
Bill Katz		Design Principal
David Andreini		Project Manager
Kenta Kamei		Architect / Lab Designer
Andrew Thurlow		Project Designer

Workshop Summary

1. Summary: The objectives of the meeting are to summarize findings from User and Stakeholder Workshops, and to provide a detailed look-ahead for next four weeks. The participants referenced the Programming Mural Board (see link above).
2. Vision Pillars and Evaluation Criteria.
    a. The 12 Evaluation Criteria have been amended based on the most recent feedback provided in workshops and via comments on Mural. The updated criteria reviewed in the meeting are accessible on the programming mural board (far right column).
        i. Interdisciplinary Learning
            - #1- (fostering interdisciplinary learning) Language added related to “showcasing” the achievements within each discipline.
            - #3 – (fosters engagement/collaboration) – intent is that this language applies to any program included in the renovated building.
        ii. Functional / Future-Ready
            - #5 – (Learning on display) new title.
            - #6 – (Instructional spaces well integrated to cultivate STEAM synergies) – language added to include the necessary support.

iii. Student Persistence
   - #8 – (support student basic and developmental needs) – added to description promotion of holistic wellness.
   - #9 – (adequate intentional access for fostering applied learning) – merged comments about safety as well as providing supporting resources.

iv. Intersectional Justice
   - #10 – (Accessible to all) – Universal design/access language added.

b. Meeting participants are asked leave any final comments by Friday 5/19. The objective is to have evaluation criteria close to being finalized in advance of the upcoming Stakeholder meeting.

c. It was noted that dedicated maker spaces require dedicated staff/resources to support it. Rosa noted that another consideration is that shared resources for technical support can be more efficiently provided when clustered as a shared resource, vs as separate, siloed technical resources. SG has seen this model of shared resources as a means to improve efficiency in technical support.

d. Sustainability and daylight: SG will edit the criteria to make this more explicate.

e. Importance of spaces where industry partners can engage with students. SG will revise #2 to incorporate. (promotes exchange between students and faculty).

3. Highlights from the "Understanding the Interdisciplinary Community" stakeholder workshop exercise.
   a. Balance is required when considering shared resources (across departments) vs resources dedicated to individual departments.
   b. Scheduling conflicts resulting from shared spaces need to be considered.
   c. Proximity to MESC appealing to Engineering by providing enhanced access for students who need support.
   d. Flexible space for "fail early, fail often" approach to design.
   e. Opportunities for MESC to expand outreach and support for students generally.
      i. MESC reported 8470 visits to the center so far this semester, but thus far only 11% are visits related to engineering. This is reflective of what the center can currently offer due to resources.
      ii. AH noted that a benefit of having the MESC is bringing non-engineering students in closer proximity and possible interaction with engineering programs.
   f. Increase opportunities for places for rest, study, etc.

4. Adjacency Diagram Review
   a. SG updated the Adjacency Diagram to reflect the concepts and comments left on the Mural board during the previous stakeholder meeting.
   b. SG reminded participants that locations of program spaces are diagrammatic, and do not represent at this point proposed locations.
   c. David noted opportunities to consolidate social spaces like showcase areas, "heart" space, food areas, public gathering space, and heads down spaces as a connecting hub for the difference disciplines, and that this hub may have a beneficial adjacency or overlap with the MESC.
   d. The concept of having hub of social spaces and gain experience interacting with others form other disciplines.
   e. Feedback:
      i. Jefferey noted that a limiting factor in usability of computer resources is equipment and internet speeds.
      ii. Several participants noted concern about how while there are benefits of locating the MESC to the ET, there are also challenges associated with this. Very high traffic, many students not particularly concerned with the ET programs, in an already congested area.
      iii. The combination of Math and Engineering departments at DVC is relatively new. Many majors need to take course in Math (Business, Health and Science, etc.) that are

not necessarily affiliated with Engineering, and this results in some unease within the Engineering side of the program of the impact of having this influx of students unrelated to Engineering.

iv. Daniel asked if the courtyard was represented in the program diagram, and noted this was deemed a valuable space by many. David noted that the functional attributes of the outdoor space is addressed in the program diagram as "Layout and Assembly Yard" but should perhaps be labeled as "Outdoor Space". The intent of the Program Adjacency diagram is to diagram the functional relationships of the building, and so the diagram is presently agnostic about a courtyard per se. SG understands that several stakeholders place high value on the courtyard.

5. Swing Space Updates
    i. SG still focusing on the old Art building as a temporary facility.
    ii. Need to balance the cost of a Swing Space vs the experience of the students attending school at this time.
    iii. SG currently reviewing code, life safety, accessibility, and MEP feasibility.

6. Swing Space Updates
    a. SG reported on updates on Swing Space concepts. Swing space will be temporary location for the programs for a period of approximately two years.
    b. The focus on Swing Space options has been the vacant former Arts Building. SG is in process of evaluating code and infrastructure upgrades that would be required for this space.
    c. SG will review Swing Space needs for academic programs in upcoming User Group meetings.

7. Four Week Look-Ahead
    a. 5/19: SG will develop a structural and high level cost analysis.
    b. 5/24: Stakeholders Programming Workshop.
    c. 5/26 (+/-): Short User Group sessions: Equipment and space optimization strategies.
    d. 5/31 (+/-): Building Systems / Sustainability meeting with 4CD to confirm systems.
    e. 6/8-6/10: User Group workshops to review proposed space requirements.
    f. 6/12: Cost analysis update.
    g. PSC Meeting: Week of 6/15

End of Notes

DVC - ET PROGRAMMING 01 MURAL

AGENDA

5/12/2023

- Vision Pillars & Evaluation Criteria (5 mins)
  - Review revised pillars and criteria based on feedback.
- Reactions to the Programming Workshop #1 (30 mins)
  - In-progress review of program adjacency diagram.
  - Highlights from "Understanding the Interdisciplinary Community" exercise.
- Updates on Swing Space evaluation. (5 mins)
- Look-ahead for next four weeks (10 minutes)
  - Building Systems / Sustainability identifying system typologies: by 5/19.
  - Structural analysis and cost analysis: by 5/19
  - Programming Meeting #2 – Stakeholder meeting 5/24.
    - Review and provide comments on proposed building program, location for MESC, adjacency diagram.
  - User Group micro-sessions: May 26 (TBC)
    - Review and comment on space optimization strategies and equipment requirements.
  - Building Systems / Sustainability: Building mechanical systems review (5/31, TBC).
  - User Group Workshops: Review proposed space requirements for individual program spaces (6/8 – 6/10).
  - Cost analysis update: 6/12
  - PSC Meeting: Week of 6/12 (TBC).

EVALUATION CRITERIA

INTERDISCIPLINARY LEARNING

1.Creates a highly visible showcase each discipline's strengths, while fostering interdisciplinary learning, leveraging the threshold/entry South Gate approach.

2. Spaces are versatile/flexible that promote exchange between students, faculty co-curricular, industry partners with multimodal uses/groups and adaptable over time.

3. Design fosters engagement/collaboration between STEAM disciplines (Math, Engineering, Technology, Architecture, Construction, etc.) and inspires curiosity of the DVC learning community.

STUDENT BELONGING / PERSISTENCE

7. HEART SPACE and dedicated student resources - radically welcoming place that support belonging, curiosity and engagement in formal and informal learning spaces.

8. Dignified, intentional and integrated resources to support student basic and developmental needs - promoting holistic wellness (mental health).

9. Adequate, intentional access with safety/training (hours of operation) to equipment and maker spaces for fostering applied project learning.

FUNCTION/ FUTURE READY

4. High Flex - Project program and adjacencies support flexibility and future teaching/learning needs while durable and easy to adapt/maintain (optimize functions)

5. Learning on Display - spaces/infrastructure are highly visible teaching tool - (ie., height, orientation and solar exposure, access to fresh air, HVAC, electrical, water management, etc.,) to reinforce applied learning of sustainability and resilience practices.

6. Instructional spaces are well integrated with support resources/spaces (lab tech support) to cultivate connections to the work/living laboratory; demonstrates synergies of STEAM - hands on learning/support.

INTERSECTIONAL JUSTICE

10. Accessible to All - universal design/access prioritized to site resources including provisions to support exchange with the larger community (all gender restrooms, mobility)

11. Community resources are easy to locate and highly visible areas for public gathering and support - wayfinding, safety, and welcoming.

12. Strategic values - Climate Action, Social and Academic Justice are embodied in Instructional and engagement spaces that foster pride, belonging and dignity for students, faculty and community at large.

VISION PILLARS

PILLAR 1

Champion Intersectional Justice

Reflect and Foster understanding of social justice, ecology, environmental justice, and sustainability. Develop human-centered discovery, design, and engineering that aligns with social, economic and environmental values; Applied problem solving with direct relevance to real world challenges with purpose and impact.

PILLAR 2

Cultivate Interdisciplinary Learning

Foster and ignite curiosity and collaboration to support cross-disciplinary and interdisciplinary thinking, discovery, and innovation. Leverage the STEM/STEAM connections and cross pollination to fuel real world problem solving.

PILLAR 3

Prioritize Student Belonging + Persistence

Students are met where they are, understanding their lived experience, challenges and barriers to augment their persistence. Create environments that strengthen belonging, affirm dignity and foster intentional, abundant learning resources, and cohorts/communities.

PILLAR 4

Future Ready Resilience

Students are prepared with a broad set of foundational skills, adaptable for the future and a rapidly changing workforce landscape and living conditions. The future-ready student is equipped with problem-solving, resilience, and holistic wellness skills. Concurrently, the future ready resilient campus is designed to be human centered, flexible and adaptable to the rapidly changing conditions of education and student needs.

ADJACENCY DIAGRAM

May 12th Meeting Update

ICON BANK

COPY AND PASTE THESE ICONS ONTO THE DIAGRAM ABOVE TO EXPRESS CHARACTERISTICS AND RELATIONSHIPS

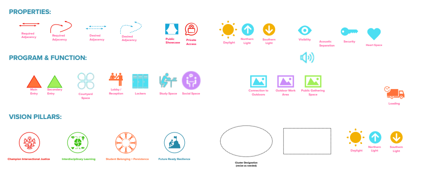


DIAGRAM KEY

- COLOR-CODED PROGRAM SPACES AT SCALE
- DESIRED SPACES NOT CURRENTLY IN PROJECT PROGRAM
- DIRECT CONNECTION BETWEEN SPACES
- INDIRECT CONNECTION BETWEEN SPACES

WORK AREA

What's missing?
What are the optimized relationship between spaces?
How can these desired relationships make the spaces and resources function better?

What is the right amount of shared spaces vs. dedicated spaces?

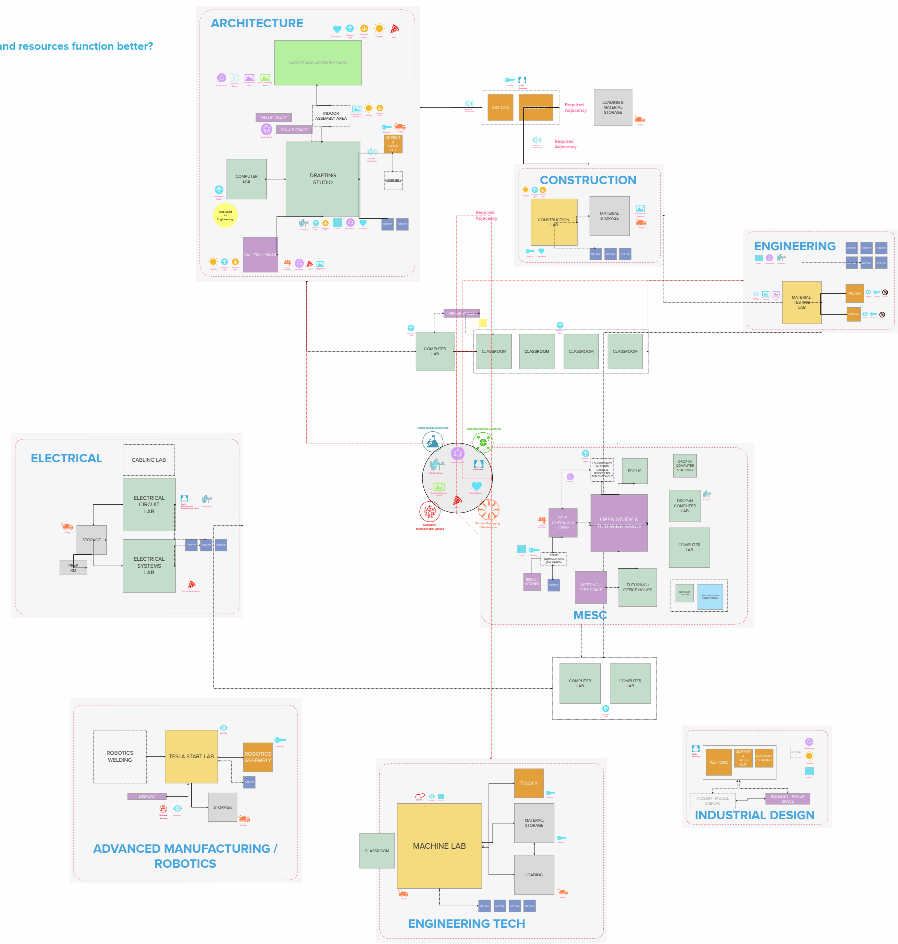
Courtyard relation to radically welcome and community

I agree with comments about value of having a courtyard/multipurpose outdoor space. I think it is also worth considering that we could incorporate a courtyard into the new design and it doesn't necessarily have to be in the same exact location.

for example, what if we were to make a new courtyard space in the open area between the engineering and math building to bridge the gap between our buildings

one additional comment for the diagram: restroom access is only currently available from the south side of the building and a student frequently asks me to open the south building door so that she can use the restroom in the morning. It would be good to also be mindful of access to restrooms and ease of access from other locations

Yes and I think it would be good to quantify how much space our department must have to meet our requirements. This will provide reassurance that we can accommodate our needs and the additional math and engineering center space.



INTERDISCIPLINARY LEARNING

- South entry should be mediated so as to not disrupt meditative or quiet focus activities while displaying other social activities in ET
- The space will optimize the need for each discipline's unique learning with a few dedicated spaces for interdisciplinary interactions
- I really like Ashley's comment below as it is a good reminder about the importance of ET programs connection with other programs.
- I like these points. Also worth noting that collaboration shouldn't be limited only to within ET as we may also overlap with physical sciences, math and others. - Ashley
- May need additional discussions about how improved spaces would be used (such as overlap between materials lab use by engineering program's ENGIN-240 class and construction program)

1.Creates a highly visible showcase each discipline's strengths, while fostering interdisciplinary learning, leveraging the threshold/entry South Gate approach.

2. Spaces are versatile/flexible that promote exchange between students, faculty co-curricular, industry partners with multimodal uses/groups and adaptable over time.

3. Design fosters engagement/collaboration between STEAM disciplines (Math, Engineering, Technology, Architecture, Construction, etc.) and inspires curiosity of the DVC learning community.

STUDENT BELONGING / PERSISTENCE

7. HEART SPACE and dedicated student resources - radically welcoming place that support belonging, curiosity and engagement in formal and informal learning spaces.

8. Dignified, intentional and integrated resources to support student basic and developmental needs - promoting holistic wellness (mental health).

9. Adequate, intentional access with safety/training (hours of operation) to equipment and maker spaces for fostering applied project learning.

- Adequate equipment and spaces to complete projects.
- Storage space is also needed in many of the labs.
- I like the points about welcoming and wellness. It seems the courtyard could be also better utilized to be a welcoming "heart" space for the building
- places to study, rest, food access/places to store/warm meals, showers?
- Also want to highlight safety in labs. In materials lab for example, current setup contains many potential safety issues and hazards.

FUNCTION/ FUTURE READY

- The space will optimize the need for each discipline's unique learning with a few dedicated spaces for interdisciplinary interactions
- Agree with number 5 - Building as teaching tool - there are just so many opportunities in doing this that would make our teaching better.
- Building on comment about teaching tool - could some of the building elements be made more easily visible so students can more easily see things like HVAC, etc. and how it all fits together
- Agree with all here. I would emphasize learning on display functions in the building
- Would love for the sustainability features, eneryg information systems, HVAC controls, etc, be more visible and usable for student projects, and for improvising ou buildings/operations.
- Adequate equipment and spaces to complete projects.
- **All instructional spaces are naturally daylit and naturally ventilated (for sustainability and energy, but also for the post-Covid era of health and wellbeing) D. Abbott**
- One big concern we've heard is the need for additional lab tech support to help maintain these spaces. Ease of maintenance is important but we also need to ensure we have people available to help. - Ashley
- Agree 100% with flexibility as our curriculum and needs will continue to evolve

4. High Flex - Project program and adjacencies support flexibility and future teaching/learning needs while durable and easy to adapt/maintain (optimize functions)

5. Learning on Display - spaces/infrastructure are highly visible teaching tool - (ie., height, orientation and solar exposure, access to fresh air, HVAC, electrical, water management, etc.,) to reinforce applied learning of sustainability and resilience practices.

6. Instructional spaces are well integrated with support resources/spaces (lab tech support) to cultivate connections to the work/living laboratory; demonstrates synergies of STEAM - hands on learning/support.

INTERSECTIONAL JUSTICE

10. Accessible to All - universal design/access prioritized to site resources including provisions to support exchange with the larger community (all gender restrooms, mobility)

11. Community resources are easy to locate and highly visible areas for public gathering and support - wayfinding, safety, and welcoming.

12. Strategic values - Climate Action, Social and Academic Justice are embodied in Instructional and engagement spaces that foster pride, belonging and dignity for students, faculty and community at large.

- Also want to highlight safety in labs. In materials lab for example, current setup contains many potential safety issues and hazards.
- Might also be worth mentioning universal design.
- Sounds great, but curious how we envision this in the building?
- We can provide visuals next.

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SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Project Steering Committee Meeting Notes

Date: June 20, 2023

Location: MS Teams Meeting

Link to Roadmap Mural Board

Link to PSC Meeting Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

• PJ Roach	4CD	Director of Capital Construction Program Operations
• Ines Zildzic	4CD	Vice Chancellor, Facilities Planning & Construction
• Joseph Gorga	DVC	Vice President of Equity and Instruction
• Despina Prapavessi	DVC	Dean of Math & Engineering
• Tracy Marcial	4CD	Energy & Sustainability Manager
• Jeffrey Smith	DVC	Department Chair / Engineering Technology
• Daniel Abbott	DVC	Faculty (Architecture)
• Julie Walters	DVC	Faculty (Math)
• Manuel Covarrubias	DVC	Faculty (Engineering)
• Ashley Erickson	DVC	Faculty (Engineering)

2. Kitchell

• Ron Hoyle	Senior Project Manager

3. SmithGroup (SG)

• Rosa Sheng	Principal in Charge/Studio Leader
• Bill Katz	Design Principal
• David Andreini	Project Manager
• Andrew Thurlow	Project Designer

Meeting Summary

1. Summary: The objectives of the meeting are to summarize findings from User and Stakeholder Workshops, and to provide a detailed look-ahead for next four weeks. The participants referenced the Programming Mural Board (see link above).
2. R Sheng provided refresher on the purpose of the Criteria Documents and the role of the Design-Build entity to follow. The focus of Criteria Document is not to design, but to provide the "recipe" for the design team that follows in the process. The Criteria Documents phase is opportune time to sort out priorities and alignment of project goals.
3. D Andreini shared diagnostics analysis of issues with the existing building.
    a. Under-sized spaces
    b. Poorly proportioned spaces
    c. Storage locations
    d. Distribution of Tesla START program
    e. Accessibility issues
    f. Spaces lacking natural light
    g. Adjacency issues (access and noise)

h. Variety in office sizes.
i. Areas of low usage (less than 50%)
j. Additional space requests
k. Opportunities for space utilization efficiencies.

4. Cost Forecasting: Key Drivers + Risk Management
    a. PJ Roach provided a summation of the project budget and cost forecasting:
        i. Project cost components
            - Project soft costs (consultant & A/E fees, furniture and equipment, permitting fees, commissioning, project contingency, moving).
            - Swing Space
            - Construction costs
        ii. Key cost drivers and escalation
            - Escalation
            - DSA Seismic requirements
            - Title 24 / Energy performance upgrades.
            - Accessibility upgrades
            - Deferred Maintenance
            - Underground site utilities.
    b. Risk management strategies
        i. Scenario planning (anticipate & prepare)
        ii. Create best value prioritization
        iii. Active cost forecasting / reporting
        iv. Alignment consensus of goals & priorities
        v. Schedule management.
        vi. Grant / donor funding.
        vii. Determine flex / multi-use program spaces
        viii. Define/align expectations of value and quality.
        ix. Establish project charter for decision making and getting to consensus.
    c. Strategies of Value/Impact vs Effort/Cost

5. Cost Alignment: Key Drivers + Risk Management
    a. Alignment of Project Priorities: Participants were invited to share thoughts on the following via comments in the Mural Board.
        i. Improving Building and Infrastructure to last next 50 years.
            - (General consensus that this is top priority)
        ii. MESC Location
            - (Several comments that location north of ET building is preferred)
            - D Abbot, should other constituents of the MESC be included in the conversation as to where it is located?
        iii. Industry partner programs
            - J Smith commented on importance of industry partners being included in the conversation.
            - Consider potential funding. Opportunities?
            - Recognize that industry partner relationships may change over time.
            - Optimize flexibility, for use by IP as well as regular classes.
        iv. Optimize underutilized / outdated teaching spaces.
            - Computer lab
            - Consider balance of tiered lecture hall vs more flexible space.
            - Using the building as a learning tool.
    b. Optimizing Value Strategies: R Sheng shared general strategies for optimizing value. Participants were encouraged to share comments.
        i. MESC Location and Construction:

- Consider alternate means of construction / pre-fab, etc.
- Consider locating in area without a lot of underground utilities.
- Consider new build to be with future-ready spaces with high ceilings.

ii. Create Programming Efficiencies
- Shared, multi-purpose spaces.

iii. Storage Management

iv. Minimize Scope of Interior Demolition

v. Defer "Tier 3", non-essential scope.

c. Tiered Prioritization

i. R Sheng shared examples of general strategy to tier priorities, in order to facilitate decision-making as cost constraints and opportunities become more apparent during the Design-Build collaboration process.

6. Open Discussion

a. Participants were asked for opinions on MESC location strategies and other observations.

i. SG had not represented a scheme with the MESC int eh courtyard because early cost models had suggested this would be more expensive than other schemes. J Smith asked that this option continue to be in the conversation.

ii. D Prapavessi asked if Pre-fabrication would be suitable structure. PJ Roach replied that pre-fab construction has improved much over years and can be a suitable way to control costs, while maintaining high construction standards

iii. D Andreini also noted challenges of the underground utilities to the north of the building.

iv. A Erickson asked if south side of ET Building could be considered for the new construction.

v. SG noted that attempting to capture additional outdoor spaces as conditioned, interior spaces, such as the entrance courtyard or various storage sheds, will still result in additional costs to the project.

vi. J Smith noted that for future-ready spaces, taller spaces for advanced manufacturing are necessary. The existing spaces in the ET building are too low.

vii. A suggestion was put forth by D Abbott constructing the new build as a high-bay space to support the advanced technology programs. Could be for instance on the south side of the ET Building or the north. SG will evaluate.

viii. I Zildzic noted that additional square footage on the campus a priority within the budget, but how that space is allocated beyond the existing building and how much space is allocated for industry partners will be on-going conversations.

7. Nest Steps: Order of events

a. Stakeholders Programming Workshop targeting June 28th.

b. Third / final round of User Group workshops to review space layouts.

c. Potential additional Stakeholders Workshop.

d. Draft of the Criteria Documents for review and comment.

End of Notes

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATIOI
Project Steering Committee Meeting Notes

Date: July 27, 2023

Location: MS Teams Meeting

Link to PSC Meeting Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

•	PJ Roach	4CD	Director of Capital Construction Program Operations
•	Joseph Gorga	DVC	Vice President of Equity and Instruction
•	Despina Prapavessi	DVC	Dean of Math & Engineering
•	Jeffrey Smith	DVC	Department Chair / Engineering Technology
•	Daniel Abbott	DVC	Faculty (Architecture)
•	Manuel Covarrubias	DVC	Faculty (Engineering)
•	Ashley Erickson	DVC	Faculty (Engineering)
•	Shawn Kammerer	DVC	Faculty (Construction)

2. Kitchell

•	Ron Hoyle	Senior Project Manager

3. SmithGroup (SG)

•	Rosa Sheng	Principal in Charge/Studio Leader
•	David Andreini	Project Manager
•	Andrew Thurlow	Project Designer

Meeting Summary

1. Summary: The objectives of the meeting were to review layout strategies that attempt to reconcile the various program requirements.

2. Offices: The following office space requirements are required in the composite plans:
   a. Full time (typically at DVC private office 90-100 SF)
      i. ARCHI – 2 (D Abbot suggested this should be increased to 3)
      ii. CONST – 1
      iii. ELECT/ELTRN – 1
      iv. ENGIN – 3
      v. ENGTC/IDSGN -1
      vi. TESLA START
   b. Adjunct (typically at DVC a shared office)
      i. ARCHI – 9
      ii. CONST – 6

iii. ELECT/ELTRN -4
iv. ENGIN – 2
v. ENGTC/IDSGN – 4

c. Other (can be in shared space, but requires dedicated desk)
   i. ARCHI/CONST Technician
   ii. ENGIN/ELECT Technician
   iii. Pre-Apprenticeship / Apprentice Program Coordinator

3. Comments and Clarifications of "Wing" layout studies: Based on comments left on mural board since last review.
   a. SE Wing:
      i. Restrooms will be reconfigured to be more equitable.
      ii. Some liked the concept of two classrooms that can be reconfigured as a larger room (at location of existing Rooms 125 and 127).
      iii. Some have also expressed a preference for 125/127 to be reconfigured for wiring training / electronics testing lab.
      iv. Questions on Mural Board: Can some offices be in MESC?
      v. Larger windows / visibility to Machine Lab.
   b. North Wing:
      i. CNC Room location – D Andreini noted that sound issue is solvable. However, it was preferred by all users of the North building that current room 117 be reserved as a small classroom, and making a little larger by absorbing the space currently occupied by the laser cutting / 3D printing room.
      ii. Design team has not received information regarding Materials Testing. This gap of information will need to be addressed during program verification phase.
      iii. Concept of material lab as a shared space with construction vs. a separate, smaller Materials Lab.
      iv. D Abbott asked about the Materials Testing lab moving to the SE Wing, due to the benefits of over-lapping similarities of these program elements. J Smith concerned about the amount of space.
      v. There is a difference of opinion about the benefits of having direct access to 116A from the courtyard vs only through the studio.

   c. SW Wing:
      i. Many opinions were expressed on desire to maintain the Lecture Hall and high ceiling spaces.
      ii. Comment indicating need for two 30-person electronics lab. (this will require more space, or space reduction elsewhere).
      iii. The offices adjacent to the lobby presently used for pre-apprenticeship program, and will need to be accommodated somewhere.

4. Composite Plan Layouts.
   a. Scorecards: The intent is to demonstrate the trade-offs in the requested additional spaces between the various composite layouts. The scorecard includes the following:
      i. Quantity of small (under 750 SF) classrooms: (#)
      ii. Quantity of standard classrooms / computer labs (750-950 SF): (#)
      iii. Retains Lecture Hall? (Y/N)
      iv. Larger Woodshop? (Y/N)

v. Larger CNC Room? (Y/N)
vi. Materials Testing "Lecture" Space? (Y/N)
vii. 2 x 30 Station Electrical Labs? (Y/N)
viii. Additional Electrical Lab? (Y/N)
ix. Wiring Training Center? (Y/N)
x. 2,500 SF Dedicated to START? (Y/N)
xi. High Bay space for START? (Y/N)

b. Composite Layout A: Primary focus on maximizing quantity of general multi-purposed classrooms.
   i. Total classrooms / general computer labs: (7).
   ii. Retains existing Lecture Hall .
   iii. Does <u>not</u> support 2,500 SF for Tesla START program.
   iv. Does <u>not</u> expand space capacity for ELECT/ELTRN spaces.
   v. In this option, Materials Testing and Construction Lab share a space for lecture. (This is to allow for CNC and woodshop to grow).

c. Composite Layout B: Similar to A, but instead of 125/127 converted to 2 classrooms, this area is allocated for spaces to support the ELECT/ELTRN programs.
   i. Total classrooms / general computer labs: (5).
   ii. Retains existing Lecture Hall.
   iii. Does <u>not</u> support 2,500 SF for Tesla START program.
   iv. <u>Does</u> expand space capacity for ELECT/ELTRN spaces.

d. Composite Layout C: Similar to B, but instead of Lecture Hall, this space is converted to a space supporting the Tesla START program.
   i. Total classrooms / general computer labs: (5).
   ii. Does <u>NOT</u> retain existing Lecture Hall.
   iii. <u>Does</u> support 2,500 SF for Tesla START program.
   iv. <u>Does</u> expand space capacity for ELECT/ELTRN spaces.

e. Composite Layout D: Similar to C, but changes North Wing such that Materials Testing does not rely on shared space with Construction for lecture.
   i. Total classrooms / general computer labs: 5.
   ii. Does <u>NOT</u> retain existing Lecture Hall.
   iii. <u>Does</u> support 2,500 SF for Tesla START program.
   iv. <u>Does</u> expand space capacity for ELECT/ELTRN spaces.
   v. Woodshop does <u>not</u> get larger.

5. Comments on Composite layout review discussion.
   a. Question raised: Can offices move to MESC?
      i. Issues are: would faculty be ok being in a different building? – Likely an issue.
      ii. MESC program does not have space for this.
   b. Lecture Hall:
      i. D Abbott: Great space for hosting events. A fairly useful space.
      ii. D Abbott: Although the most recent space metrics may show the space under-utilized, this is due to pandemic-related and storage issues. In 2019 it was highly utilized for classes that were larger than 30 occupants. Arch History was around 40.
      iii. Current occupancy is listed as 54.
      iv. D Prapavessi noted that 101 in the Math building supports 60 - 80, and could be considered for Lecture Hall purposes. M Covarrubias noted that in his experience

proximity has benefitted attracting students to voluntary events like employer meetings.

- v. Can the MESC support lecture space? D Andreini noted it could but only by reducing the MESC capacity in the open study area.

c. High Bay space (114):
- i. D Abbott: Believes quality of the space is inspiring.

d. Electrical/Electronics:
- i. D Abbott: Quantity of stored items is limiting capability to have 2 x 30 student labs, which is perhaps more important than the storage and provide more scheduling capability.
- ii. M Covarrubias: The storage is needed for the variety of programs, and expensive equipment that needs to be secured.
- iii. M Covarrubias: Ok with having one class for 30 individual stations, and one with 15 (doubled up stations).
- iv. One of the adjuncts suggested having one room (105) converted to a 30-station Electronics lab, and 107 converted to a wiring training center. An idea for consideration.

e. Exterior storage sheds:
- i. D Abbott questioned if enclosing the exterior storage spaces could alleviate needs for storage.
- ii. J Gorga: Noted that the cost of making spaces occupiable will add costs.

f. Material Testing Lab Space and Construction Lab
- i. A Erickson: Feedback to date is that the current space is too small. Leaning towards concept of sharing space with Construction studio, rather than trying to fit in too small bench area.
- ii. S Kammerer: If space 117 is not given to classes, then would recommend having 120A (Materials Testing) capable of supporting lecture, so not conflicting with classes in 120B (Construction).

g. Preferred Composite Options
- i. J Smith: The dept prefers the Auditorium, but need space for Tesla and Electronics trainers. (Version of Option B).
- ii. J Smith: If Lecture Hall is retained, then 125/127 needs to be used to support the rest of the START Tesla program, or there is just not enough space to support that program.
- iii. D Abbott would prefer Option A, due to challenges of scheduling classes.
- iv. D Abbott: Is there a version of very lightly touching ET?, and then expanding the cat house into a viable useable space. D Andreini noted that converting these storage spaces to occupiable spaces would require DSA reviews and approvals and other upgrades due to energy codes. The unit cost of this will be similar or greater than the cost of renovating spaces within the ET Building.
- v. J Smith believes that supporting the Tesla program, which is increasing enrollment, is critical, and thus any scheme but Option A would be preferable.

h. The following “sticking points” were identified for further consideration and review:
- i. Lecture Hall or convert to other useable space?
- ii. Quantity of general classrooms / computer labs versus unique functional spaces to support electrical training and/or Tesla START program (or other similar programs in the future).
- iii. In north building: Is Material Testing using Construction Lab for lecture?

iv. Maintain “high bay” space at 114, or capture more efficient horizontal space?

6. Nest Steps: Order of events
   a. J Smith will meet with rest of PSC and report back on the basis of design option.

End of Notes

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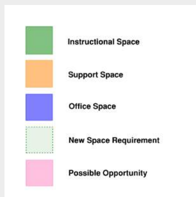
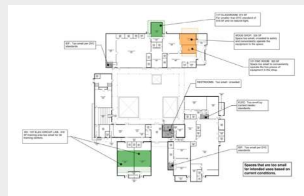
DVC PSC MEETING MURAL

EXISTING SPACE SPECIFIC CHALLENGES



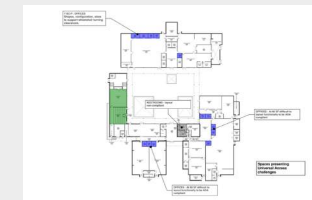


UNDER-SIZED SPACES

POORLY PROPORTIONED SPACES

STORAGE

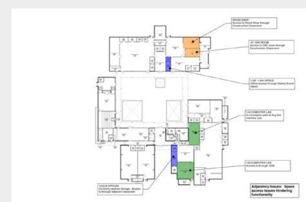
TESLA START PROGRAM



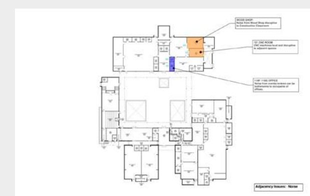
ACCESSIBILITY ISSUES

ADDITIONAL SPACE REQUESTS

LACK OF NATURAL LIGHT



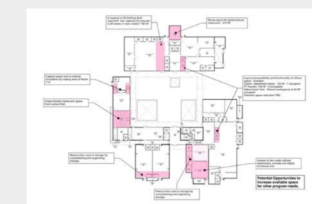
ADJACENCY ISSUES - ACCESS



ADJACENCY ISSUES - NOISE

VARIETY OF OFFICE SIZES

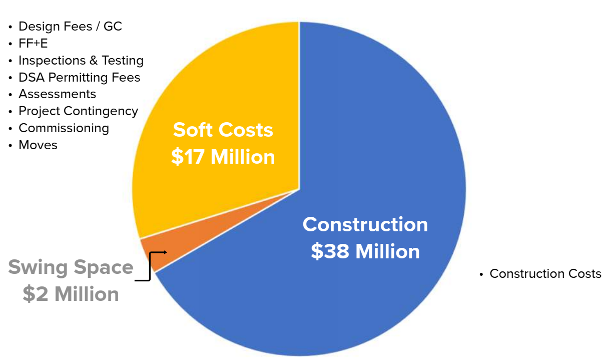
LOW USE AREAS



SPACE UTILIZATION - EFFICIENCY OPPORTUNITIES

COST FORECASTING: KEY DRIVERS + RISK MANAGEMENT

E+T Project Budget Overview
$57 Million



FORECASTING CONSTRUCTION COSTS W/ ESCALATION

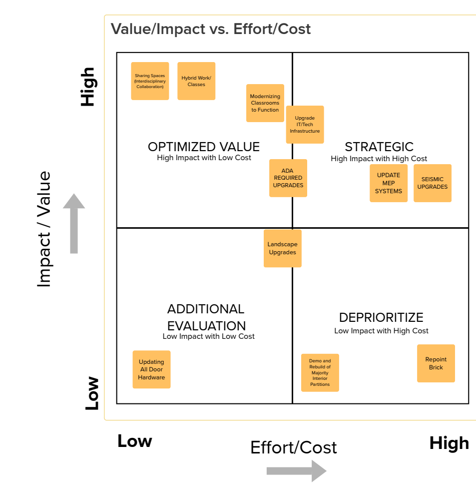
Anticipated Construction Cost Escalation - $41 - $48 Million for 2026-2027

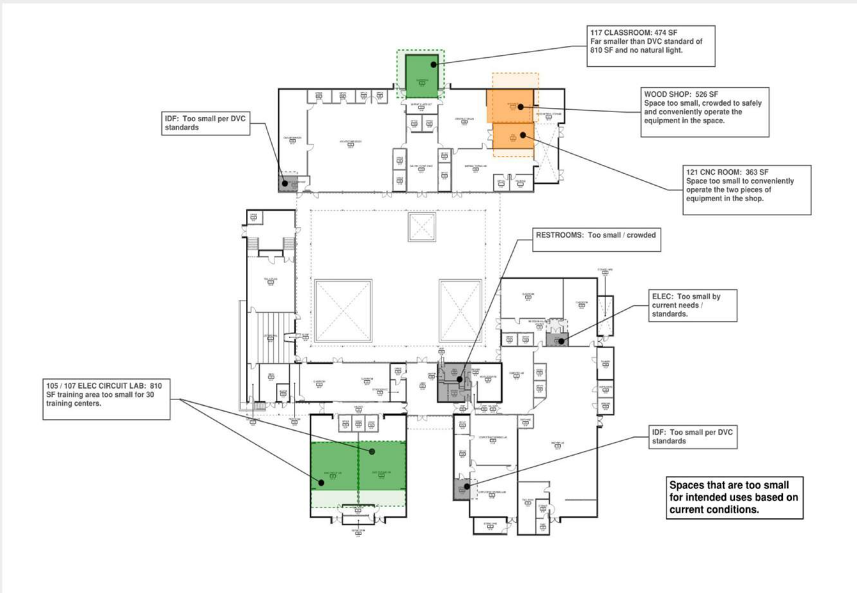
KEY COST DRIVERS

- Construction Cost Escalation / Inflation
- DSA - Seismic Upgrades
- DSA - Title 24 Energy Performance Upgrades (MEP/Exterior)
- DSA - ADAAG/CASP Accessibility Upgrades
- Deferred Maintenance - Age of Mechanical/MEP Systems
- Underground Site Utilities - Limits expansion options
- Increase Cost Potential w/ Additional DSA Requirements

RISK MANAGEMENT STRATEGIES

Scenario Planning - Anticipate + Prepare	Alignment and Consensus of Goals + Priorities	Determine Flex/ Multi-Use Program Spaces
Create Best Value Prioritization Rubric	Schedule Management/ Decision Making	Define/Align Expectations of Value and Quality
Active Cost Forecasting / Reporting	Grant / Donor Funding	Establish Project Charter for Decision Making + Getting to Consensus



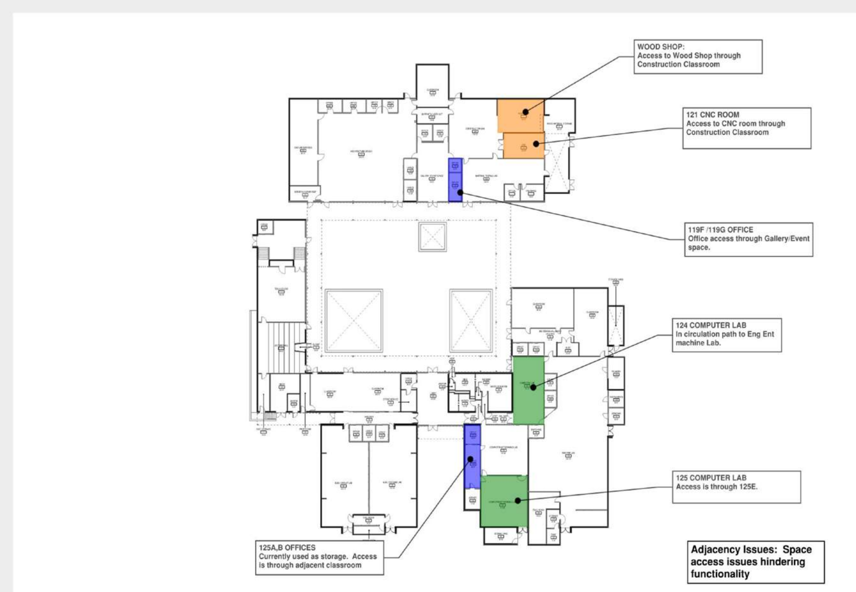


UNDER-SIZED SPACES

POORLY PROPORTIONED SPACES

STORAGE

LACK OF NATURAL LIGHT



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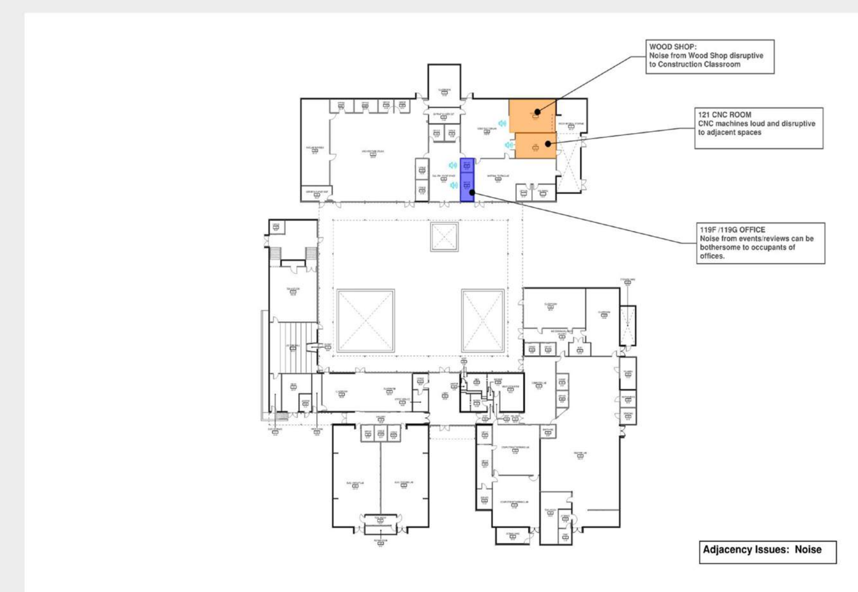
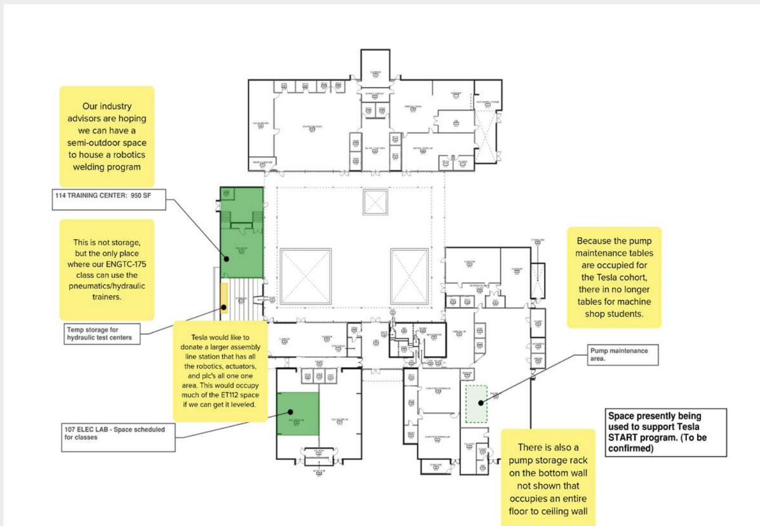
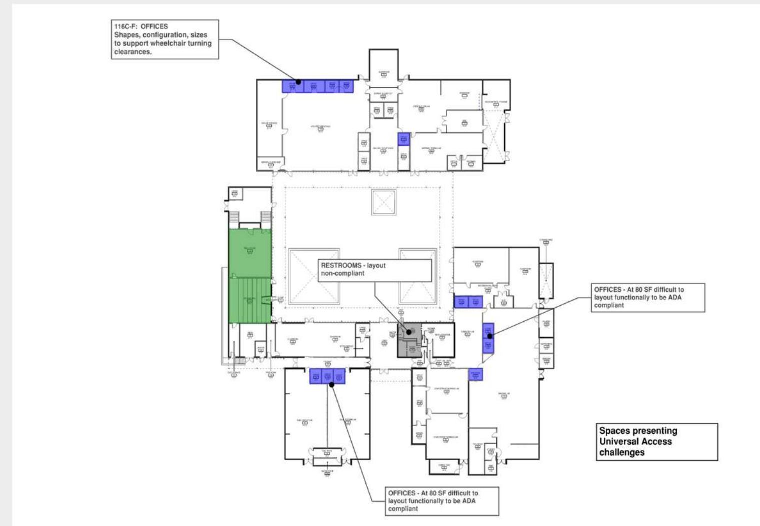


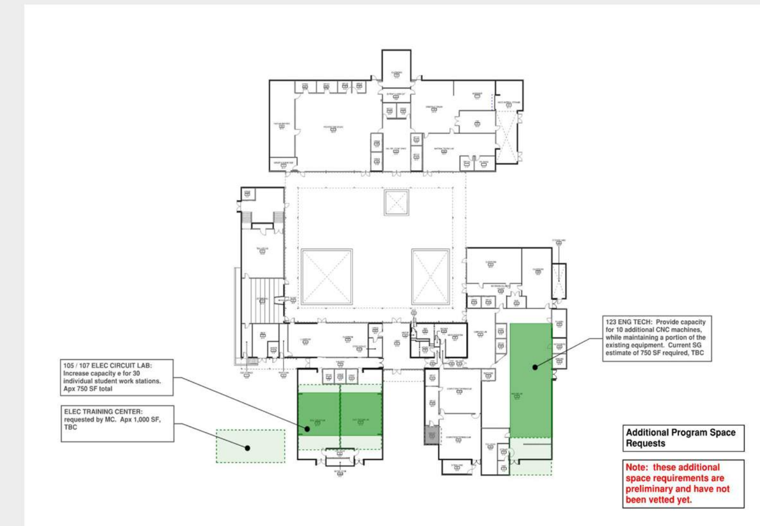
ADJACENCY ISSUES - NOISE



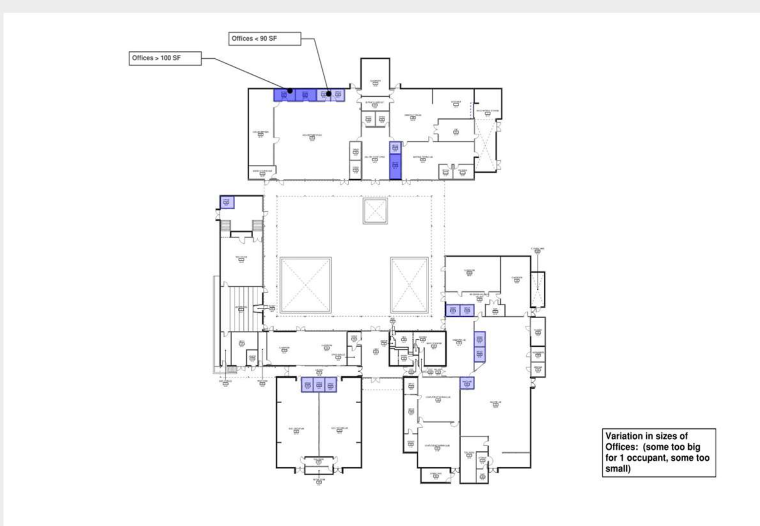
TESLA START PROGRAM



ACCESSIBILITY ISSUES

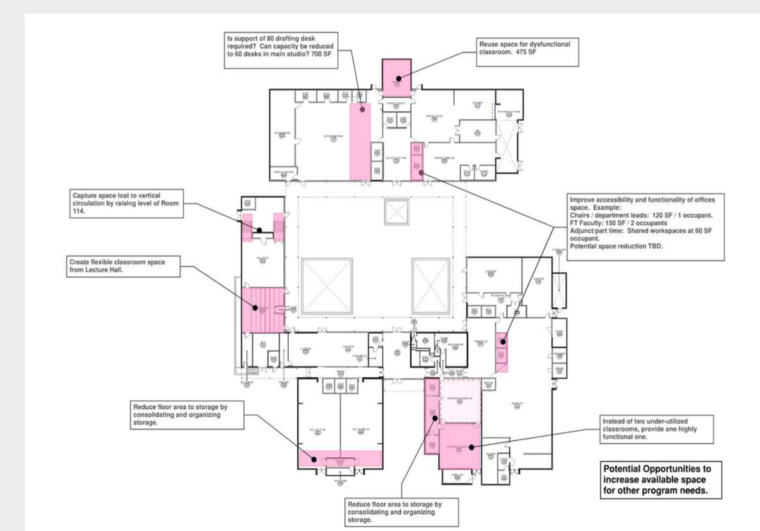


ADDITIONAL SPACE REQUESTS



VARIETY OF OFFICE SIZES

LOW USE AREAS



SPACE UTILIZATION - EFFICIENCY OPPORTUNITIES

COST ALIGNMENT CONSIDERATIONS - PLANNING AND PRIORITIZATION

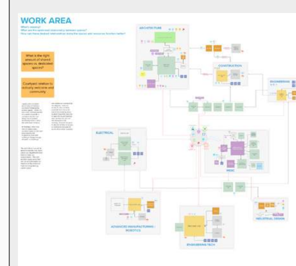
Alignment of Project Priorities

- Improving Building and Infrastructure to last 50 more years
- MESC Location
- Industry Partner Programs
- Optimize Underutilized/ Outdated Teaching Spaces

Optimizing Value Strategies

1 MESC - Location

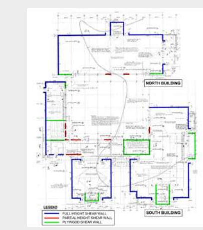
2 Program Efficiencies



3 Storage Management

4 Minimize Interior Partition Demo

- Evaluate Which Walls Need to Be Relocated for best value impact



5 Defer Tier 3 Scope

TIER 3 Priority
Simplify/Reduce/Defer to do's in the Existing Building renovation

- Interior Finishes (simplify)
- Repointing Brick
- Interior Partitions for Demo/ Rebuild
- Non- Repair Oriented Landscaping / Site
- Interior Partitions for Demo/ Rebuild
- Defer enhanced upgrades

Project Requirements and Constraints

High Level Summary of Recommendations:

Prioritize Scope of Work based on Life Safety and Regulatory Requirements, then based on urgency of need to support Strategic Vision Pillars and Evaluation Criteria.

- **Required**
- **Tier 1 Priority**
- **Tier 2 Priority**
- **Tier 3 Priority**

Prioritization of Scope of Work

REQUIRED
MUST be done in the Existing Building renovation
Items that are required to obtain DSA Permit Approval for Construction

- ADA Non-Compliant Access
- SEISMIC UPGRADES
- TITLE 24 Climate Action/Energy Efficiency

TIER 1 PRIORITY
SHOULD be done in the Existing Building renovation
Items that are required to obtain DSA Permit Approval for Construction

- 4CD Sustainability/ Climate Action Goals Exterior Envelope Efficiency
- Restroom Access/ Reconfigure
- AV Systems
- New Roofing/ Flashing
- IT Infrastructure Upgrades
- Interior Shading System

TIER 2 PRIORITY
CAN be done in the Existing Building renovation

- Functional Teaching Space Updates
- Space for Student Belonging
- MESC new build, other location
- Space for Industry Partners
- Update Meeting/ Office Spaces
- Repair Deferred Maintenance

TIER 3 Priority
Simplify/Reduce/Defer to do's in the Existing Building renovation

- Interior Finishes (simplify)
- Repointing Brick
- Interior Partitions for Demo/ Rebuild
- Non- Repair Oriented Landscaping / Site
- Interior Partitions for Demo/ Rebuild
- Defer enhanced upgrades

COST ALIGNMENT CONSIDERATIONS

Alignment of Project Priorities

Improving Building and Infrastructure to last 50 more years

- Seems to be one of the core priorities as it impacts the longevity of the building as a whole.
- Electrical Technology is an ever changing industry, we need to make sure we have spaces to adapt to the changes. ex. EV charging, new stuff in solar, fuel cells, battery technology, etc.
- Make sure we have doors big enough to allow us to roll in big equipment.
- This seems key to me, otherwise we're spending a lot of money that may be seen as wasteful.
- This ought to be the first priority
- Low ceilings is a non-starter
- When we say "infrastructure", it would be good to be as specific as possible to ensure we consider all the potential things which could become outdated or have issues (power, utilities, etc). We want to have wiggle room to grow or expand if our needs change.
- Be to use the building as a learning tool. Easy access to electrical wirng for teaching.
- Dark and cavernous rooms are not ideal

MESC Location

- ENGIN-110 summer students recently commented that it would be nice to have MESC closer to engineering building or in between engineering building and the math building. Given the large amount of space MESC needs, it would be really great if we could have the MESC located between the ET and math buildings rather than trying to use existing ET space.
- Creating a cost effective and program supportive location of the MESC
- Yes it should be closer to our building. I have students who don't venture off beyond the ET building. Again they are not here for general ed, but only CTE educaiton.
- Measure E was approved with the language: "Primary building would be ET which would have a complete remodel with the addition of the Math/Engineering Student Center". Nothing about a new building.
- Could we leverage prefabricated buildings as part of a cost savings? Might be cheaper to put a prefab annex or prefab building between ET and Math buildings?
- We should consider that the MESC is utilized by not just math and engineering but science and other disciplines. The conversation could possibly be broadened to include them
- Having MESC to the north would be advantageous to accommodate the high traffic of student visits
- We are building a MESC center for the next 50 years as well
- A central campus location is important to consider to serve all students
- We should incorporate the quad area, rather than build a new structure that takes funding away for the primary ET building as approved by measure-E
- Follow up conversation w/ larger MESC tutoring community

Industry Partner Programs

- Meeting with Industry partners - Discuss goals
- As long as the industry partners understand our limitations (in terms of space and budget).
- Are industry partners also potential funders?
- ensuring that we get relevant feedback
- need future ready spaces with high ceilings for industry needs
- Yes we need to include Industry to see what is in the future in terms of technology
- somewhat related: having place to put industry flyers and bulletins to advertise opportunities would be useful as well (some of this happens at MESC and other places, but having a central location would be helpful)
- Industry Partners were asked not to assist in this process
- Industry partnerships are constantly changing or coming and going, flexibility in these spaces seems advisable

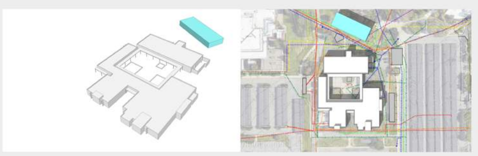
Optimize Underutilized/ Outdated Teaching Spaces

- Can we turn some of the underutilized areas into multipurpose spaces to give us better flexibility?
- Having flexibility and common teaching spaces when possible is helpful
- seems we must find a way to solve this area
- some of our classes have lecture followed by lab. sharing space or walls with lab might enable the learning to more seamlessly flow between the spaces
- some spaces are also underutilized due to noise (avoiding noisy wood shop/machine shop classes during certain hours)
- computer lab availability is really important for many of our classes.
- Optomize the technology in the spaces for teaching le smart boards, projectors, etc. will make some spaces more utilized.
- Berkeley had some removable walls which could open up or close off parts of a multipurpose area. Having some removable walls might also buy us the ability to create larger or smaller spaces on demand.
- The locker room is that still needed??
- Yes we need to use ET112, and some the other rooms for more stuff.
- might be good to loop in DSS and universal design to catch things we might not yet be thinking of.
- ET112 was utilized prior to the pandemic for architecture history lectures and the lecture series and circuits classes
- A lecture auditorium may have some advantages and should be further compared with a flexible space to compare uses.

Optimizing Value Strategies

1

MESC - Location

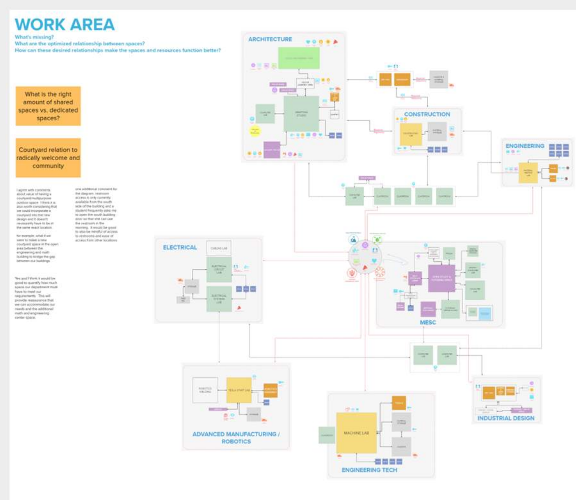


STRATEGY: Separate Building

STRATEGY: Addition Build to the North

2

Program Efficiencies



"PERFECT DIAGRAM" - DESIRED PROGRAM

3

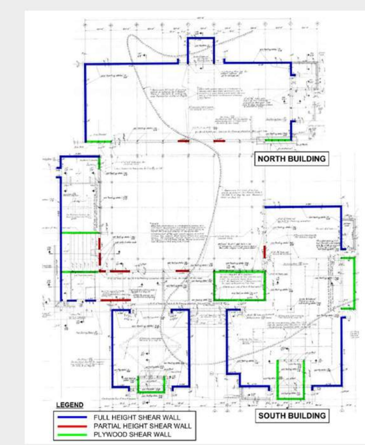
Storage Management

STORAGE - CURRENT LOCATIONS

4

Minimize Interior Partition Demo

- Evaluate Which Walls Need to Be Relocated for best value impact



5

Defer Tier 3 Scope

TIER 3 Priority
Simplify/Reduce/Defer to do's in the Existing Building renovation

- Interior Finishes (simplify)
- Repointing Brick
- Interior Partitions for Demo/ Rebuild
- Non- Repair Oriented Landscaping / Site
- Interior Partitions for Demo/ Rebuild
- Defer enhanced upgrades

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Visioning Workshop #1

Date: March 16, 2023

Location: DVC Community Conference Center

Attendees

1. Diablo Valley College / Contra Cost Community College District

• Ines Zildzic	4CD	Vice Chancellor - Facilities
• PJ Roach	4CD	Director of Construction Operations
• Russ Holt	DVC	Faculty
• Tracy Marcial	DVC	Energy & Sustainability Manager
• Manuel Covarrubas	DVC	Faculty (Electrical/Electronics)
• Jeffrey Smith	DVC	Department Chair
• Despina Prapavessi	DVC	Dean of Math and Engineering
• Daniel Abbott	DVC	Faculty (Architecture)
• Julie Waters	DVC	Faculty (Math)
• Elena Gutierrez	DVC	Student

2. Kitchell

• Bob Parks	Project Manager
• Ron Hoyle	Project Manager

3. SmithGroup

• Rosa Sheng	Principal in Charge/Studio Leader
• Bill Katz	Design Principal
• Andrew Thurlow	Project Designer
• David Andreini	Project Manager
• Darryl Jackson	Project Architect
• Kenta Kamei	Architect / Lab Designer

Workshop Summary

1. Overview of Workshop and Mural Board Process
   a. The in-person workshop was conducted as a series of interactive group exercises towards the goal of establishing project "evaluation criteria" within a shared governance model. The results of the workshop are posted on a workshop "Mural Board", an online platform that allows for individuals to participate and add comments during and after the meeting.
   b. Participants are encouraged to visit the Mural Board to add and post additional comments if any come to mind, and to encourage colleagues to visit the Mural Board as well. Below are links to the Workshop Mural Board and a primer for how to engage via Mural.
      i. Workshop Mural Board
      ii. Mural Board Primer
   c. SmithGroup will monitor the Mural Board up through April 7, to collect and synthesize comments for the following workshop.
   d. All contributions made during the in-person workshop will be placed by SmithGroup into the Mural Board.
   e. All the meeting presentation content referenced below, as well as feedback content from participants, is available for viewing on the workshop Mural Board.

2. Shared Governance Structure and Overview
    a. The current phase of the project is development of "Criteria Documents". Rosa likened this to developing the perfect recipe for a cake. The Design-Build Entity that is selected for the project will then be tasked to "make the cake" based on the recipe.
    b. Overview of the structure of groups and committees related to this project, and an overview of the decision-making process (decision tree).
    c. Look-ahead to future meetings and visioning workshops.
    d. This and future Visioning Workshops are open to all project stakeholders, including students, faculty, and administration. The overall duration of the Criteria Documents phase is four months.

3. Review of Project Planning to Date
    a. Planning Principles from IAS (Diane White, September 2022)
        i. The principle gathered from the previous engagement sessions is a good starting point for developing project goals and success factors. SmithGroup has categorized the various listed principles under the categories of "Strategic Vision", "Conceptual Goals", and "Specific Goals".
    b. 4CD District-wide Energy & Sustainability Goals
    c. DVC Campus Strategic Vision
        i. In close alignment with the project-specific Planning Principles outlined in Diane White's document from Sept, 2022, and with SG Higher Ed Studio goals.

4. Interactive Activity #1: Empathy Building / Student Experience
    a. Exercise: Working in groups, meeting participants were asked to adopt a variety of student personae and to explore potential challenges each unique individual student may face, and to consider potential solutions or resources to address these unique needs.
    b. Groups discussed and shared insights, and then shared with the larger group. The results from this exercise can be viewed on the Mural board.

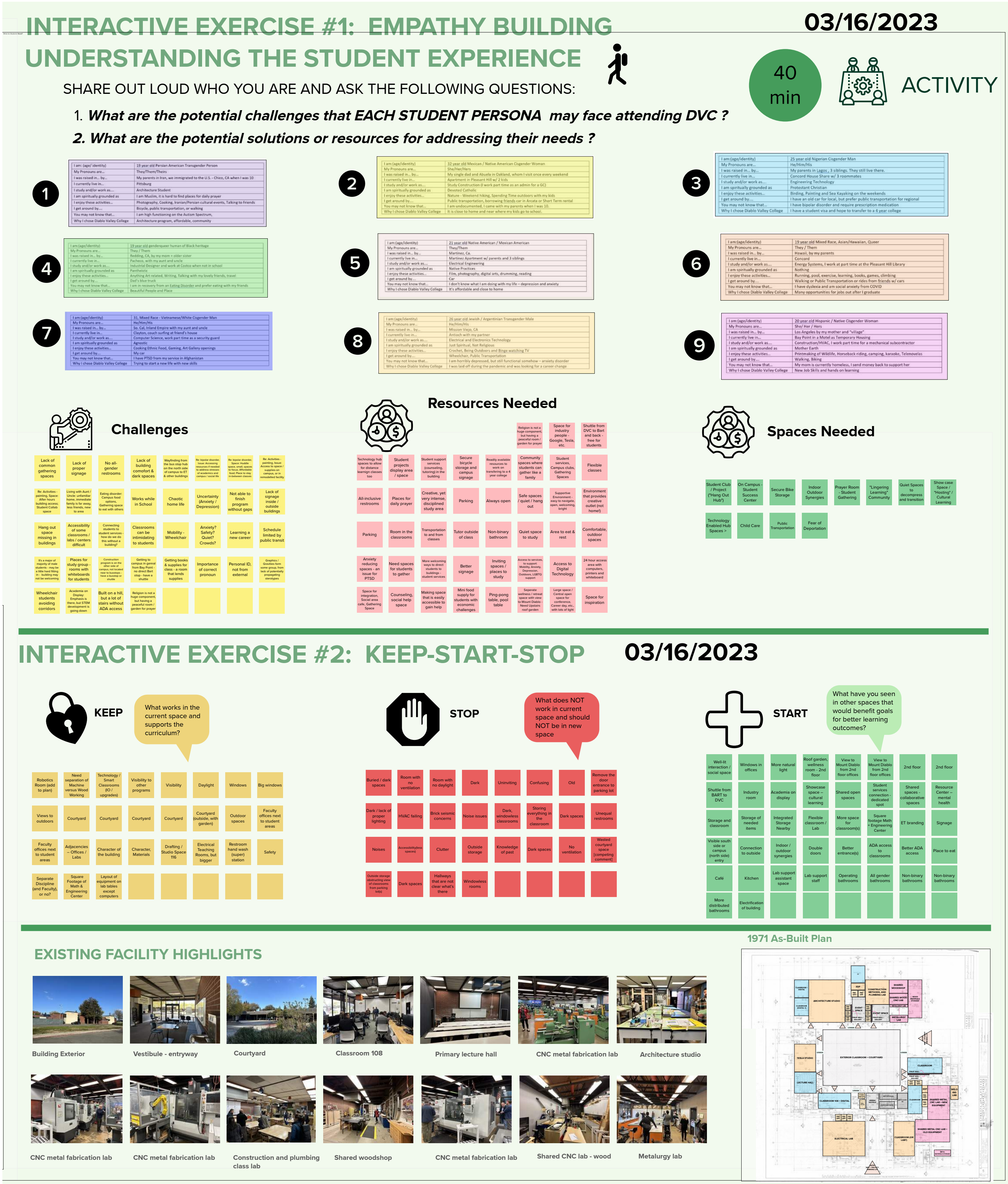
5. Interactive Activity #2: Keep / Stop / Start
    a. Exercise: Working in groups, participants were asked to consider the current facility, and identify what characteristics should be retained, what needs to be stopped, and what should be added to improve goals for learning outcomes.

6. Interactive Activity #3: Project Goals and Success Factors
    a. Exercise: Based on earlier workshop exercises and their other experiences, workshop participants were asked to identify Project Goals, and how a project goal may be realized by measuring success through "Success Factors".
    b. Ideas were shared on boards and grouped into categories. The SG team will convert all content to digital content for the next meeting.

7. Next Steps
    a. SmithGroup will analyze and organize information on the Mural board. This content will be used to develop the next workshop exercises.
    b. It was agreed that having a student-focused workshop would be beneficial. SG will coordinate this with Kitchell. Tentatively scheduled for April 12.
    c. Wednesday mid-afternoons work best for maximizing participation due to gaps in class schedules. SG will work with Kitchell to schedule the next visioning meeting, tentatively scheduled for April 19.
    d. The goal of the next session will be to develop project Evaluation Criteria. A preview of the exercises to achieve this in the Work session 1 Mural Board.

End of Notes

DVC - ET VISIONING 01 MURAL



ACTIVITY 40 min

INTERACTIVE EXERCISE #3: PROJECT GOALS & SUCCESS FACTORS 03/16/2023

- Project goals and success factors
- Individual contributions
- Finding common themes

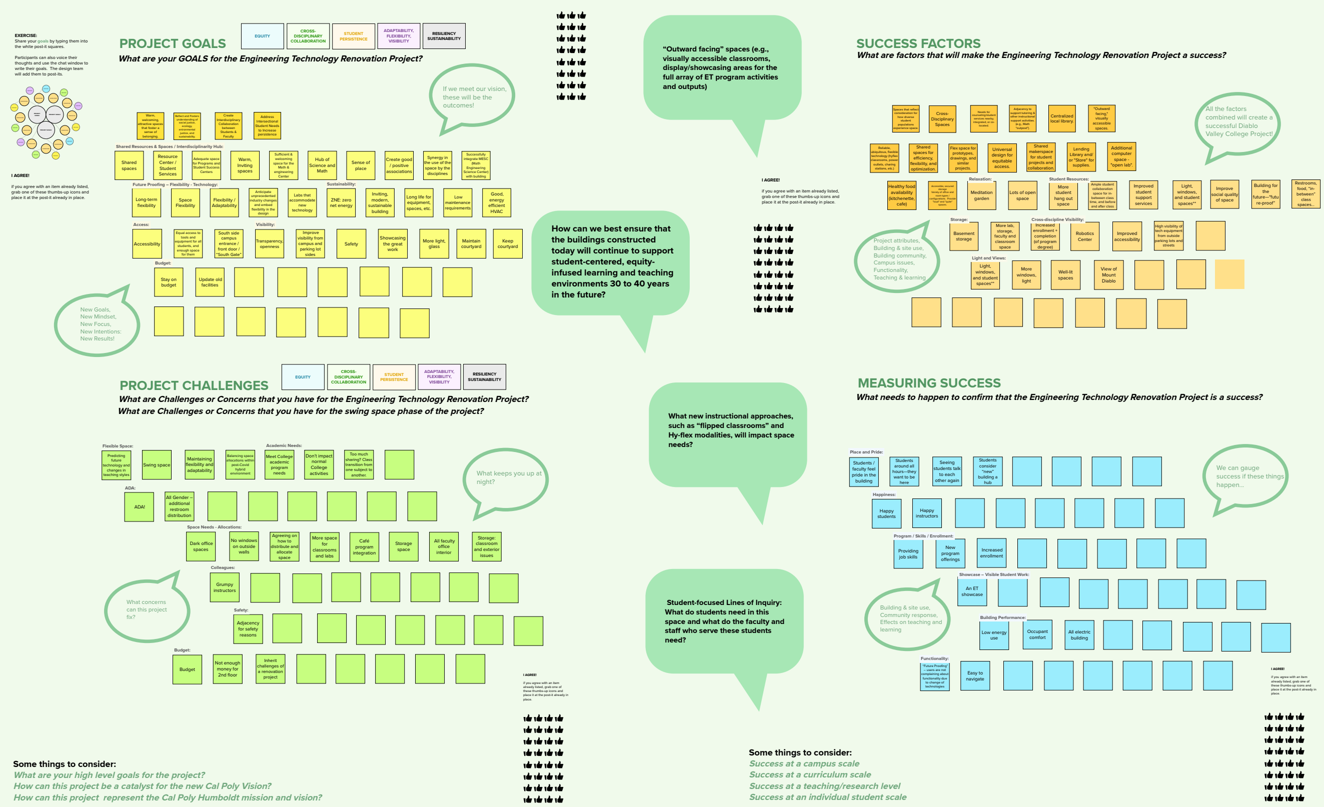
GATHERING IDEAS FOR PROJECT GOALS AND SUCCESS FACTORS

ACTIVITY DIRECTIONS

- Fill out colored post-its (in-person or on the online mural) with content you want to share
- Add colored dots (in-person) or thumbs-up icons (online mural) to content you want to reinforce
- SmithGroup Team will consolidate all content on the online mural and share back to the entire group

PROJECT GOALS & CHALLENGES

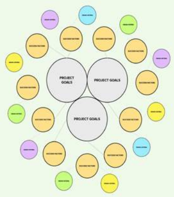
PROJECT SUCCESS FACTORS & MEASURING SUCCESS



PROJECT GOALS & CHALLENGES

EXERCISE:
Share your goals by typing them into the white post-it squares.

Participants can also voice their thoughts and use the chat window to write their goals. The design team will add them to post-its.



I AGREE!

if you agree with an item already listed, grab one of these thumbs-up icons and place it at the post-it already in place.

PROJECT GOALS

EQUITY | CROSS-DISCIPLINARY COLLABORATION | STUDENT PERSISTENCE | ADAPTABILITY, FLEXIBILITY, VISIBILITY | RESILIENCY SUSTAINABILITY

What are your GOALS for the Engineering Technology Renovation Project?

If we meet our vision, these will be the outcomes!

- Warm, welcoming, attractive spaces that foster a sense of belonging.
- Reflect and Fosters understanding of social justice, ecology, enironmental justice, and sustainability.
- Create Interdisciplinary Collaboration between Students & Faculty
- Address Intersectional Student Needs to Increase persistence

Shared Resources & Spaces / Interdisciplinarity Hub:

- Shared spaces
- Resource Center / Student Services
- Adequate space for Programs and Student Success Centers
- Warm, Inviting spaces
- Sufficient & welcoming space for the Math & engineering Center
- Hub of Science and Math
- Sense of place
- Create good / positive associations
- Synergy in the use of the space by the disciplines
- Successfully integrate MESC (Math Engineering Science Center) with building

Future Proofing – Flexibility - Technology:

- Long-term flexibility
- Space Flexibility
- Flexibility / Adaptability
- Anticipate unprecedented industry changes and embed flexibility in the design
- Labs that accommodate new technology

Sustainability:

- ZNE: zero net energy
- Inviting, modern, sustainable building
- Long life for equipment, spaces, etc.
- Low maintenance requirements
- Good, energy efficient HVAC

Access:

- Accessibility
- Equal access to tools and equipment for all students, and enough space for them
- South side campus entrance / front door / "South Gate"

Visibility:

- Transparency, openness
- Improve visibility from campus and parking lot sides
- Safety
- Showcasing the great work
- More light, glass
- Maintain courtyard
- Keep courtyard

Budget:

- Stay on budget
- Update old facilities

New Goals,
New Mindset,
New Focus,
New Intentions:
New Results!

PROJECT CHALLENGES

EQUITY | CROSS-DISCIPLINARY COLLABORATION | STUDENT PERSISTENCE | ADAPTABILITY, FLEXIBILITY, VISIBILITY | RESILIENCY SUSTAINABILITY

What are Challenges or Concerns that you have for the Engineering Technology Renovation Project?
What are Challenges or Concerns that you have for the swing space phase of the project?

Flexible Space:

- Predicting future technology and changes in teaching styles
- Swing space
- Maintaining flexibility and adaptability
- Balancing space allocations within post-Covid hybrid environment

Academic Needs:

- Meet College academic program needs
- Don't impact normal College activities
- Too much sharing? Class transition from one subject to another.

What keeps you up at night?

ADA:

- ADA!
- All Gender – additional restroom distribution

Space Needs - Allocations:

- Dark office spaces
- No windows on outside walls
- Agreeing on how to distribute and allocate space
- More space for classrooms and labs
- Café program integration
- Storage space
- All faculty office interior
- Storage: classroom and exterior issues

Colleagues:

- Grumpy instructors

What concerns can this project fix?

Safety:

- Adjacency for safety reasons

Budget:

- Budget
- Not enough money for 2nd floor
- Inherit challenges of a renovation project

I AGREE!

if you agree with an item already listed, grab one of these thumbs-up icons and place it at the post-it already in place.

PROJECT SUCCESS FACTORS & MEASURING SUCCESS

SUCCESS FACTORS

What are factors that will make the Engineering Technology Renovation Project a success?

- Spaces that reflect consideration for how diverse student populations experience space.
- Cross-Disciplinary Spaces
- Needs for counseling/student services nearby, integrated, or co-located.
- Adjacency to support tutoring & other instructional support activities. (e.g., Math "outpost").
- Centralized local library.
- "Outward facing," visually accessible spaces.
- Reliable, ubiquitous, flexible technology (hyflex classrooms, power outlets, charing stations, etc.)
- Shared spaces for efficiency, flexibility, and optimization.
- Flex space for prototypes, drawings, and similar projects.
- Universal design for equitable access.
- Shared makerspace for student projects and collaboration.
- Lending Library and/ or "Store" for supplies.
- Additional computer space - "open lab".
- Healthy food availability (kitchenette, cafe)
- Accessible, secured storage Variety of office and room types / configurations. Provide "loud" and "quite" spaces.

All the factors combined will create a successful Diablo Valley College Project!

Relaxation:

- Meditation garden
- Lots of open space

Student Resources:

- More student hang out space
- Ample student collaboration space for in-between class time, and before and after class
- Improved student support services
- Light, windows, and student spaces**
- Improve social quality of space
- Building for the future—"future-proof"
- Restrooms, food, "in-between" class spaces...

I AGREE!

if you agree with an item already listed, grab one of these thumbs-up icons and place it at the post-it already in place.

Storage:

- Basement storage
- More lab, storage, faculty and classroom space

Cross-discipline Visibility:

- Increased enrollment + completion (of program degree)
- Robotics Center
- Improved accessibility
- High visibility of tech equipment from outside parking lots and streets

Project attributes, Building & site use, Building community, Campus issues, Functionality, Teaching & learning

Light and Views:

- Light, windows, and student spaces**
- More windows, light
- Well-lit spaces
- View of Mount Diablo

MEASURING SUCCESS

What needs to happen to confirm that the Engineering Technology Renovation Project is a success?

Place and Pride:

- Students / faculty feel pride in the building
- Students around all hours—they want to be here
- Seeing students talk to each other again
- Students consider "new" building a hub

We can gauge success if these things happen...

Happiness:

- Happy students
- Happy instructors

Program / Skills / Enrollment:

- Providing job skills
- New program offerings
- Increased enrollment

Showcase – Visible Student Work:

- An ET showcase

Building & site use, Community response, Effects on teaching and learning

Building Performance:

- Low energy use
- Occupant comfort
- All electric building

Functionality:

- "Future Proofing" – users are not complaining about functionality due to change of technologies
- Easy to navigate

I AGREE!

if you agree with an item already listed, grab one of these thumbs-up icons and place it at the post-it already in place.

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Stakeholder Workshop #2 – Visioning #2

Date: April 26, 2023

Location: MS Teams / Mural Boards

Link to DVC Project Roadmap Mural Board
Link to DVC Visioning Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

• Ines Zildzic	4CD	Vice Chancellor, Facilities Planning & Construction
• PJ Roach	4CD	Director of Capital Construction Program Operations
• Tracy Marcial	4CD	Energy & Sustainability Manager
• Ashley Erickson	DVC	Faculty (Engineering)
• Chi Zhi	DVC	Faculty (Architecture)
• Manuel Covarrubias	DVC	Faculty (Electrical/Electronics)
• Jeffrey Smith	DVC	Department Chair
• Despina Prapavessi	DVC	Dean of Math and Engineering
• Daniel Abbott	DVC	Faculty (Architecture)
• Julie Waters	DVC	Faculty (Math)

2. Kitchell

• Ron Hoyle	Senior Project Manager

3. SmithGroup

• Rosa Sheng	Principal in Charge/Studio Leader
• Bill Katz	Design Principal
• Andrew Thurlow	Project Designer
• David Andreini	Project Manager
• Darryl Jackson	Project Architect
• Kenta Kamei	Architect / Lab Designer

Workshop Summary

1. Overview of Workshop and Mural Board Process
   a. SG shared the DVC ET Building Project Roadmap Mural Board. This online resource is a "landing page" for the project. By keeping the URL for this site bookmarked, participants can reference this for updated information about the project. This resource will include the following:
      i. High-level summary calendar of workshops and meetings through the Criteria Documents phase (updated throughout the course of this phase for the project).
      ii. Descriptions of content for past and upcoming user engagement workshops.
      iii. Links to other relevant mural boards, including Mural Boards dedicated to the project visioning and programming workshops.
   b. This roadmap mural board also includes a link to a mural board "Primer", which provides instructions for project participants.
   c. A prime reason SG promotes the use of the Mural is that users can participate and add comments during workshops and also between workshops. SG is able to monitor added content in order to ensure that content added between workshops are noted.

d. User comments will remain on the mural boards but will occasionally be reorganized by SG team members.
e. SG requests that users not "un-lock" areas of the mural board locked by the SG team. The mural board can be accessed following this link.

Visioning Workshop #1 Recap

a. Planning Principles from IAS (Diane White, September 2022)
    i. The principle gathered from the previous engagement sessions is a good starting point for developing project goals and success factors. SmithGroup has categorized the various listed principles under the categories of "Strategic Vision", "Conceptual Goals", and "Specific Goals".
b. Exercise #1: *Understanding the Student Experience.* The feedback from this exercise has been added to the Mural Board under *Challenges/Resources Needed/Spaces* Needed.
    i. This information has been inserted in to the Exercise #5: *Work, Learn, Play, Live* content below.
c. Exercise #2: *Keep / Start / Stop*. The feedback which was provided as hand-written notes have been copied over to the mural board.
    i. This information has been summarized by SG and has been used to pre-populate entries in Exercise #6: *S.W.O.B.* below.
d. Exercise #3: *Project Goals and Success Factors.* The feedback which was provided as hand-written notes have been copied over to the mural board.
    i. This information has been summarized by SG and has been used to pre-populate entries in Exercise #4: *Vision Pillars,* below.

Visioning Workshop #2 Exercises

a. The purpose of the review of the exercises in this workshop is to demonstrate how they are intended to be used, and to capture initial thoughts.
b. Participants are encouraged to revisit the mural board at any time and add further comments.
c. It was noted that some exercises resonate differently with different participants, thus users may engage with the exercises they find the most meaningful.
d. SG has requested that users try to visit the board for additional comments by Friday, April 28, in order to ensure that feedback can be used to support the following workshop.
e. The ultimate goal of these exercises is to inform the project "Evaluation Criteria".

Exercise #4: *Vision Pillars*

a. Based on the information gathered in Visioning Workshop #1, SG has proposed four Vision Pillars as governing principles for the project, and is presenting these for feedback. SG has asked the participants to provide feedback on the following:
    i. Pillar 1: Champion Intersectional Justice
    ii. Pillar 2: Cultivate Interdisciplinary Learning
    iii. Pillar 3: Prioritize Student Belonging + Persistence
    iv. Pillar 4: Future-Ready Resilience.
b. With the proposed Vision Pillars, SG has distributed previously collected comments from Exercise #3 (Project Goals and Success Factors) and have distributed these comments as "Project Goals", "Success Factors", and "Design Drivers".
    i. Participants were asked to find connections between comments in these three categories by creating links.
c. What does it look like?
    i. Participants were asked to evaluate photos of spaces, grouped around the four proposed Vision Pillars, and asked to comment on them, and to evaluate how they may support the project needs.

5. Exercise #5: *Work / Learn / Play / Live*
    a. The exercise has been pre-populated with comments from Exercise #1: *Understanding the Student Experience.*
        i. Comments are grouped around quadrants of Work / Learn / Play / Live and further categorized as Challenges and Solutions.
    b. Due to time constraints the exercise was not conducted in this workshop, but participants are encouraged to add additional comments reflecting challenges and solutions within the quadrant areas in the diagram.

6. Exercise #6: *S.W.O.B. (Strengths, Weaknesses, Opportunities, Barriers)*
    a. The exercise has been pre-populated with comments from Exercise #2: *Keep – Stop – Start.*
        i. Comments were recategorized by SG under the four categories, and by sub-category of "Renovation, Addition, Swing Space, Performance, and Image and Identity."
    b. Participants in the workshop were asked to review the comments, add comments, and to identify with comments. Several themes emerged from the discussion:
        i. A desire to connect with views, and particularly with Mount Diablo, if possible.
        ii. Differences of opinion as to the value of the existing courtyard.
        iii. The need to improve facilities for, and management of, storage.
        iv. Importance of enhanced display of student projects.
        v. Means to support/store student work in progress.
        vi. Visual connection with class activities.
        vii. Improved lighting.

7. Establishing Evaluation Criteria
    a. Based on comments provided up until this workshop, SG has provided an initial draft of 12 Evaluation Criteria.
    b. Evaluation Criteria will be the measurements by which different project solutions will be evaluated in a future Stakeholders workshop. The voting and commentary on these proposed solutions, anchored by the Evaluation Criteria, will be information used by the Project Steering Committee to select a scheme to be provided to the Design-Build Entities selected for the project.
    c. The 12 Evaluation Criteria are distributed amongst the four draft Vision Pillars in order to ensure that they reflect the full range of strategic goals for the project.
    d. SG recommends about 12 total Evaluation Criteria, based on experience, as a number that provides a suitable number of "voting" metrics without being too burdensome.
    e. SG requested feedback on the initial criteria. Some comments have been added to the board during this workshop.

8. Next Steps
    a. SmithGroup will conduct User Group workshops April 26 and April 28. The intent of these workshops it to provide "deep dives" into the specifics as to how the academic programs function in the current facility.
    b. SmithGroup requests that participants re-engage with the activities on the Vision Mural board (and encourage colleagues to engage with the board), by end of the day Friday April 28.
    c. Smithgroup will evaluate comments, and consider updates to the Vision Pillars descriptions and the Evaluation Criteria, in advance of the next Stakeholder Workshop, schedule for May 3.

End of Notes

DVC - ET VISIONING 01 MURAL

AGENDA

VISIONING MEETING 2 03.19.2023

Introduction (20 minutes)

- Using Mural - Primer
- Project Roadmap: Overview and Update
- Summation of Visioning #1 Workshop: What we learned.

Interactive Exercise #4 - Vision Pillars (30 minutes)

- What are our Vision Pillars?
- Measuring success through Vision Pillars
- What does success look like?
- Discussion

Interactive Exercise #5 - Work/Learn/Play/Live (15 minutes)

- Seeing challenges and solutions through "Kaleidescope of Wellness"
- Confirmation and additional inputs
- Discussion

Interactive Exercise #6 - SWOB (Strengths, Weaknesses, Opportunities, Barriers) (20 minutes)

- Review comments prepopulated based on Diane White engagement process and prevopis Activity #2.
- Add more entries / comment on existing entries.
- Discussion

Evaluation Criteria (20 minutes)

- Review draft proposed Evaluation Criteria and edit.
- Time for meeting participants to review and further provide comments.

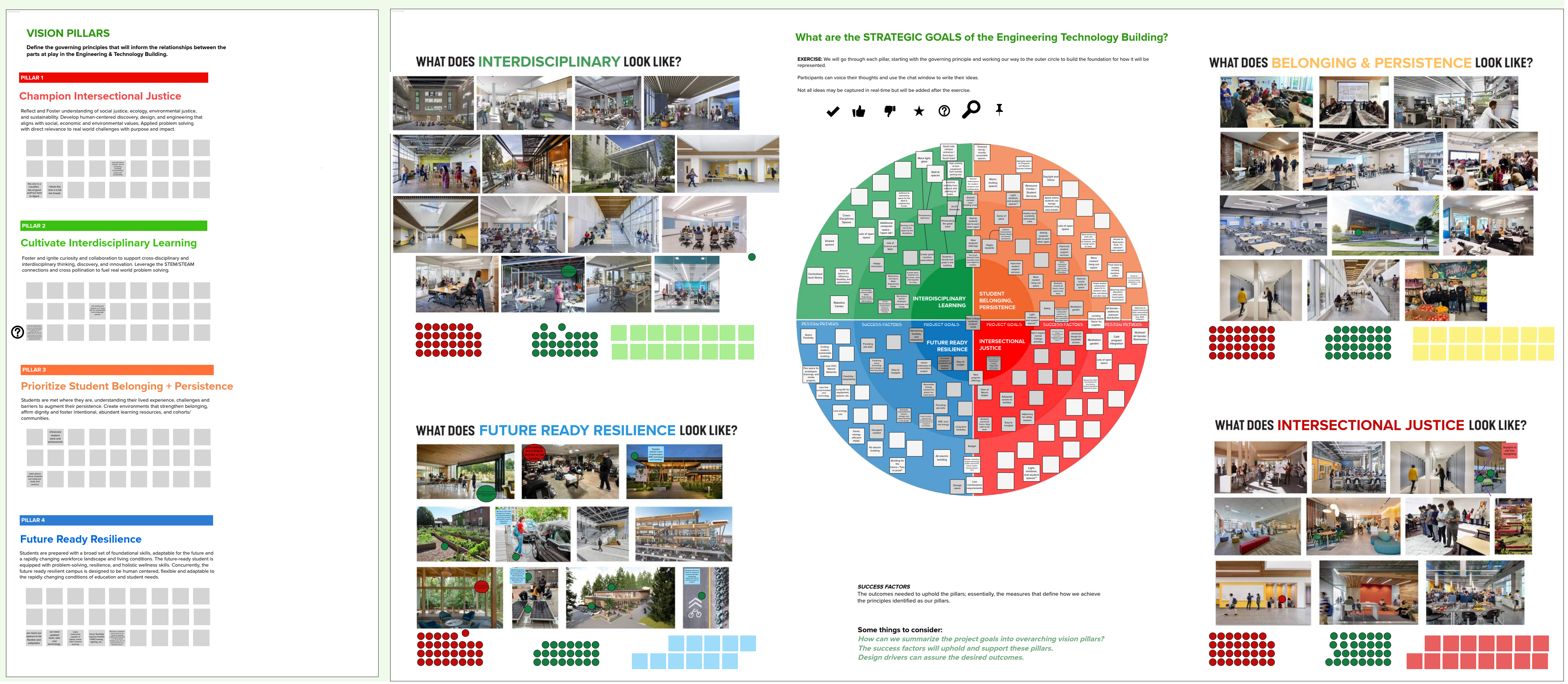
ACTIVITY 30 min

INTERACTIVE EXERCISE #4: VISION PILLARS 04/19/2023

- Project goals and success factors
- Individual contributions
- Finding common themes

ACTIVITY DIRECTIONS

- Step 01: select and move the green and red dots directly over the clusters of source imagery in the four categories below
- Step 02: referencing both the source imagery dot voting exercise and the grey post-it's in both the Project Goals and Success Factors rings in the Vision Pillars bullseye graphic below, add Design Driver comments into the light grey colored post-its in the outer ring of the bullseye graphic



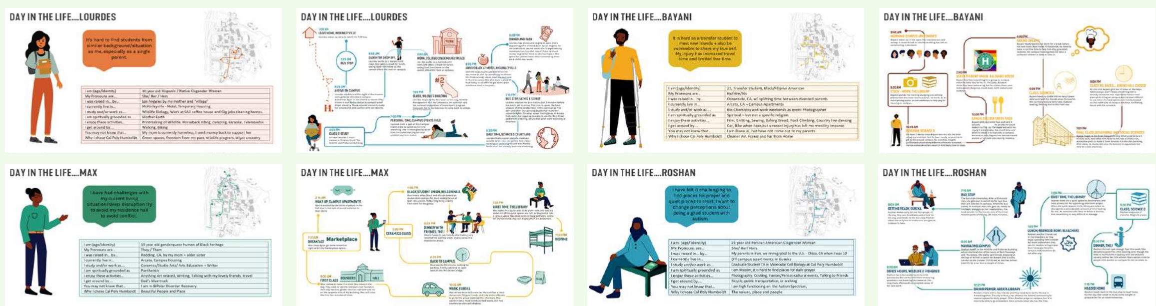
ACTIVITY 15 min

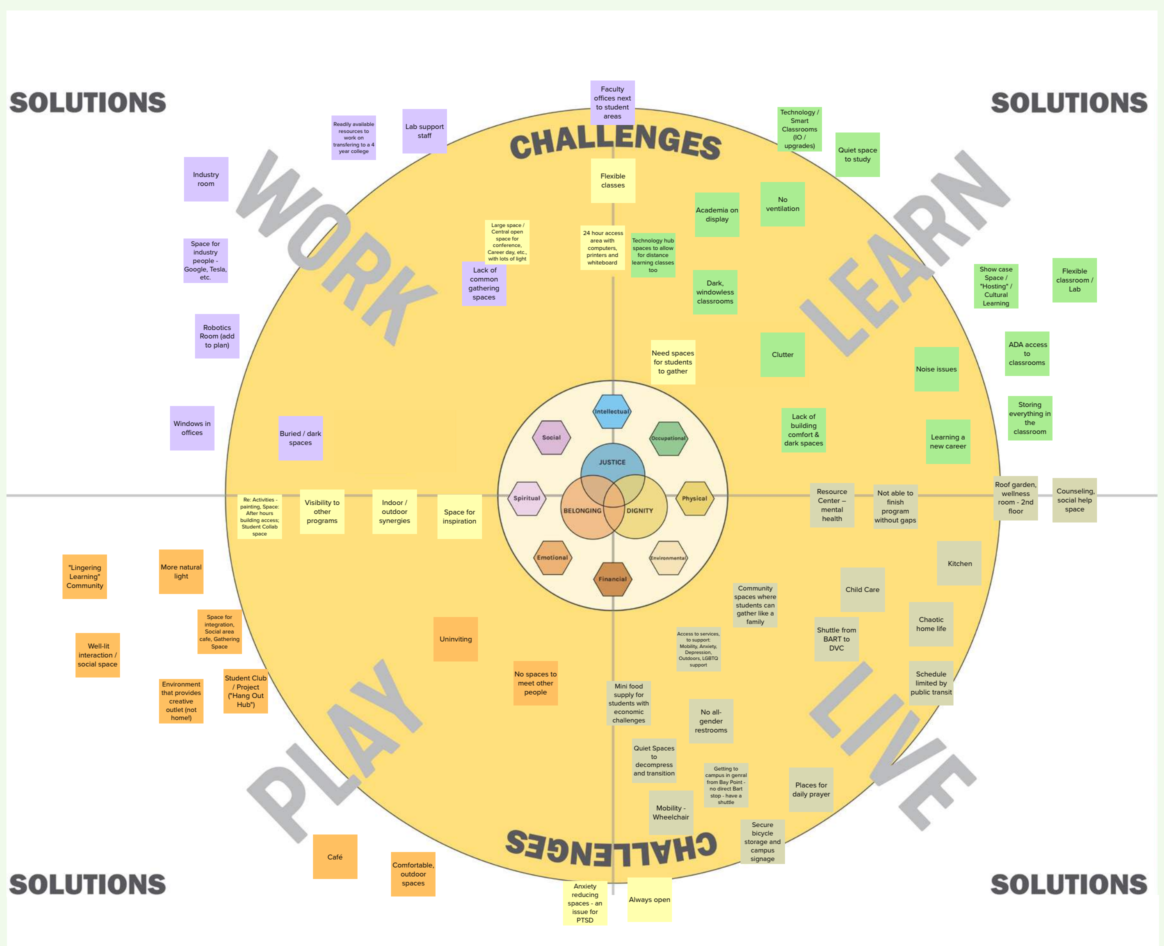
04/19/2023

INTERACTIVE EXERCISE #5: WORK, LEARN, PLAY, LIVE

ACTIVITY DIRECTIONS

- Step 01: self-identify with one of the personas below--inhabit their identity as you move forward with the next steps
- Step 02: discuss and organizationally refine the Work-Learn-Live-Play Challenges post-it comments
- Step 03: add post-its with comments to the appropriate Work-Learn-Live-Play Solutions areas





ACTIVITY 20 min

INTERACTIVE EXERCISE #6: SWOB EXERCISE

04/19/2023

- Project goals and success factors
- Individual contributions
- Finding common themes

ACTIVITY DIRECTIONS

- Step 01: Fill in the matrix post-its to identify Existing Positive & Problematic Physical Characteristics
- Step 02: Fill in the matrix post-its to identify Future Positive & Problematic Physical Characteristics

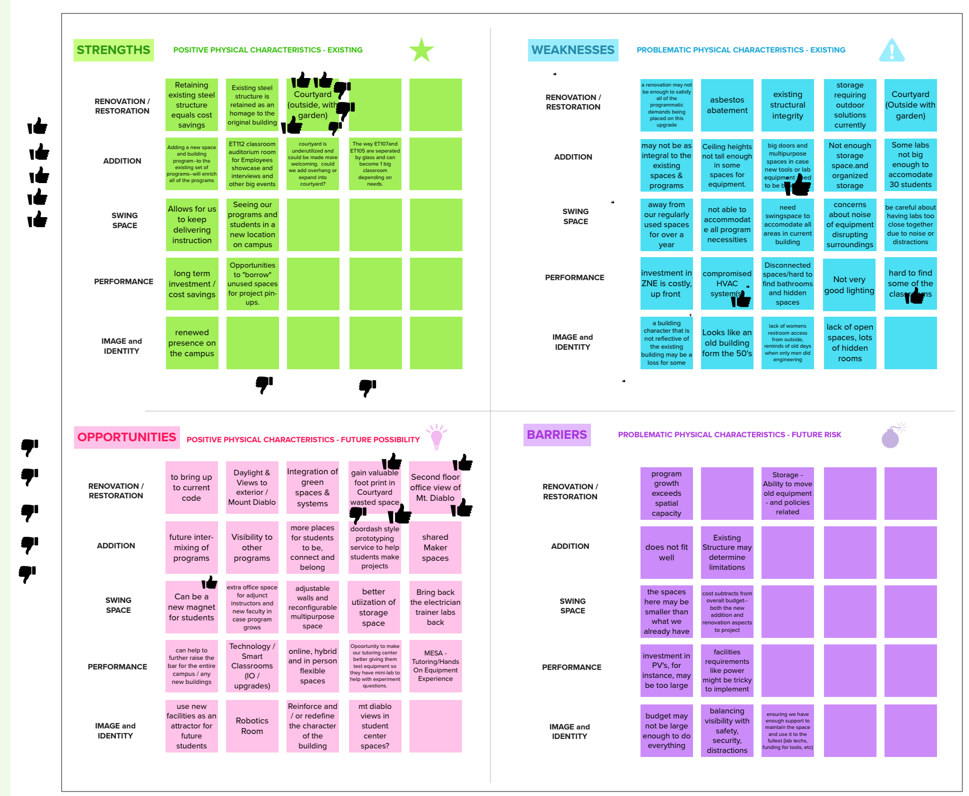
EXERCISE:
Fill in the matrix post-its to show department curriculum synergies and overlaps.

Participants can also voice their thoughts and use the chat window to write their input. The design team will add them to post-its.

Some things to consider:
What is the project's role at a site and campus scale?
Can the project become a HUB for the adjacent buildings and campus?
How this project can help improve adjacent buildings and their programs.

The **SWOB** analysis has been broken down into five building topic areas:

1. **Renovation / Restoration**: what should stay and what should go; architectural detailing;
2. **(Math & Engineering Learning Center) Addition**: types of uses and activities; synergies with other programs and spaces; and program specific amenities, such as lighting and seating.
3. **(Temporary) Swing Space**: synergies and relationships to adjacent buildings and programs; existing and potential new uses; duration or lifespan.
4. **Performance**: sustainability, sun and wind, air quality, LEED, and storm management.
5. **Image and Identity**: the unique qualities and characteristics of the building that will set it apart from other buildings on campus.



STRENGTHS

POSITIVE PHYSICAL CHARACTERISTICS - EXISTING

RENOVATION / RESTORATION	Retaining existing steel structure equals cost savings	Existing steel structure is retained as an homage to the original building	Courtyard (outside, with garden)		
ADDITION	Adding a new space and building program--to the existing set of programs--will enrich all of the programs	ET112 classroom auditorium room for Employees showcase and interviews and other big events	courtyard is underutilized and could be made more welcoming. could we add overhang or expand into courtyard?	The way ET107and ET105 are seperated by glass and can become 1 big classroom depending on needs.	
SWING SPACE	Allows for us to keep delivering instruction	Seeing our programs and students in a new location on campus			
PERFORMANCE	long term investment / cost savings	Opportunities to "borrow" unused spaces for project pin-ups.			
IMAGE and IDENTITY	renewed presence on the campus				

WEAKNESSES

PROBLEMATIC PHYSICAL CHARACTERISTICS - EXISTING

RENOVATION / RESTORATION	a renovation may not be enough to satisfy all of the programmatic demands being placed on this upgrade	asbestos abatement	existing structural integrity	storage requiring outdoor solutions currently	Courtyard (Outside with garden)
ADDITION	may not be as integral to the existing spaces & programs	Ceiling heights not tall enough in some spaces for equipment.	big doors and multipurpose spaces in case new tools or lab equipment need to be b[illegible]	Not enough storage space.and organized storage	Some labs not big enough to accomodate 30 students
SWING SPACE	away from our regularly used spaces for over a year	not able to accommodat e all program necessities	need swingspace to accomodate all areas in current building	concerns about noise of equipment disrupting surroundings	be careful about having labs too close together due to noise or distractions
PERFORMANCE	investment in ZNE is costly, up front	compromised HVAC system(s	Disconnected spaces/hard to find bathrooms and hidden spaces	Not very good lighting	hard to find some of the clas[illegible]ms
IMAGE and IDENTITY	a building character that is not reflective of the existing building may be a loss for some	Looks like an old building form the 50's	lack of womens restroom access from outside, reminds of old days when only men did engineering	lack of open spaces, lots of hidden rooms	

OPPORTUNITIES

POSITIVE PHYSICAL CHARACTERISTICS - FUTURE POSSIBILITY

RENOVATION / RESTORATION	to bring up to current code	Daylight & Views to exterior / Mount Diablo	Integration of green spaces & systems	gain valuable foot print in Courtyard wasted space	Second floor office view of Mt. Diablo
ADDITION	future inter-mixing of programs	Visibility to other programs	more places for students to be, connect and belong	doordash style prototyping service to help students make projects	shared Maker spaces
SWING SPACE	Can be a new magnet for students	extra office space for adjunct instructors and new faculty in case program grows	adjustable walls and reconfigurable multipurpose space	better utiization of storage space	Bring back the electrician trainer labs back
PERFORMANCE	can help to further raise the bar for the entire campus / any new buildings	Technology / Smart Classrooms (IO / upgrades)	online, hybrid and in person flexible spaces	Opoortunity to make our tutoring center better giving them test equipment so they have mini-lab to help with experiment questions.	MESA - Tutoring/Hands On Equipment Experience
IMAGE and IDENTITY	use new facilities as an attractor for future students	Robotics Room	Reinforce and / or redefine the character of the building	mt diablo views in student center spaces?	

BARRIERS

PROBLEMATIC PHYSICAL CHARACTERISTICS - FUTURE RISK

RENOVATION / RESTORATION	program growth exceeds spatial capacity		Storage - Ability to move old equipment - and policies related		
ADDITION	does not fit well	Existing Structure may determine limitations			
SWING SPACE	the spaces here may be smaller than what we already have	cost subtracts from overall budget--both the new addition and renovation aspects to project			
PERFORMANCE	investment in PV's, for instance, may be too large	facilities requirements like power might be tricky to implement			
IMAGE and IDENTITY	budget may not be large enough to do everything	balancing visibility with safety, security, distractions	ensuring we have enough support to maintain the space and use it to the fullest (lab techs, funding for tools, etc)		

ESTABLISHING EVALUATION CRITERIA 04/19/2023

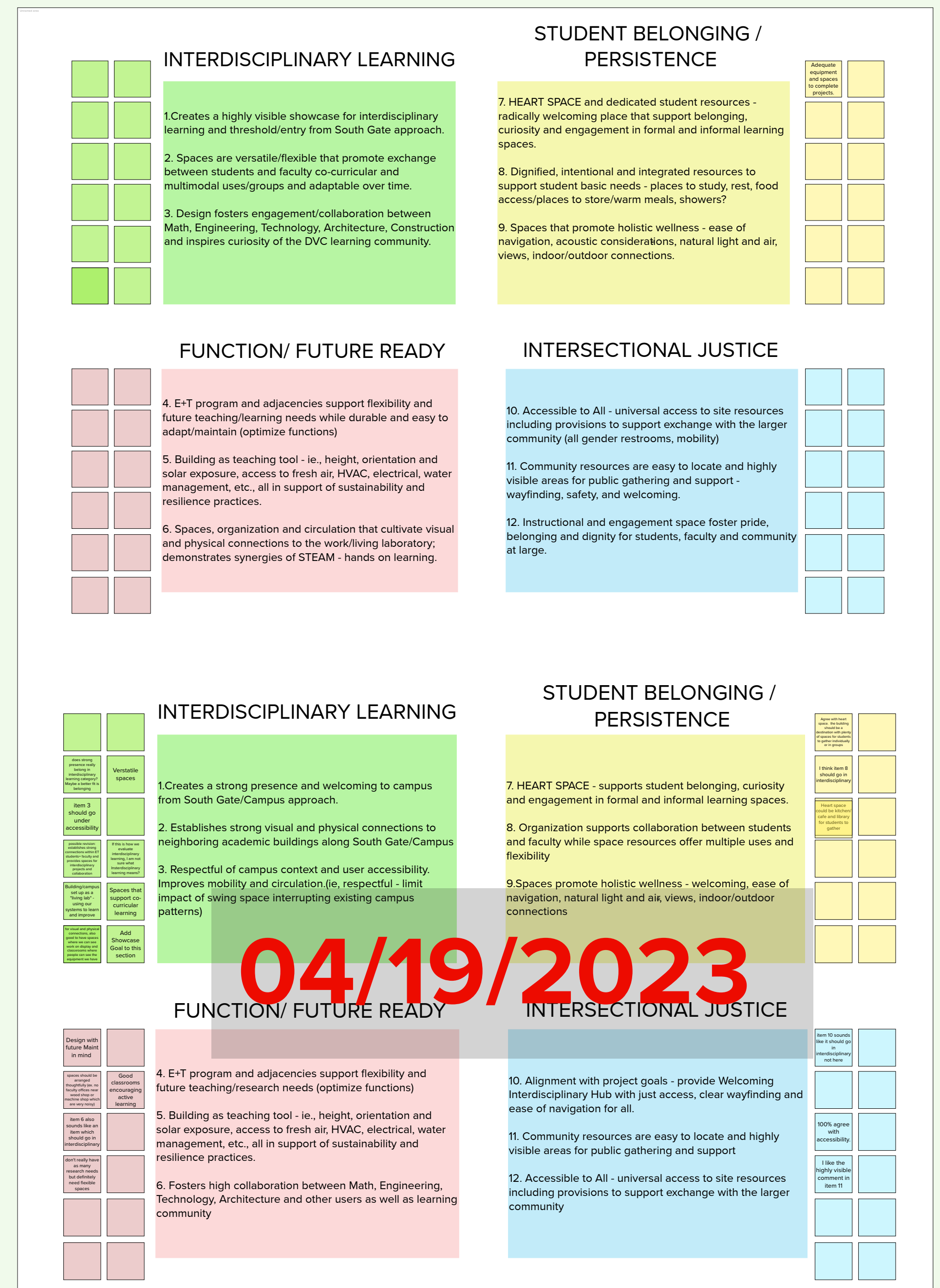
- DESIGN TEAM PROCESS FOR ANALYSIS OF WORKSHOP EFFORTS
- WITH PSC, ESTABLISH EVALUATION CRITERIA

PROJECT GOAL ANALYSIS

- Project Goals/Challenges sorting done by Design Team

EVALUATION CRITERIA

- Evaluation Criteria is derived from Visioning Phase activities, workshops and 2022 provided client work
- Criteria will be used to assess future design options with a goal to select one direction for development in the the Criteria Documents.



AGENDA

5/3/2023

- Vision Pillars and Evaluation Criteria (20 mins)
- Recap of Programming Info Gathered to Date (40 mins): Space utilization data and User Group Meetings.
- Group Exercise - Understanding the Interdisciplinary Community (20 mins)
- Group Exercise - Optimizing Building Program Adjacencies (30 mins)

EVALUATION CRITERIA

INTERDISCIPLINARY LEARNING

1.Creates a highly visible showcase for interdisciplinary learning and threshold/entry from South Gate approach.

2. Spaces are versatile/flexible that promote exchange between students and faculty co-curricular and multimodal uses/groups and adaptable over time.

3. Design fosters engagement/collaboration between Math, Engineering, Technology, Architecture, Construction and inspires curiosity of the DVC learning community.

STUDENT BELONGING / PERSISTENCE

7. HEART SPACE and dedicated student resources - radically welcoming place that support belonging, curiosity and engagement in formal and informal learning spaces.

8. Dignified, intentional and integrated resources to support student basic needs - places to study, rest, food access/places to store/warm meals, showers?

9. Spaces that promote holistic wellness - ease of navigation, acoustic considerations, natural light and air, views, indoor/outdoor connections.

FUNCTION/ FUTURE READY

4. E+T program and adjacencies support flexibility and future teaching/learning needs while durable and easy to adapt/maintain (optimize functions)

5. Building as teaching tool - ie., height, orientation and solar exposure, access to fresh air, HVAC, electrical, water management, etc., all in support of sustainability and resilience practices.

6. Spaces, organization and circulation that cultivate visual and physical connections to the work/living laboratory; demonstrates synergies of STEAM - hands on learning.

INTERSECTIONAL JUSTICE

10. Accessible to All - universal access to site resources including provisions to support exchange with the larger community (all gender restrooms, mobility)

11. Community resources are easy to locate and highly visible areas for public gathering and support - wayfinding, safety, and welcoming.

12. Instructional and engagement space foster pride, belonging and dignity for students, faculty and community at large.

UNDERSTANDING THE INTERDISCIPLINARY COMMUNITY

20 min

EXERCISE:
Fill in the matrix post-its to show department curriculum synergies and overlaps.

Participants can also voice their thoughts and use the chat window to write their input. The design team will add them to post-its.

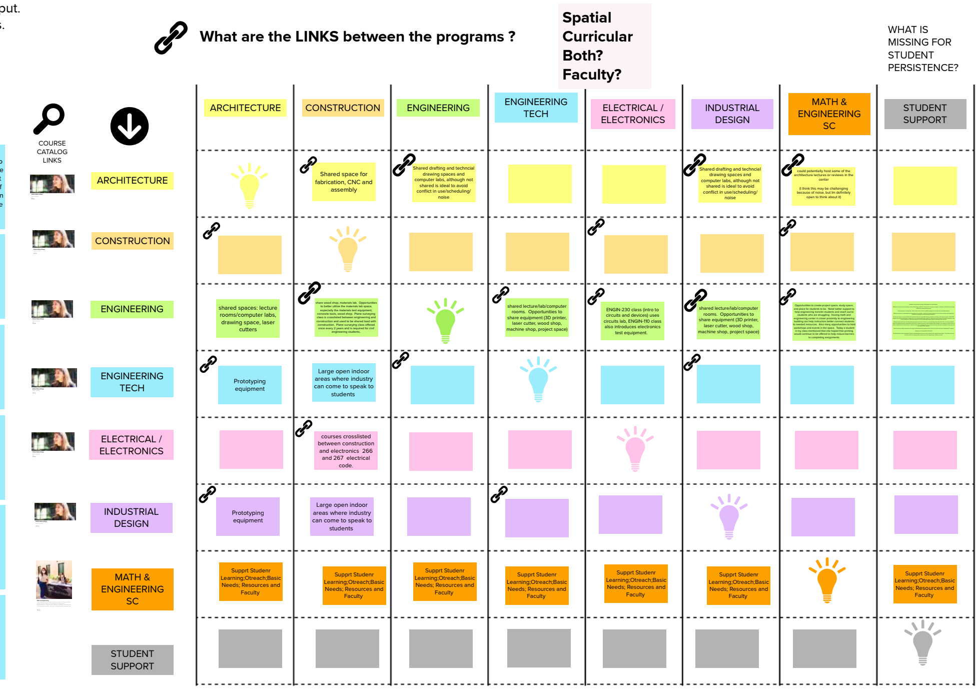
- *Identify existing overlaps of spaces and resources between disciplines. What should be retained? What should be enhanced or improved?*
- *What challenges are present due to shared resources and spaces?*
- *What further opportunities can be explored for synergies between disciplines?*

COMMENTS

- The Industrial Design students need a classroom with the drawing tablet computers, laser cutters, and 3D printers in a more seamless fashion.
- We have courses crosslisted between construction and electronics 266 and 267 electrical code.
- Glass doors between ET105 and ET107 seem to work. Visually we can see each other and see what the other room is upto. If we a test going on we can close the doors and noise is cancelled. So that works good
- There are other disciplines within the college that our part of our certificates like networking. Not sure if that matters.

What are the LINKS between the programs ?

Spatial
Curricular
Both?
Faculty?



KEY TAKE-AWAYS FROM INTERDISCIPLINARY COMMUNITY EXERCISE.

1. There are differences of opinions about whether shared resources are better than dedicated resources. A balance is required.

2. Architecture: Shared computer labs and technical drawing space can result in scheduling conflicts.

3. Engineering: Opportunities for shared equipment, computer lab. Better proximity to MESC may help with student success by providing more opporunities to connect studeents with the help they need.

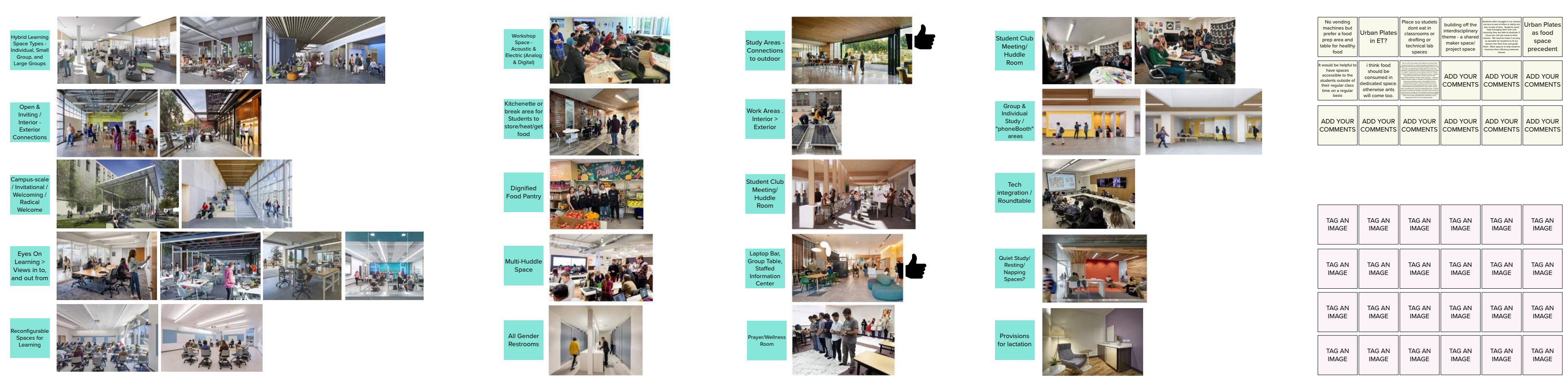
4. Engineering Technology: - large open areas for industry partners to speak with students.

5. Industrial Design: Prototyping equipment,

6. MESC: Opportunities for students to extend study. Workshops. Active outreach. Support spaces for studfents and faculty. Lectures/ reviews?
- place for more circuit stations?

7. Places to rest, study, take calls, etc.

What is Missing to Support Student Persistence?



UNDERSTANDING THE INTERDISCIPLINARY COMMUNITY

20 min

EXERCISE:
Fill in the matrix post-its to show department curriculum **synergies** and **overlaps**.

Participants can also voice their thoughts and use the chat window to write their input. The design team will add them to post-its.

- *Identify existing overlaps of spaces and resources between disciplines. What should be retained? What should be enhanced or improved?*
- *What challenges are present due to shared resources and spaces?*
- *What further opportunities can be explored for synergies between disciplines?*

What are the LINKS between the programs ?

Spatial
Curricular
Both?
Faculty?

WHAT IS MISSING FOR STUDENT PERSISTENCE?

COMMENTS

- The Industrial Design students need a classroom with the drawing tablet computers, laser cutters, and 3D printers in a more seamless fashion.
- We have courses crosslisted between construction and electronics 266 and 267 electrical code.
- Glass doors between ET105 and ET107 seem to work. Visually we can see each other and see what the other room is upto. If we a test going on we can close the doors and noise is cancelled. So that works good
- There are other disciplines within the college that our part of our certificates like networking. Not sure if that matters.

COURSE CATALOG LINKS

	ARCHITECTURE	CONSTRUCTION	ENGINEERING	ENGINEERING TECH	ELECTRICAL / ELECTRONICS	INDUSTRIAL DESIGN	MATH & ENGINEERING SC	STUDENT SUPPORT
ARCHITECTURE		Shared space for fabrication, CNC and assembly	Shared drafting and techncial drawing spaces and computer labs, although not shared is ideal to avoid conflict in use/scheduling/ noise			Shared drafting and techncial drawing spaces and computer labs, although not shared is ideal to avoid conflict in use/scheduling/ noise	could potentially host some of the architecture lectures or reviews in the center (I think this may be challenging because of noise, but Im definitely open to think about it)	
CONSTRUCTION								
ENGINEERING	shared spaces: lecture rooms/computer labs, drawing space, laser cutters	share wood shop, materials lab. Opportunities to better utilize the materials lab space, especially the materials test equipment, concrete tools, wood shop. Plane surveying class is crosslisted between engineering and construction and used to be shared load with construction. Plane surveying class offered once every 2 years and is required for civil engineering students..		shared lecture/lab/computer rooms. Opportunities to share equipment (3D printer, laser cutter, wood shop, machine shop, project space)	ENGIN-230 class (intro to circuits and devices) uses circuits lab, ENGIN-110 class also introduces electronics test equipment.	shared lecture/lab/computer rooms. Opportunities to share equipment (3D printer, laser cutter, wood shop, machine shop, project space)	Opportunities to create project space, study space, and place for students to be. Need better support to help engineering transfer students and reach out to students who are struggling. Having math and engineering center in closer proximity to engineering building can help instructors better connect students to needed resources. Also many opportunities to hold workshops and events in the space. Today a student in my class mentioned that she hoped free printing would continue to be offered to help reduce barriers to completing assignments.	[illegible]
ENGINEERING TECH	Prototyping equipment	Large open indoor areas where industry can come to speak to students						
ELECTRICAL / ELECTRONICS		courses crosslisted between construction and electronics 266 and 267 electrical code.						
INDUSTRIAL DESIGN	Prototyping equipment	Large open indoor areas where industry can come to speak to students						
MATH & ENGINEERING SC	Supprt Studenr Learning;Otreach;Basic Needs; Resources and Faculty	Supprt Studenr Learning;Otreach;Basic Needs; Resources and Faculty	Supprt Studenr Learning;Otreach;Basic Needs; Resources and Faculty	Supprt Studenr Learning;Otreach;Basic Needs; Resources and Faculty	Supprt Studenr Learning;Otreach;Basic Needs; Resources and Faculty	Supprt Studenr Learning;Otreach;Basic Needs; Resources and Faculty		Supprt Studenr Learning;Otreach;Basic Needs; Resources and Faculty
STUDENT SUPPORT								

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Stakeholder Meeting

Date: June 28, 2023

Location: DVC Community Conference Center & Via Teams Meeting

Attendees

1. Diablo Valley College / Contra Cost Community College District

• Ines Zildzic	4CD	Vice Chancellor, Facilities Planning & Construction
• PJ Roach	4CD	Dir of Capital Construction Program Operations
• Russ Holt	DVC	Faculty (Electrical/Electronics)
• Tracy Marcial	DVC	Energy & Sustainability Manager
• Manuel Covarrubias	DVC	Faculty (Electrical/Electronics)
• Jeffrey Smith	DVC	Department Chair
• Ashley Erickson	DVC	Faculty (Engineering)
• Daniel Abbott	DVC	Faculty (Architecture)
• Chu Zhu	DVC	Faculty (Architecture)
• Sean Kammerer	DVC	Faculty (Construction)
• Servando Pineda-Carranza	DVC	MESC
• Dora Arqueta-Rico	DVC	MESC
• Elena Gutierrez	DVC	Student

2. Kitchell

• Ron Hoyle	Project Manager

3. SmithGroup

• Rosa Sheng	Principal in Charge/Studio Leader
• Bill Katz	Design Principal
• Andrew Thurlow	Project Designer
• David Andreini	Project Manager
• Kenta Kamei	Architect / Lab Designer

Workshop Summary

1. Overview of Progress to Date
   a. R Sheng reviewed purpose of Criteria Document Phase:
      i. Define project program, existing conditions, key goals.
      ii. Identify project risks and alignment with cost management strategies
      iii. Establish project criteria for use by the DBE team.
      iv. Design-Build Enterprise team to follow will be composed of contractor and architecture team. This team will provide design solutions within the parameters of the Criteria Documents and provide a Guaranteed Maximum Price.

   b. D Andreini provided an overview of analysis documents the SG team has used as a tool to understand the challenged and arrive at solutions. These were shared in greater detail in the previous Project Steering Committee Meeting.
      i. Under-sized and poorly proportioned spaces, that impact the functionality of the spaces.
      ii. Storage dispersed throughout and poorly organized.

iii. Spaces with Accessibility challenges.
iv. Spaces lacking access to natural lights.
v. Spaces with adjacency issues, also resulting in noise-related issues.
vi. Variety of office sizes and configurations.
vii. Spaces currently used for the Tesla START program.
viii. Spaces that are under-utilized, according to Spring 2023 enrollment data.
ix. Additional space needs, due to requests of participants or due to functionality issues (e.g. woodshop).
x. Summarization of potential space efficiency strategies to be considered.

c. R Sheng shared summary of project budget information, which was addressed in greater detail in the 6/20/23 PSC meeting.
   i. Project budget is $57M. Of this, $38M is for the actual construction costs.
   ii. Project as currently envisioned is in excess of the available budget, and is ranging between $41 and $48M. This is assuming retaining existing footprint of the ET building, retaining as much structure as possible, and 7,000 SF new construction for the MESC building.
   iii. SG proposes a series of cost factors to consider for prioritization and value optimization.
      - Focus on improving building infrastructure to last next 50 years.
      - Optimize value with MESC location.
      - Industry partners: consider as potential funding partners?
      - Optimize under-utilized and outdated teaching spaces.

2. Project Program
   a. D Andreini shared a comparison of the “Exiting Program” and the “Desired Program”.
      i. Existing Program based on size of existing spaces and how currently used,
      ii. Desired Program is a first pass at a new program, generated by SG, that incorporates information gathered in User Group meetings, and recommendations based on analysis of existing spaces. Example shared: Current woodshop is too small to support equipment being used, so Desired Program includes an additional 300 SF.
      iii. The initial Desired Program proposed by SG exceeds the existing footprint of the existing building by about 5,000 SF. Any excess of program further contributes to the project costs challenges.
   b. SG outlined goals for program reconciliation process and some key challenges to be considered in finalizing the program. These goals and challenges were used to develop the following goals proposed by SG.
      i. Reduce number of classrooms and computer labs by having fewer, high-functioning and accessible rooms. (A Erickson noted that she believes an additional computer lab would be very beneficial.).
      ii. Consider reducing size of drafting studio (for example, from 80 to 60). Concept may be paired with having a larger 3D fabrication lab to allow space for assembly.
      iii. Consolidate offices into centralized locations and provide shared office spaces.
      iv. Reduce size of Eng Tech machine lab by sunsetting some of the less frequently used equipment.
      v. Consider capturing area presently used as Lecture Hall as a classroom, by having at one level.
      vi. Consolidate Industry Partner Programs.
   c. SG suggested the stakeholders also suggest strategies to right-size the program to the available SF.
   d. J Smith wanted to clarify for participants that the Tesla training center is the an accumulation of efforts and in many cases a “repacking” of existing academic programs. Not all the classes are new classes for Tesla, and these classes are open to everyone.

3. MESC/New Build location strategies. B Katz provided a summary of options for how to locate the 7,000 SF MESC center. These were presented with dollar signs representing higher relative costs vs lower costs.
    a. MESC located as an addition to the north of the building. This location involves conflict with some existing underground utilities. ($$$)
    b. MESC located north of ET building, but oriented 90 degrees. ($$$)
    c. MESC building as stand alone building positioned to the north of the ET building and avoiding existing utilities. ($$)
    d. MESC addition as an infill into the existing courtyard. ($$$$)
    e. MESC located within the ET building footprint, and the new 7,000 SF space is high-bay space to support ET programs, located as a stand-alone building to the north of the ET building. ($$$+?)
    f. New High-bay structure located in the parking lot (to the south) of the existing ET building. ($$$+?)

4. Test Fit Strategies
    a. B Katz provided an overview of three initial concept proposals for ET /MESC stakeholders input and consideration. Participants provided comments in the meeting chat and directly onto the Mural board during and after the meeting (all notes in the chat are copied onto this mural board).
    b. All the schemes do not incorporate all of the "Desired" program, because the desired program exceeds the footprint. The elements that were not included are shown in a box in each scheme. These program areas can be swapped out with other program areas currently shown in the program areas.
    c. Option 1: MESC Addition – Not in ET Bldg.
        i. MESC is 7,000 new construction, as originally envisioned. MESC likely to the north, allowing for closer proximity of MESC with other campus programs it serves.
        ii. ET Building programs are generally in same areas as they are now, but with improved circulation and distribution.
        iii. Of the 3 presented, it is the closest to the project budget (although still over).
        iv. Alternate options include: raising level of west wing to ground level to capture additional space otherwise needed for vert circulation, and expanding student lobby area to reduce size of entrance court.
    d. Option 2: High Bay – 7,000 SF New Build: MESC program incorporated into the ET Building.
        i. New building is a High Bay space to support industry-focused programs where taller clearances are desirable. This new High Bay space could be potentially constructed to the north of the ET building, or to the south, taking up a portion of the parking lot.
        ii. The cost for this option is likely greater than Option 1 due to the height of construction and infrastructure required for the High Bay building.
        iii. In the option provided, the MESC was located in the area currently occupied by the Engineering Tech program.
        iv. Alternate options include: retaining lecture hall and lower training Center at 117 per Option 1, and locating MESC in north building.
    e. Option 3: MESC as am addition within courtyard.
        i. MESC would be proposed as a new addition within the courtyard as a central hub.
        ii. This option would likely be the most expensive option.
        iii. The courtyard construction would likely be taller to assist in capturing natural light.
        iv. An alternative option would be for the MESC program to be in the north building and the new infill option could be used as new high bay space.

5. Discussion
    a. A driver for the MESC location at the ET is driven in part by the need for PUMA to be relocated where the MESC is currently located. D Abbot asked if there are other options to be examined. PJ Roach noted that there are no other facilities on campus of the size to support PUMA, so the 7,000 SF new build is required regardless of the permutations, and needs to be factored into the project costs.
    b. R Sheng noted that in building new, there are advantages to building the more expensive, sophisticated programs, rather than trying to remodel existing facilities for complex programs.
    c. I Zildzic reminded the participants that without increasing program, the project is already over-budget. The optimal strategy is to find out how to optimize the program to see if possible to avoid de-scoping the project. Test fit 1 is most closely aligned with the project budget but is still over the project budget.
    d. R Hoyle noted that even with the more expensive options, there may be options and ideas that can be translated to a less expensive option.
    e. D Abbot raised question if a high bay structure with loading access, delivery, etc. is appropriate for a location more central to the campus. J Smtih noted that the high visibility of the advanced technology programs could be a plus.
    f. A general show of hands suggested that participants showed greatest interest in Option 2, with Option 1 as a second showing. However, it was noted that participants wanted to have additional time to think about the issues.
        i. A Erickson summarized advantages of Option 2 – high bay space for tech programs that would benefit from it, having noisy operations separate from the others, but likes that idea of it being on the south side of the ET building.
        ii. D Arqueta-Rico shared that for MESC natural light is important. R Sheng noted that strategies can be employed to bring in natural light through the roof.
    g. Additional comments were added by participants and captured on the mural board.

6. Nest Steps
    a. ET Participants will meet internally to share feedback.
    b. Another round of User Group meetings are forthcoming. These meetings will be used to finalize room layout requirements.
    c. It was agreed that another Stakeholder meeting would be necessary to evaluate the options again after the User Group meetings. SG will update the options based on feedback provided.

End of Notes

DVC - ET CONCEPT 02 MURAL

A. FRAMING THE ISSUES

A. **Prioritizing program changes – Process (30 mins)** *(Understanding the Problem)*
1. Review of purpose of test-fitting (not design, but programming)
2. Identify working assumptions (boundaries) for prioritization exercise.
3. Summation of User Group program requests
4. Review opportunities to improve program efficiency
5. Areas of Program Overlap

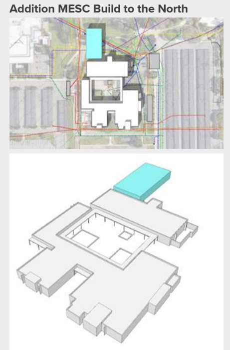
WORKING ASSUMPTIONS

MESC TO OCCUPY NEW 7,000 SF STRUCTURE TO NORTH OF ET BUILDING

ET DEPARTMENT SCOPE TO BE CONTAINED WITHIN 32,000 FOOTPRINT OF EXISTING, INTERIOR SPACE BOUNDARY.

EXISTING ALLOCATION OF BUILDING SF TO APPROXIMATE EXISTING DISCIPLINE AREAS, EXCEPT AS INDICATED BELOW

Addition MESC Build to the North



SUMMARY OF ADDITIONAL SPACE REQUESTS

INCREASE SIZE OF WOOD SHOP - APX 300 - 650 ADD'L SF

INCREASE SIZE OF CNC ROOM - APX 100 ADD'L SF

PROVIDE SPACE FOR TESLA MOTOR MAINTENANCE TRAINING - APPX 1,350 SF

PROVIDE LARGER ELECTRONICS TESTNG LAB TO SUPPORT 30 STATIONS - APX 300 ADD'L SF

ADDITIONAL COMPUTER LAB - APX 900 ADD'L SF

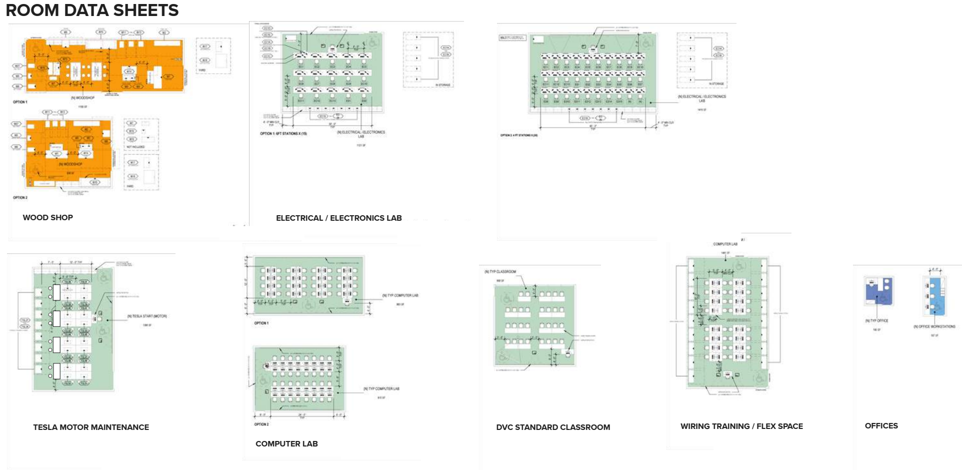
ADDITIONAL ELECTRONICS ROOM WITH TESTING STATIONS - APX 1,200 SF

WIRING TRAINING CENTER - APX 800 SF

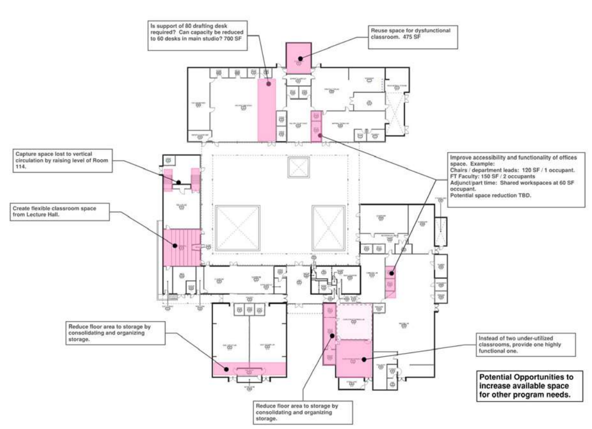
OTHERS: ROBOTICS WELDING, ARCH LIBRARY, CAFE, TOOL LIBRARY

Peak usage of computer labs - high flex

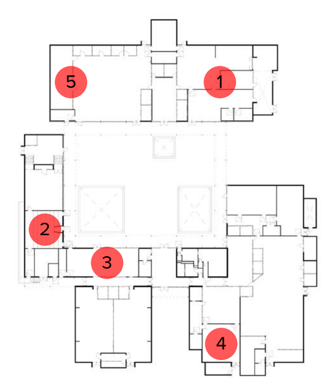
ROOM DATA SHEETS



OPPORTUNITIES



AREAS OF INTER-DISCIPLINARY PROGRAM ADJUSTMENTS



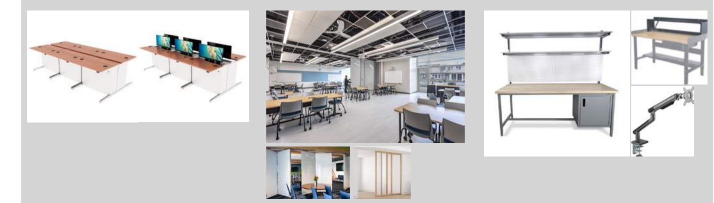
1. ACCOMODATE LARGER WOODSHOP AND CNC ROOM. CONSIDER REDUCTION OF MATERIAL TESTING LAB TO CORE LAB FUNCTIONS ONLY.
2. CONSIDER ALTERNATIVES TO TIERED LECTURE HALL AND USING SPACE FOR OTHER GROWTH IN PROGRAM.
3. CONSIDER MOVING ELECTRICAL OFFICES OR STORAGE TO THIS AREA TO ADDRESS NEEDS FOR LARGER ELECTRICAL SYSTEMS LAB.
4. IMPROVE FUNCTIONALITY OF AREA OF BUILDING TO PROVIDE MULTI-PURPOSE SPACES TO SUPPORT PROGRAM GROWTH.
5. CONSIDER IMPROVING CROSS-DISCIPLINE USE OF COMPUTER LAB BY ADJUSTING PROPORTIONS AND ACCESS TO COMPUTER LAB.

B. STRATEGIES

B. **Prioritizing program changes – Review of Strategies (45 mins).** *(Understanding Potential Strategies)*
1. Strategies for flexible / multi-purpose spaces
2. Strategies to improve spaces
3. Summation of Strategies – North Building Wing
4. Summation of Strategies – Southwest Building Wing
5. Summation of Strategies – Southeast Building Wing

MULTI-PURPOSE FLEXIBLE SYSTEMS

Adaptable Desks	Room Dividing Operable Partitions	Work Surface Management Systems

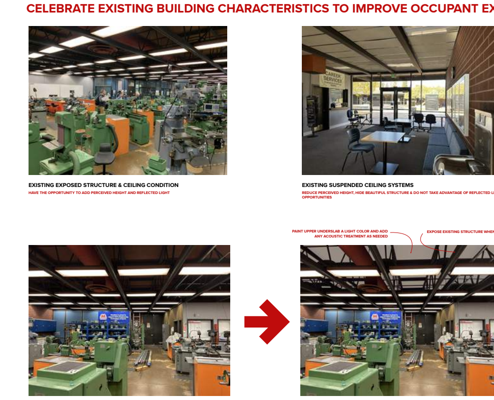


OPPORTUNITIES	CHALLENGES	OPPORTUNITIES	CHALLENGES	OPPORTUNITIES	CHALLENGES
• Space can double as a computer lab and a classroom	• Maintenance, Cost, and Repairs	• Ability to separate or connect adjacent spaces	• Costly when provided with good sound ratings. • Maintenance, operations, repairs.	• Frees up desk surface area by locating monitor and electrical testing equipment off of work surface.	• Sight-lines / visibiilty disrupted. • Equipment upkeep.

HOW CAN QUALITY OF SPACES BE IMPROVED?

- OPENING SPACE TO STRUCTURE, REMOVING CEILINGS.
- SKYLIGHT STRATEGIES
- ACOUSTICAL ISOLATION
- IMPROVED LIGHTING
- NEW AV SYSTEMS SUPPORTING REMOTE LEARNING

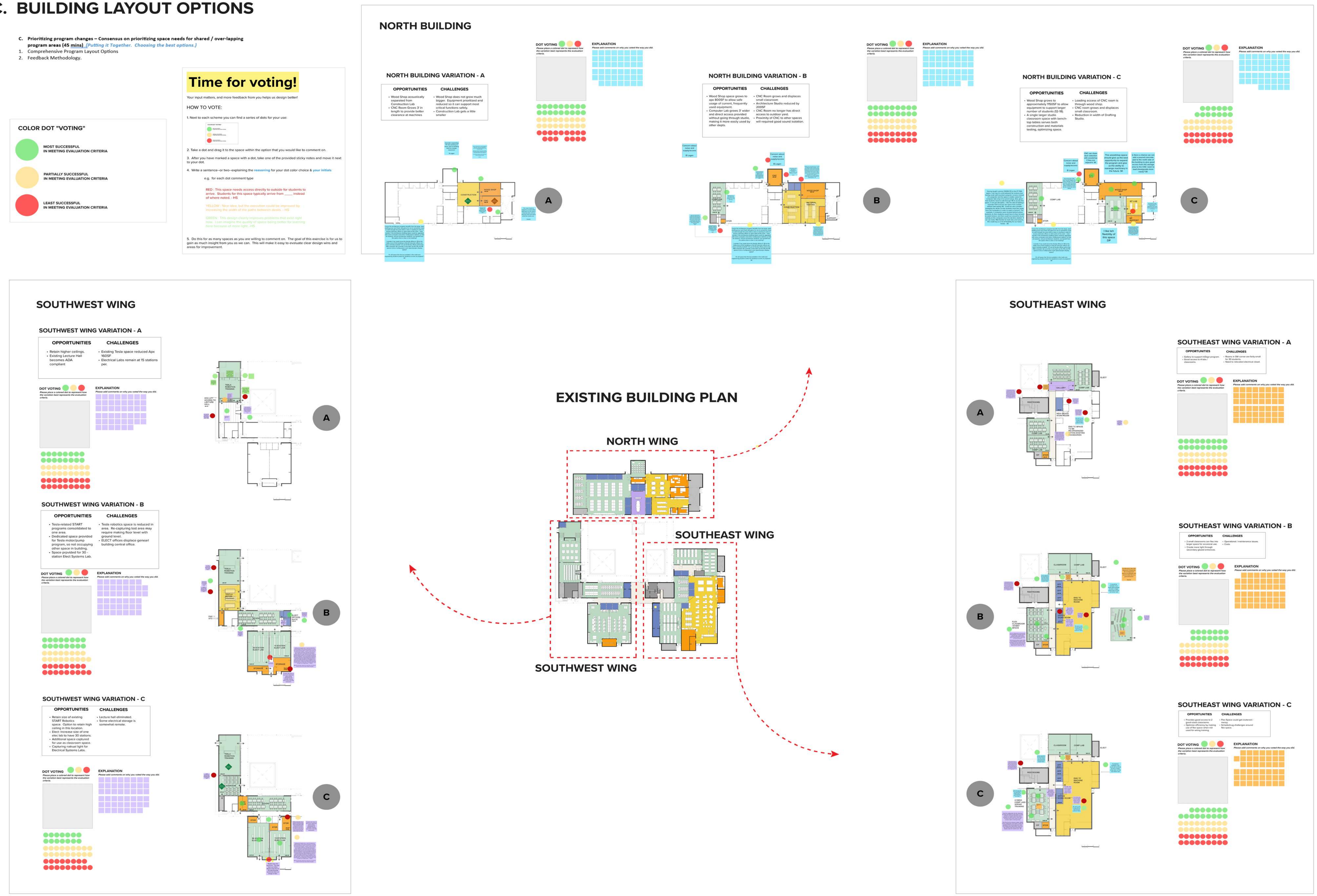
CELEBRATE EXISTING BUILDING CHARACTERISTICS TO IMPROVE OCCUPANT EXPERIENCE



SPACE ALLOCATION STRATEGIES

NORTH BUILDING

C. BUILDING LAYOUT OPTIONS



D. COMPOSITE LAYOUTS FOR 7/27/23 PSC MEETING

AGENDA

- Review of Stakeholder Meeting Comments
  - Summary of notes added to the stakeholder meeting Mural board.
- Baseline Program and Baseline Plan
  - Office counts / requirements.
  - Review of proposed baseline program / layout options, based on comments received on Concept layouts.
- Next Steps
  - Draft of Criteria Documents issued: 7/28
  - Stakeholder review and equipment list review 7/28 – 8/4
  - Stakeholder comments due, EOD 8/4
  - Incorporation of stakeholder comments: 8/5 – 8/9
  - Final Issuance: 8/9
  - ESC Meeting: 8/14

FACULTY OFFICES

- Faculty
  - ARCHI - 2
  - CONST – 1
  - EET/ELECT – 1
  - ENGIN – 3
  - ENGTC/IDSGN – 1
- Adjuncts
  - ARCHI – 9 (though some teach only online…)
  - CONST – 5 or 6
  - EET/ELECT – 3 to 4
  - ENGIN – 2
  - ENGTC/IDSGN – 3 to 4

Technicians 2 (Shared Larger OK) 1 FTE, 1 @ 10 months

Daniel - Many part timers - 35 to 38? Make sure there is accomodation

Future - Potential increase to 3 FTE for Arch

Future Growth - Flex spaces meeting rooms for hybrid workflow - Conduct a survey of FTE and Part Time presence

Ashley Erickson question about these iterations (when it comes up): It appears that two of our ENGIN faculty offices are eliminated. Can we discuss alternative options when it makes sense in the discussion?

could some space in the math and engineering student center be made available for shared office space as well?

Apprenticeship ownership and Presence is there as a touchpoint for students - maybe MESC center? - Pre and Apprenticeship program (1 station for both)

Manuel - Are we still saying that the TESLA room needs to host all the TESLA classes including the Electrical classes? If so getting rid of the storage then where would we house the motor control boards and PLCs. And maybe even electrical equipment.

I like the Daniel's idea of using the cathouse for academic activities - I think it was used for solar installation before and conduit bending. Maybe even the electrical trainer could be placed there.

[12:01 PM] Erickson, Ashley
Is there any way we can get some flexible multipurpose space in MESC? That could help alleviate concerns about space and provide space for tesla
[12:01 PM] Erickson, Ashley
If we had a multipurpose classroom space in MESC, that could help a lot with space concerns

[12:19 PM] Erickson, Ashley
I agree with all concerns shared about about space and Tesla program. If possible I think we should discuss if new MESC could have shared multipurpose space for us or if we could take space in math building to help us address the concerns.

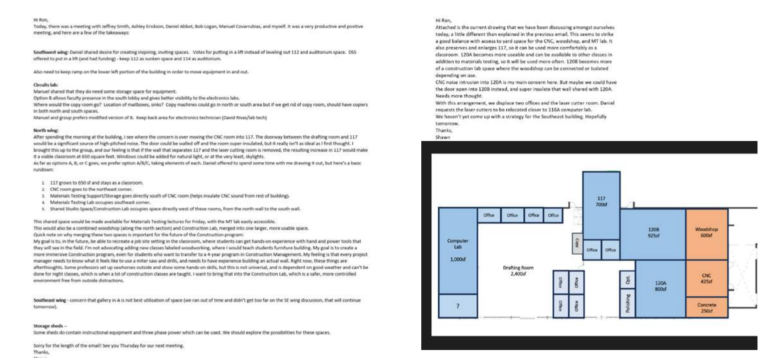
Secured Storage needed for valued equipment.

Materials Lab/ Woodshop as combined function? Optical /

Ashley - I agree with Daniel that there is overlap between the materials lab and machine shop tools, but we have to be careful of some equipment being very fragile and not wanting to get the optical test equipment dirty.

Shown sent this diagram at 10:55am -

ET DEPT FEEDBACK ON BUILDING LAYOUT OPTIONS



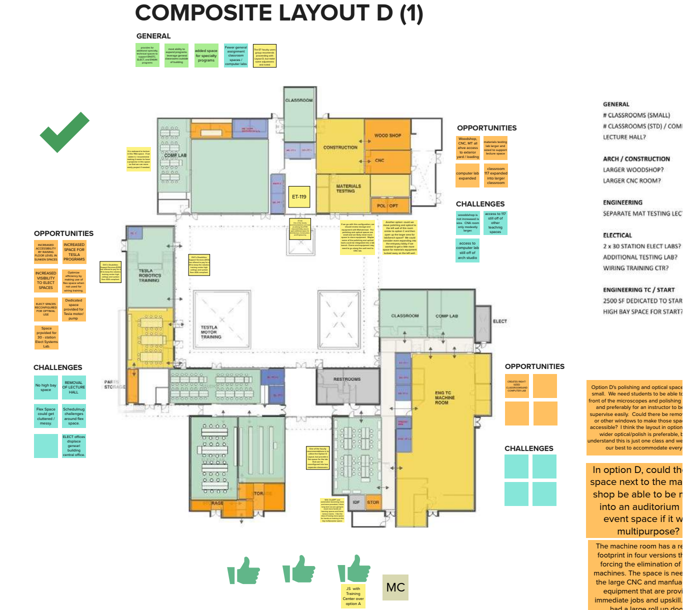
COMPOSITE LAYOUT STRATEGIES

COMPOSITE LAYOUT A (2)

COMPOSITE LAYOUT B

COMPOSITE LAYOUT C

COMPOSITE LAYOUT D (1)



COMPOSITE LAYOUT STRATEGIES

COMPOSITE LAYOUT A (2)

GENERAL

OPPORTUNITIES

- Woodshop, CNC, MT all ahve access to exterior yard / loading
- classroom 117 expanded into larger classroom
- Enlarged woodshop
- computer lab expanded

CHALLENGES

- MT is lab function only - no lecture space for MT.
- access to 117 still off of other teachnig spaces
- access to computer lab still off of arch studio

OPPORTUNITIES

- PRESERVES LECTURE HALL
- INCREASED VISIBILITY TO ELECT SPACES
- Optimize efficiency by making use of flex space when not used for wiring training.
- ELECT SPACES RECONFIGURED FOR OPTIMAL USE

CHALLENGES

- 2 LIFTS REQUIRED FOR ACCESS TO LOWER TESLA SPACE AND LECTURE HALL. RESULTS IN REDUCED TESLA ROBOTICS SPACE
- Schedulinug challenges around flex space.
- Flex Space could get cluttered / messy.

OPPORTUNITIES

- 2 small classrooms can flex into larger space for occaional use.
- Create more light through secondary glazed entrances.

CHALLENGES

- OPERATIONAL/ MAINTENANCE COST RELATED TO OPERABLE PARTITION

GENERAL
CLASSROOMS (SM 1
CLASSROOMS (ST 6
LECTURE HALL? Y

ARCH / CONSTRUC
LARGER WOODSHO Y
LARGER CNC ROOM Y

ENGINEERING
SEPARATE MAT TES N

ELECTICAL
2 x 30 STATION ELE N
ADDITIONAL TESTIN N
WIRING TRAINING N

ENGINEERING TC /
2500 SF DEDICATED N
HIGH BAY SPACE FO Y

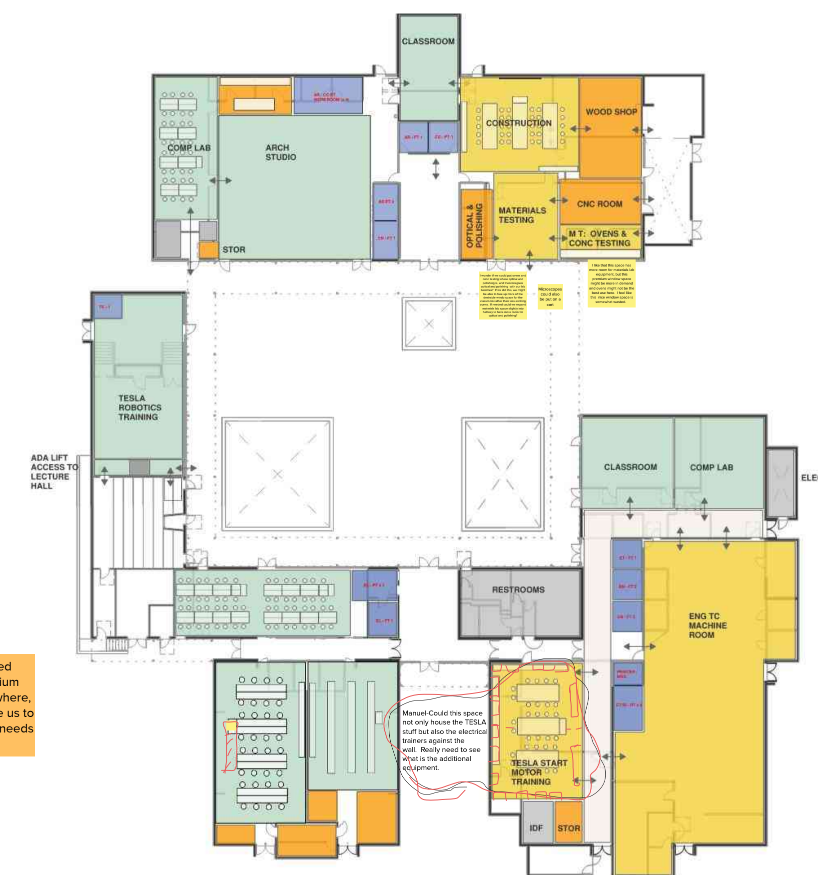
I agree with Daniel that A is safest. I do wonder if we can make the auditorium more flexible so that it alleviates some of the concerns?

[12:13 PM] Erickson, Ashley
does Tesla have to have a dedicated space? They were running some of their labs in the circuits lab space last spring and we managed
[12:15 PM] Erickson, Ashley
I would also consider option B with access to multipurpose space in MESC as viable.

If we could get shared multipurpose+auditorium space in MESC or elsewhere, maybe that could enable us to go with B and still meet needs of A?

If we do not provide a lab area for the mTech program that is also used by Tesla & requested by our electronics progam for the evenings (Option B), the college will have to go with option D, as there is a large and unused lecture hall in the Math building along with many available classrooms.

COMPOSITE LAYOUT B



GENERAL
CLASSROOMS (SMALL 1
CLASSROOMS (STD) / 4
LECTURE HALL? Y

ARCH / CONSTRUCTION
LARGER WOODSHOP? Y
LARGER CNC ROOM? Y

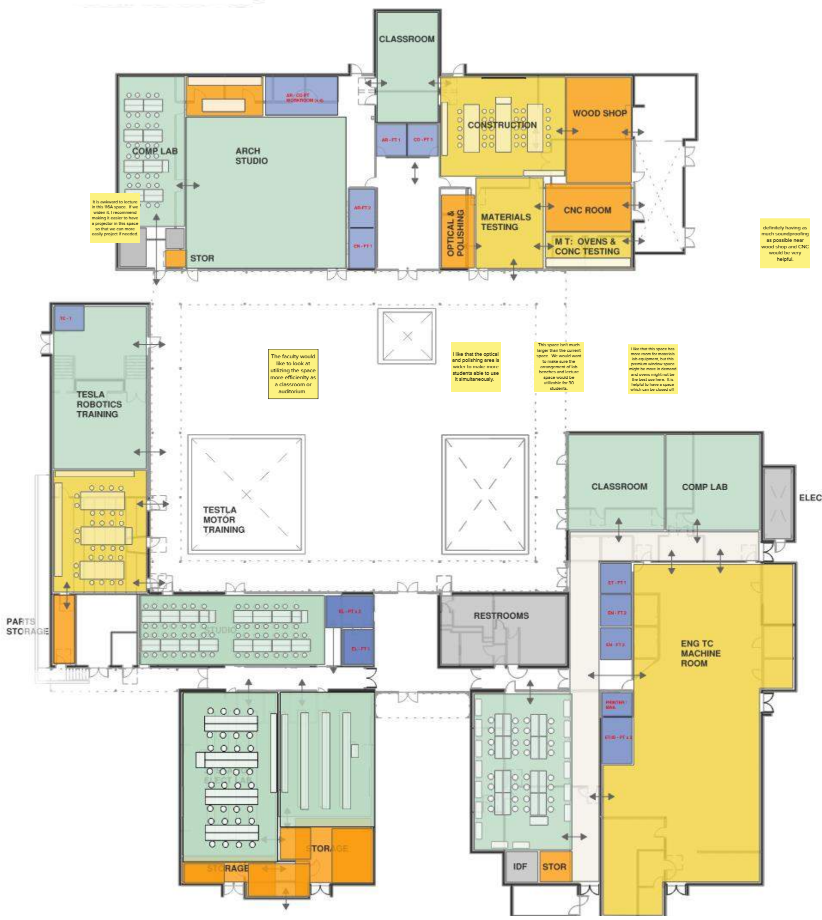
ENGINEERING
SEPARATE MAT TESTING N

ELECTICAL
2 x 30 STATION ELECT L N
ADDITIONAL TESTING L N
WIRING TRAINING CTR N

ENGINEERING TC / STA
2500 SF DEDICATED TO Y
HIGH BAY SPACE FOR ST Y

COMPOSITE LAYOUT C

GENERAL
CLASSROOMS (SM
CLASSROOMS (ST



GENERAL
CLASSROOMS (SM 1
CLASSROOMS (ST 4
LECTURE HALL N

ARCH / CONSTRUC
LARGER WOODSHO N
LARGER CNC ROOM Y

ENGINEERING
SEPARATE MAT TES Y

ELECTICAL
2 x 30 STATION ELE N
ADDITIONAL TESTIN Y
WIRING TRAINING C Y

ENGINEERING TC /
2500 SF DEDICATED Y
HIGH BAY SPACE FC N

COMPOSITE LAYOUT D (1)

GENERAL

GENERAL
CLASSROOMS (SMALL) 1
CLASSROOMS (STD) / COMP LAB 4
LECTURE HALL? N

ARCH / CONSTRUCTION
LARGER WOODSHOP? N
LARGER CNC ROOM? Y

ENGINEERING
SEPARATE MAT TESTING LECTURE? Y

ELECTICAL
2 x 30 STATION ELECT LABS? N
ADDITIONAL TESTING LAB? Y
WIRING TRAINING CTR? Y

ENGINEERING TC / START
2500 SF DEDICATED TO START? Y
HIGH BAY SPACE FOR START? N

Option D's polishing and optical spaces are very small. We need students to be able to gather in front of the microscopes and polishing equipment, and preferably for an instructor to be able to supervise easily. Could there be removable walls or other windows to make those spaces more accessible? I think the layout in option C with the wider optical/polish is preferable, but I do understand this is just one class and we need to do our best to accommodate everyone.

In option D, could the big space next to the machine shop be able to be made into an auditorium like event space if it was multipurpose?

The machine room has a reduced footprint in four versions that are forcing the elimination of many machines. The space is needed for the large CNC and manfuacturing equipment that are providing immediate jobs and upskill. Wish it had a large roll up door.

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SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
User Group Workshops *DRAFT*

Date: April 26-28, 2023

Location: MS Teams / Mural Boards

Link to DVC ET Project Roadmap Mural Board
Link to DVC ET Programming Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

• PJ Roach	District Director of Capital Construction Program Operations
• Despina Prapavessi	Dean of Math and Engineering
• Jeffrey Smith	Department Chair / Engineering Technology
• Manuel Covarrubias	Electrical / Electronics Technology
• Daniel Abbott	Architecture
• Chi Zhi	Architecture
• Grant Adams	Architecture
• Lara Dutto	Architecture
• Bob Logan	Architecture & Construction
• Anthony Grand	Architecture
• Ashley Erickson	Engineering
• Servando Pineda-Carranza	MESC
• Adhitya Mohan	MESC
• Jenny Freidenreich	MESC
• Dora Agueta-Rico	MESC
• Liana Delucca Johnson	Industrial Design
• Joseph Alvarico	Engineering Technology
• Stephen Joyce	Electronics
• Russel Holt	Electronics

2. Kitchell

• Ron Hoyle	Senior Project Manager

3. SmithGroup

• Bill Katz	Design Principal
• David Andreini	Project Manager
• Darryl Jackson	Project Architect
• Kenta Kamei	Architect / Lab Designer

ARCHITECTURE & CONSTRUCTION (4/26/23, 1:00 – 3:00)

Participants:

- DVC ET Programs: Daniel Abbot, Bob Logan, Qi Zhu, Jeffrey Smith, Despina Prapavessi, Grant Adams, Lara Dutto, Anthony Grand
- 4CD: PJ Roach
- SG Design Team: David Andreini, Kenta Kamei, Darryl Jackson

ARCHITECTURE

Summaries Key Takeaways:

- DA: current studio layout of (80) desks work well to concurrently hold (2) studios and have space for drop-in/assembly – studio is a hub for other activities and a heart of Architecture program.
- Students engage in both physical & computer modeling ∴ need to go back-and-forth between Studio & Computer Lab.
- DA & LD: Current access to outdoor space for staging design village, furniture projects, daylight, model photography, solar analysis, etc. is valuable & appreciated.
- CZ: Pin-up & model display space should have visibility.
- Students need access to laser cutting, 3d printing, CNC & Assembly Space w/ better material flow and possible spray booth.

Additional Notes:

- Workstations should be large enough to accommodate both laptop and model making space.
- Computer Lab (116A) is awkwardly proportioned for instructional purposes.
- Classes go back-and-forth between studio space & computer lab.
- Architecture program is very adaptable, should be able to accommodate swing spaces' limitations.
- Material and design library would be advantageous for architecture program (and construction).
- LD: Faculty members need ability to both project & quickly sketch an idea/concept during lecture.
- DA: North Pavilion is ideal for architecture classes; design village class uses courtyard so adjacency to the courtyard is very important for the program - would rather not re-invent the wheel but improve what is there currently.
- In the gallery space, need high visibility & enough space for (15) students to pin-up on 4'x8' boards & rotate juries.
- Gallery space is currently conflicting w/ offices surrounding it.
- 103/108: classes need pin-up, model making, computer work – available together in 103/108 room, great flex & multi-media work room.
- Room acoustics in 103/108 is not ideal for teaching due to geometry of the combined rooms; storefront is great for daylight but cause annoying screen glares.
- Having separate CNC, Laser Cut & 3D Printers from South Pavilion is advantageous/necessary especially toward end of the academic term.
- Large tables at Construction Lab (120B) are valued, but in direct conflict to CNC (121) & Woodshop when either are being used.
- Need more efficient storage solutions for various materials used.

CONSTRUCTION:

Key Takeaways:
- Need more efficient storage solution for materials.
- Larger CNC Room & Woodshop is desired b/c difficult to work w/ full-sized material e.g. 4’ x 8’ plywood boards.
- Easy access to laser cutting, 3d printing, CNC & assembly space is valuable.
- Need better noise isolation for Woodshop, but maintain space adjacency.

Additional Notes:
- Woodshop is dysfunctional due to adjacency to Construction Lab (120B) and lack of space & storage.
- Cannot get to storage or get rid of legacy materials (~30 years’ worth).
- No space left available to store new material.
- May start using CNC (121) more, depending on the direction of the curriculum.
- Often uses Computer Lab/Classroom (125).
- Many classes are taught/held off-campus for apprenticeship programs.
- Having a makerspace would be advantageous.

MATH & ENGINEERING STUDENT CENTER: (4/28 9:00- - 10:00)

Participants:
- DVC ET Programs: Despina Prapavessi, Servando Pineda-Carranza, Dora Argueta-Rico, Adhitya Mohan, Jenny Freidenreich
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Bill Katz, Kenta Kamei

Key Takeaways:
- Lockers, kitchen & larger staff workstations needed especially w/ need for more counselors/tutors.
- Larger computer lab w/ more powerful computers capable of running various engineering/architectural programs to accommodate classes.
- Larger flexible tutoring/office hours rooms that can be subdivided but maintains current "open" feel.
- Lounge space (i.e. check out board games & books) to further promote vibrant community space/feel.
- Need for “phone booth” and quiet study area or reservable rooms – currently students goes into faculty office hours space trying to find a quiet space.

Additional Notes:
- Welcomes the idea of becoming a community hub, has potential to become drivers for students to stay on campus longer – currently at any given time of the day, there are ~(30) students at the M+E Student Center.
- Vending machines for food availability.

- Since post-pandemic, service offering has expanded significantly - want to make the space into an overall cultural service center, not just math & engineering to promote overall student success across the disciplines.
- White boards are used a lot by faculty members, tutors, students when working together - promotes collegiate and collaborative nature of the space.
- Is also used a lot as lounge/touch base space – would like a space for board games, bookcases to create relaxing lounge like space.
- Interest in adding textbook library that students can check-out to do their work.
- Better lighting at focus room often used for quiet individual work or to take online classes is desired.
- Electronics test setup to practice on electronics/circuitry is desired.
- Project space for team projects & storage space for students to save in-progress work.
- Can receive online tutoring via zoom, in-person by reservation or drop-in tutoring.

ENGINEERING: (4/28/23, 10:30 – 11:30)

Participants:

- DVC ET Programs: Ashley Erickson
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Bill Katz, Kenta Kamei

Key Takeaways:

- Use of Electrical Lab (105) is maxed out / crowded & difficult to navigate around the room.
- Need more drop-in student workspace & computer labs w/ machines capable of running engineering programs.
- Highly visible display area to showcase student work alongside architecture & construction desired.
- Hybrid lecture & lab space for flexible hands-on learning desired e.g. sim to 103/108 setup.
- Need easier access to tools, parts, projectors & other eqp (Laser Cutters, 3D Printers, etc.).

Additional Notes:

- Need access to outdoor space for material testing e.g. concrete beam fabrication & curing.
- Optical & polishing room is also used, but space is very much cramped and can only accommodate 2-3 students at a time.
- Also uses Drafting Studio (116) to teach basics of 3D/2D drawings, eventually students move onto more computer works.
- Very few students receive mech, civil, computer, elect degree specifically b/c classes are taken for transferring – courses are designed to align w/ CSU & UC schools.
- Need to also align with math & physics courses for the major requirements, scheduled times are offered to avoid conflicts not b/c the dept chooses to only offer it at that specific time.
- M+E Student Center is great for students in general, but is hard to retain tutors and offer advice to students b/c engineering students are there to transfer elsewhere and have very individual/unique path.

- Typically posts lab instructions and images on screens so that each student can access from their own stations instead of trying to read from projector screen - current space (105) has a lot of what is needed, b/c need both computer and electronics access.
- Potentially Clean & Dirty Room setup or open up the wall for Lab Area vs Testing Area b/c need to securely store eqp i.e. microscopes.
- Drains under safety shower?

ENGINEERING TECHNOLOGY / INDUSTRIAL DESIGN / ROBOTICS: (4/28/23, 2:00 – 3:30)

Participants:

- DVC ET Programs: Manuel Covarrubias, Jefferey Smith, Despina Prapavessi, Liana Delucca Johnson, Joseph Alvarico
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Bill Katz, Kenta Kamei

INDUSTRIAL DESIGN:

Key Takeaways:

- Proper pin-up & model display space needed.
- Easy access between computer lab & 3d Printer/Laser Cutter/CNC desired to align w/ the product/industrial design philosophy of "fail early, fail often".
- "Specialized" computer lab (124) for using tablet computer for product designs.
- Need dedicated office space of faculty, currently no dedicated industrial design spaces b/c program is relatively young (~5 years).

Additional Notes:

- Would be helpful to make high demand equipment (laser cutter, 3D printer, etc) available & accessible from multiple spaces for easier sharing – currently confined in small space.
- Students are constantly modeling, cutting, testing between Laser Cutter (123), 3D Printer (123), Computer Labs (124 & others).
- UC Berkeley had a very nice "Doordash"-style facility where students could send parts for 3D printing or laser cutting and the parts would be made and available for pickup – would be interesting if ET Building could have similar space to support various student projects.
- Product Design class is partnered w/ Autodesk and other 4-yr colleges, and get corporate sponsors e.g. Camelbacks & Toyota to design for a product.
- Initially thought of as sim to architecture program to transfer to a 4-yr college but 1/2 of the students are adults who are looking to get jobs.
- Courses are aligned w/ transfer programs – students are very much focused on transferring ∴ are not interested in deviating from it.
- Would like to transfer back from online.

ENGINEERING TECHNOLOGY:

Key Takeaways:

- Higher ceiling & more space desired to maneuver around materials.
- Space for (10) more CNC (haas) machines & eliminate legacy lathe machines from 60s.
- Classroom w/ view into the machine lab to allow for easier demo & teaching.
- Higher overall visibility to the campus, being located right next to the stadium.
- Need to balance accessibility of the expensive tools/equipment w/ security/controlled access.
- More efficient storage of materials.

Additional Notes (*NOTE: See **ROBOTICS & ADVANCED MANUFACTURING** for additional notes relating to Tesla Start Lab program*)**:**

- Lathes are from us navy (1960s), used mainly by hobbyists, would like to get rid of them - very dangerous, is not demanded by the industries, and takes up a lot of space and gets in the way of CBC machines.
- Would like to keep the mills (#3, 4, 5), used to teach the fundamentals of machining.
- Engineering Tech programs are geared very much toward jobs post-program.
- Classroom 122B could become the space for lecture portion of classes, with visual connection and ability to move back-and-forth.
- Material stored at the bottom of the machine labs, many are over 30 yrs old and not useful.
- Materials are loaded from the Southeast corner of the building.
- Could use an additional office.
- Used to use Lecture Room 112 until 114 became online recently.

ROBOTICS & ADVANCED MANUFACTURING:

Key Takeaways:

- Would like higher visibility to the campus to showcase work since program is a major enrollment driver (400% increase).
- Larger lab space to accommodate more students (up to 30, currently 24).
- Robotics welding lab desired, possible conversion of storage building to the west of Tesla Lab (114).
- Need doors that can move the tables in-out easier (4' x 5' tables).
- Goal is to teach minimum (20) students at a time, w/ ability to go up to (30).

Additional Notes:

- Tesla Start Lab program can be taken by any student of DVC regardless of the major/concentration – that was how this program was greenlit on campus.
- Tesla Start Lab Program is rebranding of Electronics and Manufacturing Tech Program which were suffering from the reduced enrollment – now is a major enrollment driver (400% increase).
- Could be moved to temporary spaces w/ regular power – 110/120V power to the room, there each mobile desk/station has their own transformers to meet power needs of the robotics.
- Workstation tables are currently shared by (2) students.
- Occupies Electrical Circuit Lab (107) and part of Machine Lab (123).

<u>ELECTRICAL & ELECTRONIC TECHNOLOGY: (4/28 3:30 – 4:30)</u>

Participants:

- DVC ET Programs: Ashley Erickson, Manuel Covarrubias, Russel Holt, Stephen Joyce, Jeffrey Smith
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Bill Katz, Kenta Kamei

Key Takeaways:

- Electrical Labs cannot accommodate (30) students – maxed out at (24) students at (2) students per workstation, would like to reduce to (1) student per station.
- Current storage solution is inefficient, would like to have shared storage accessible from all circuit labs while balancing controlling access to high valued equipment.
- Room with wall space for electrical wiring training is desired (*see Image 1 below*).
- Consider using ET Building as a teaching tool e.g. read metering, wiring, etc.
- Need to incorporate energy systems program into electrical – energy systems program have been laying dormant, but is being revived.

Additional Notes (*NOTE: See **ROBOTICS & ADVANCED MANUFACTURING** for additional notes relating to Tesla Start Lab program*)**:**

- Tesla Program currently occupies 107, would likely need third circuit lab space – current (2) rooms are inadequate to support the program.
- Need large double doors to allow trainers to be rolled into the classroom as currently not possible to roll it in without taking out the center column.
- Need hybrid lecture & lab space.
- Uses 112 Lecture Room to bring in industry presenters.
- Would be nice to have space for student projects, may be as a part of new M+E Student Center – similar setup to current station w/ PLC.
- Need max space for working space, mount monitor on an arm rather than on workstation surface like how it is now.
- Need to be able to bolt down equipment.

Image 1, Wiring Training Wall Panel:

End of Note

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DVC - ET PROGRAMMING 01

AGENDA

4/26/2023, 4/28/2023

Agenda (All Programs except ME Center)

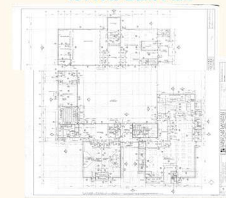
- Review of how teaching is currently supported. For each class / class type, we will ask participants to walk us through the following:
  - Confirm which spaces are used to support which classes?
  - What support spaces are utilized? How is this supervised?
  - What are the media requirements for each class?
  - How are the current facilities limiting instruction?
  - How is student work currently being stored?
  - Review storage for course materials and support spaces.
- Reviewing curriculum in general:
  - How do you see course structures and curriculum evolving?
- Temporary teaching facilities will be required during the renovation for a duration of approximately two years. During this period, what are the basic requirements for operating the academic programs?
- Detailed review of requirements for equipment and furniture will happen at subsequent workshops.

Agenda (ME Center)

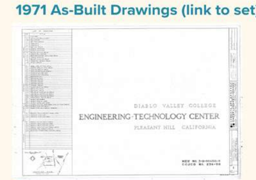
- Review how existing facility is used:
  - Check-in process, appointments, tutoring resources.
  - Uses of various spaces within the center.
  - Connections to STEM academic programs.
  - How are the current facilities limiting student success?
  - Support Spaces.
- Detailed review of requirements for equipment and furniture will happen at subsequent workshops.

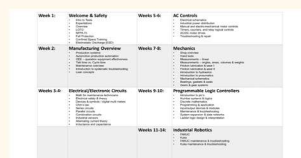
SITE & CONTEXT

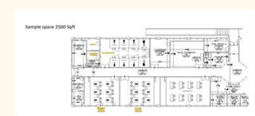
1971 As-Built Plan



1971 As-Built Drawings (link to set)



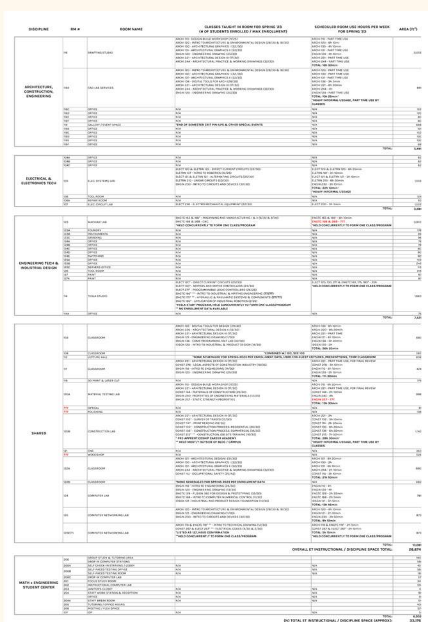




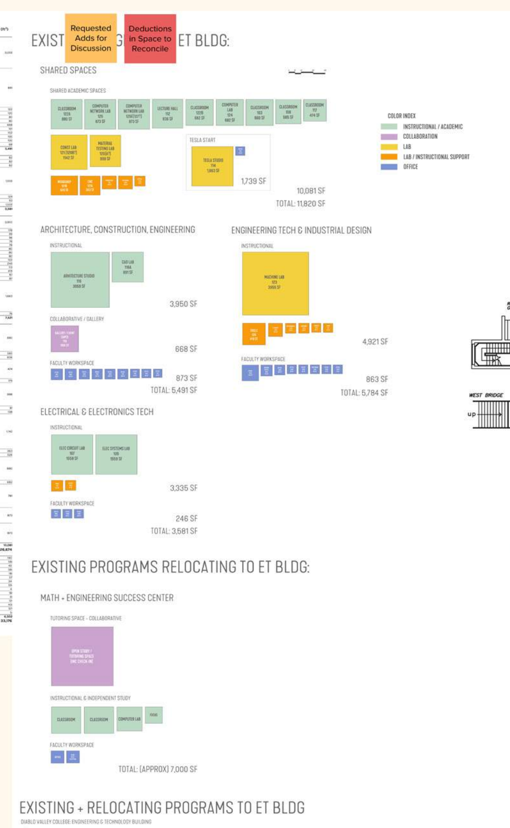
BACKGROUND INFORMATION

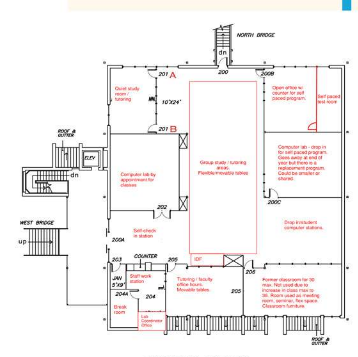
INSTRUCTIONAL SPACE USE ANALYSIS

EXISTING PROGRAM MATRIX



EXISTING GRAPHIC PROGRAM





EXISTING BUILDING PLAN & PHOTOS

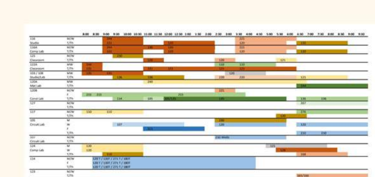
EXISTING MATH + ENGINEERING STUDENT CENTER

Counseling. Workshops. Career day

Drop in. Group. embedded tutoring. online.

205 layout idea

SPRING 2023 - SPACE UTILIZATION SCHEDULE

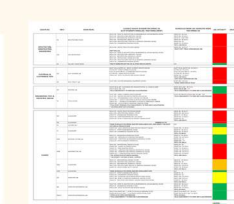


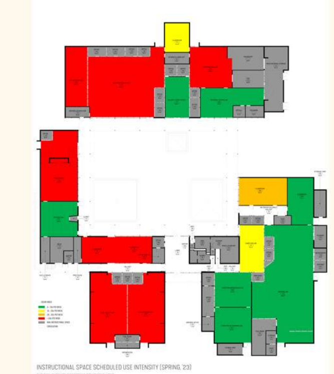
-construct tech is not doing a lot of construction.

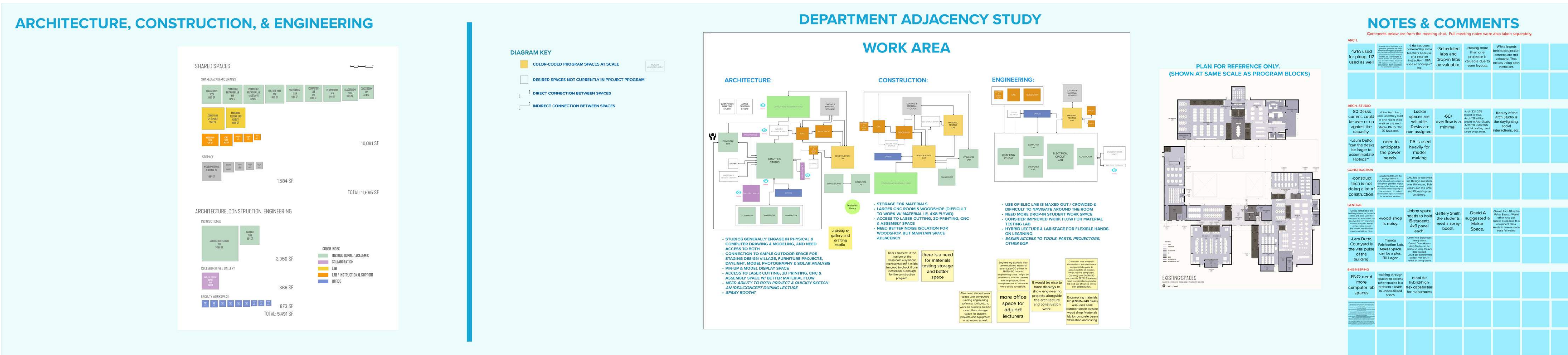
Add legend for departments

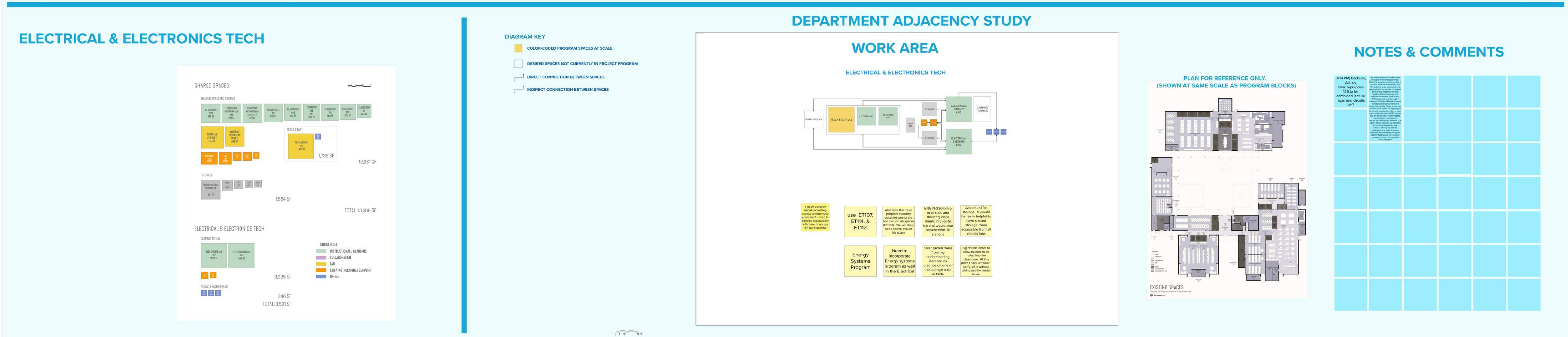
one thing to note is that some of our courses are fall only or spring only so it is good to look at both fall and spring

SPRING 2023 - SPACE USE EFFICIENCY





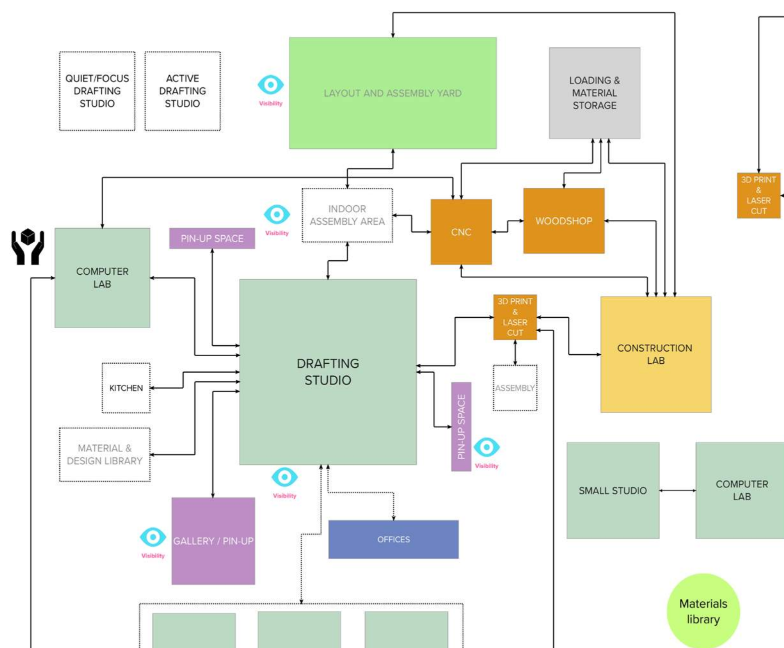

ARCHITECTURE, CONSTRUCTION, & ENGINEERING
DEPARTMENT ADJACENCY STUDY
WORK AREA
ARCHITECTURE:
CONSTRUCTION:
ENGINEERING:
DIAGRAM KEY
PLAN FOR REFERENCE ONLY.
(SHOWN AT SAME SCALE AS PROGRAM BLOCKS)
EXISTING SPACES
NOTES & COMMENTS


ELECTRICAL & ELECTRONICS TECH
DEPARTMENT ADJACENCY STUDY
WORK AREA
ELECTRICAL & ELECTRONICS TECH
DIAGRAM KEY
PLAN FOR REFERENCE ONLY.
(SHOWN AT SAME SCALE AS PROGRAM BLOCKS)
EXISTING SPACES
NOTES & COMMENTS

DEPARTMENT ADJACENCY STUDY

WORK AREA

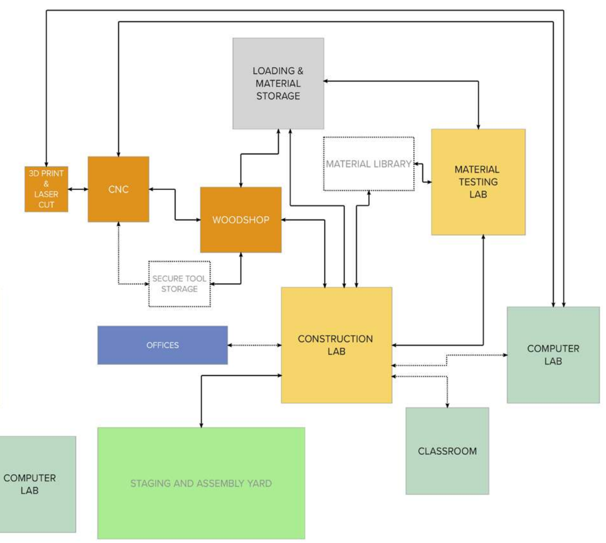
ARCHITECTURE:



visibility to gallery and drafting studio

- STUDIOS GENERALLY ENGAGE IN PHYSICAL & COMPUTER DRAWING & MODELING, AND NEED ACCESS TO BOTH
- CONNECTION TO AMPLE OUTDOOR SPACE FOR STAGING DESIGN VILLAGE, FURNITURE PROJECTS, DAYLIGHT, MODEL PHOTOGRAPHY & SOLAR ANALYSIS
- PIN-UP & MODEL DISPLAY SPACE
- ACCESS TO LASER CUTTING, 3D PRINTING, CNC & ASSEMBLY SPACE W/ BETTER MATERIAL FLOW
- *NEED ABILITY TO BOTH PROJECT & QUICKLY SKETCH AN IDEA/CONCEPT DURING LECTURE*
- *SPRAY BOOTH?*

CONSTRUCTION:

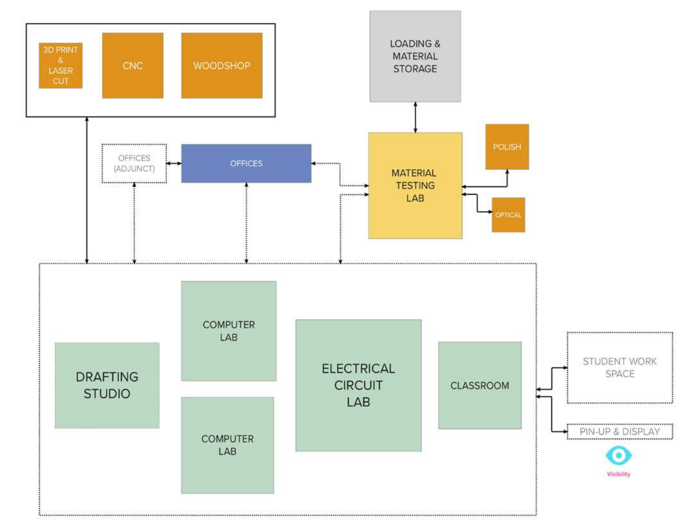


- STORAGE FOR MATERIALS
- LARGER CNC ROOM & WOODSHOP (DIFFICULT TO WORK W/ MATERIAL I.E. 4X8 PLYWD)
- ACCESS TO LASER CUTTING, 3D PRINTING, CNC & ASSEMBLY SPACE
- NEED BETTER NOISE ISOLATION FOR WOODSHOP, BUT MAINTAIN SPACE ADJACENCY

User comment: is the number of the classroom a symbolic representation? It might be good to check if one classroom is enough for the construction program.

there is a need for materials testing storage and better space

ENGINEERING:



- USE OF ELEC LAB IS MAXED OUT / CROWDED & DIFFICULT TO NAVIGATE AROUND THE ROOM
- NEED MORE DROP-IN STUDENT WORK SPACE
- CONSIDER IMPROVED WORK FLOW FOR MATERIAL TESTING LAB
- HYBRID LECTURE & LAB SPACE FOR FLEXIBLE HANDS-ON LEARNING
- *EASIER ACCESS TO TOOLS, PARTS, PROJECTORS, OTHER EQP*

Engineering students also use woodshop area and laser cutter+3D printer in ENGIN-110 intro to engineering class. might be used more in other classes too for projects, if the equipment could be made more easily accessible.

Computer labs always in demand and we need more computer lab space to accommodate all classes which require computers. Currently one ENGIN-110 section this SP2023 does not meet in dedicated computer lab and use of laptop cart is non ideal solution.

It would be nice to have displays to show engineering projects alongside the architecture and construction work.

Also need student work space with computers running engineering software, tools, etc. to work on projects outside class More storage space for student projects and equipment in lab rooms as well.

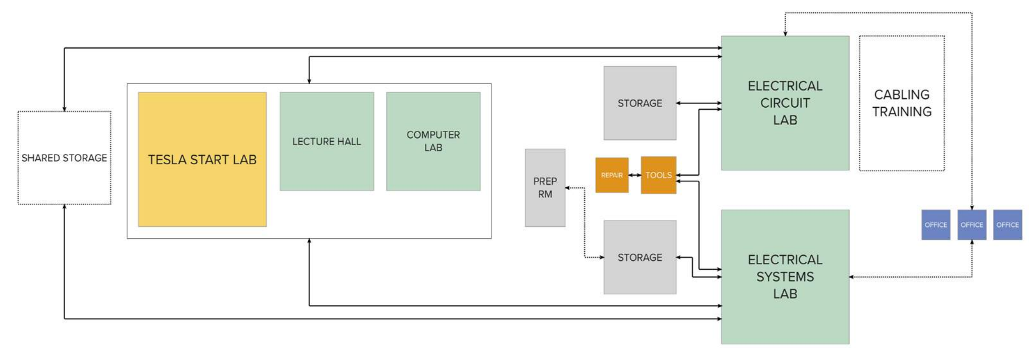
more office space for adjunct lecturers

Engineering materials lab (ENGIN-240 class) also uses semi outdoor space outside wood shop /materials lab for concrete beam fabrication and curing.

DEPARTMENT ADJACENCY STUDY

WORK AREA

ELECTRICAL & ELECTRONICS TECH



a good question about controlling access to expensive equipment - need to balance accessibility with ease of access by our programs

use ET107, ET114, & ET112

Also note that Tesla program currently occupies one of the two circuits lab spaces (ET-107). We will likely need a third circuits lab space

ENGIN-230 (intro to circuits and devices) class meets in circuits lab and would also benefit from 30 stations

Also need for storage. It would be really helpful to have shared storage room accessible from all circuits labs

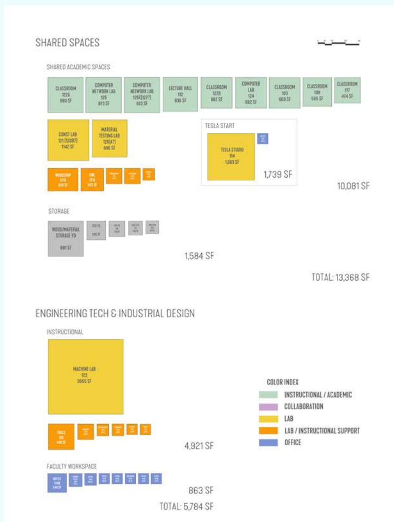
Energy Systems Program

Need to incorporate Energy systems program as well in the Electrical

Solar panels were from my understanding installed as practice on one of the storage units outside

Big double doors to allow trainers to be rolled into the classroom. At this point I have a trainer I can't roll in without taking out the center beam.

ENGINEERING TECH & INDUSTRIAL DESIGN



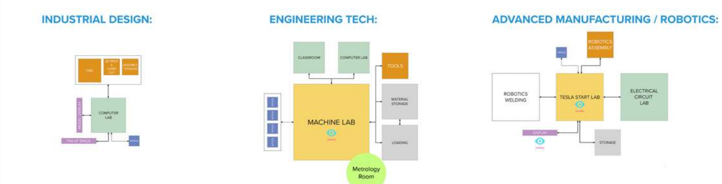
DEPARTMENT ADJACENCY STUDY

DIAGRAM KEY

- COLOR-CODED PROGRAM SPACES AT SCALE
- DESIRED SPACES NOT CURRENTLY IN PROJECT PROGRAM
- DIRECT CONNECTION BETWEEN SPACES
- INDIRECT CONNECTION BETWEEN SPACES

WORK AREA

INDUSTRIAL DESIGN: | ENGINEERING TECH: | ADVANCED MANUFACTURING / ROBOTICS:



INDUSTRIAL DESIGN:

- PROPER PIN-UP & MODEL DISPLAY SPACE NEEDED
- EASY ACCESS BETWEEN COMPUTER LAB & 3D PRINTER/LASER CUTTER/CNC ("FAIL FAST, FAIL OFTEN")
- "SPECIALIZED" COMPUTER LAB (124) FOR USING TABLET COMPUTER FOR PRODUCT DESIGNS
- OFFICE SPACE, CURRENTLY NO DEDICATED INDUSTRIAL DESIGN SPACES

ENGINEERING TECH:

- HIGHER CELING & SPACE DESIRED TO MANEUVER AROUND MATERIALS
- SPACE FOR (10) MORE CNC (HAAS) MACHINES & ELIMINATE LEGACY LATHE MACHINES
- CLASSROOM W/ VIEW INTO THE MACHINE LAB & HIGHER OVERALL VISIBILITY TO THE CAMPUS RIGHT NEXT TO THE STADIUM
- ADDITIONAL OFFICE
- MORE EFFICIENT STORAGE OF MATERIALS

ADVANCED MANUFACTURING / ROBOTICS:

- HIGHER VISIBILITY TO THE CAMPUS (MAJOR ENROLLMENT DRIVER)
- LARGER LAB SPACE TO ACCOMMODATE MORE STUDENTS (UP TO 30)
- ROBOTICS WELDING LAB DESIRED
- NEED DOORS THAT ARE ABLE TO MOVE THE TABLES IN-OUT EASIER (4' X 5' TABLES)

UC Berkeley had a very nice "Doordash"-style facility where students could send parts for 3D printing or laser cutting and the parts would be made and available for pickup. Would be very interesting if we could have a similar space to support projects for engineering, industrial design, and others. Could potentially be incorporated into the fail fast/fail often space.

Would be helpful to make high demand equipment (laser cutter, 3D printer, etc) available/ accessible from multiple spaces for easier sharing. Currently confined in small space.

Jeffrey raises a good question about controlling access to expensive equipment - need to balance accessibility with ease of access by our programs

*balance accessibility with protecting equipment

we have similar considerations in the materials lab with expensive equipment

Giving lecture directly in lab can be a little tricky in that large space due to some of the tools being farther away from the front. Making lecture/projector area more visible from front would be beneficial for demos and teaching.

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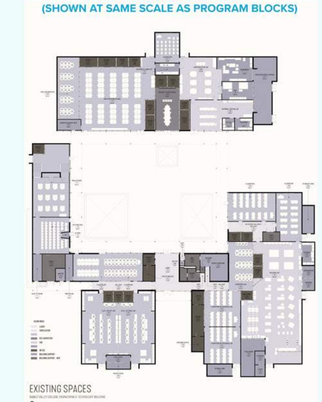

NOTES & COMMENTS

There is a need for more table space for our Motors and Motor Controllers class	There is a need for more space for the hdraulic trainers that are currently in a hallway.	Now that the ET-114 room has been completed and is safe to occupy, the START classes will also occupy ET-112	There is a need for the new higher end 3D printers that correspond with machining and product design.	We need to gain more space by reducing the footprint of the materials area, loated in the bottom of ET-123 machine shop.	The table space in ET123 is no logner able to be used for teaching classes, as it is the only area where the pumps and motors can be used by the studetns. They are extremely heavy and can't be moved after each class.
The Industrial Design students need a classroom with the drawing tablet computers, laser cutters, and 3D printers in a more seamless fashion.	A outdoor & coverd area where robotics welding can be taught is needed.	Roll up doors are needed where machinery can be much more easily moved in and out is needed.	A space where all the past student work with our industry partners is needed. Brita, Toyota, BOSE, etc with color posters and models.	Dedicated classroom where industrial design students can make models that don't need to be cleaned up after each class.	

MATH + ENGINEERING STUDENT CENTER

DEPARTMENT ADJACENCY STUDY

DIAGRAM KEY

- COLOR-CODED PROGRAM SPACES AT SCALE
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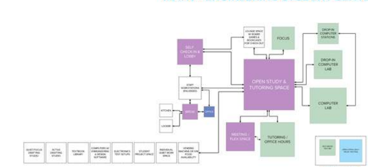
WORK AREA

MATH + ENGINEERING STUDENT CENTER



- LOCKERS, KITCHEN & LARGER STAFF WORKSTATIONS ESPECIALLY W/ NEED FOR MORE COUNSELORS/ TUTORS
- LARGER COMPUTER LAB W/ MORE POWERFUL COMPUTERS TO ACCOMMODATE CLASSES
- LARGER FLEXIBLE TUTORING/OFFICE HOURS ROOMS THAT CAN BE SUBDIVIDED BUT MAINTAINS CURRENT "OPEN" FEEL
- LOUNGE SPACE (I.E. CHECK OUT BOARD GAMES & BOOKS) TO FURTHER PROMOTE VIBRANT COMMUNITY SPACE/FEEL
- BETTER LIGHTING AT FOCUS ROOM

Also need for "phone booth" and quiet study spaces or reservable study rooms. Some students will go into faculty office hours space trying to find a quiet space.	Current math and engineering center is located farther from engineering building which is affecting how many engineering students attend	interest in textbook "library"	Need engineering computers which can run Solidworks, AutoCAD, etc.	Whiteboards or walls which can be drawn on to spread out when discussing problems
electronics test setup to practice electronics	project space for team projects, storage space for students to save in progress work	vending machines or food availbility		

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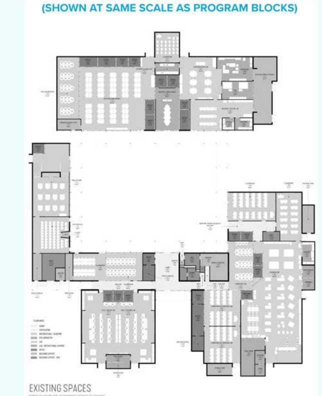


NOTES & COMMENTS

Comments below are from the meeting chat. Full meeting notes were also taken separately.

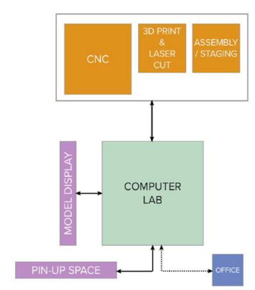
Title is Math and Engineering Student Center (not success center)	[9:33 AM] Pineda-Carranza, Servando the computers are also not powerful enough in the ME center	6,757 visits in the ME center over last semester	I see about 30 students at the Student Center at any given hour or any day.	Last semester we had over 2200 tutoring sessions	[9:34 AM] Freidenreich, Jenny Wouldn't the tutoring increase if the ME Student Center were located close to the ET machines?
drop-in , group tutoring, embedded tutoring, (by appointment), online	[9:40 AM] Freidenreich, Jenny We also truly need a dedicated computer room for class size 36 + instructor.	10am-12pm=2 tutors, 12-4pm= 6 tutors, 6-8pm, 8-10pm = 3 tutors	[9:44 AM] Pineda-Carranza, Servando sometimes instructors bring their classes to use a computer lab	need a kitchen	[9:45 AM] Pineda-Carranza, Servando The space was originally made only for a tutoring center so only a senior lab coordinator and tutor coordinator were managing the center. Now it gets a bit packed
[9:48 AM] Freidenreich, Jenny Good point! Wouldn't lockers be great?!	[10:00 AM] Prapavessi, Despina I also like the openness of the room for office hours that we have now. It has a welcome feel and allows for communication and building community among the math faculty there - my 2 cents.	balancing quiet focused work with louder collaborative work	We would like a space for playing board games, chess, checkers, game check-out, bookcase for extra books sort of a lounge and relax space.	[10:05 AM] Freidenreich, Jenny KITCHEN!! Need it.	It's actually the STUDENT center, but we do like to think we're very successful!

- ELECTRICAL ROOMS DO NOT ACCOMMODATE 30 STUDENT. THEY MAX OUT AT 24 AT 2/STATION.
- STORAGE IS INEFFICIENT
- SPACE WITH WALL SPACE FOR ELECTRICAL WIRING TRAINING IS DESIRED.
- CONSIDER USING ET BLDG AS A TEACHING TOOL E.G. READ METERING, WIRING, ETC

DEPARTMENT ADJACENCY STUDY

WORK AREA

INDUSTRIAL DESIGN:



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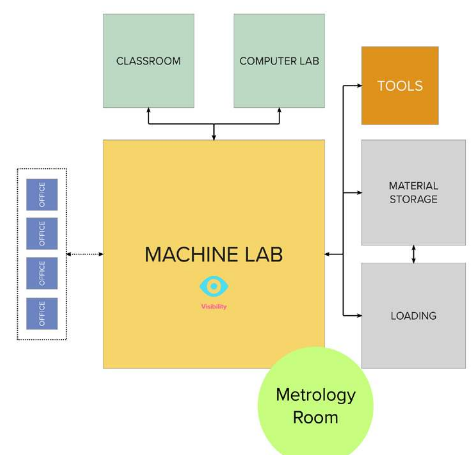

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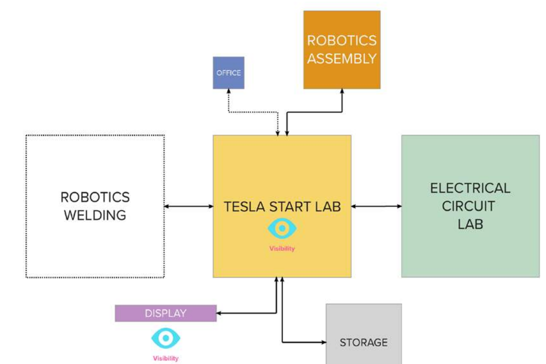

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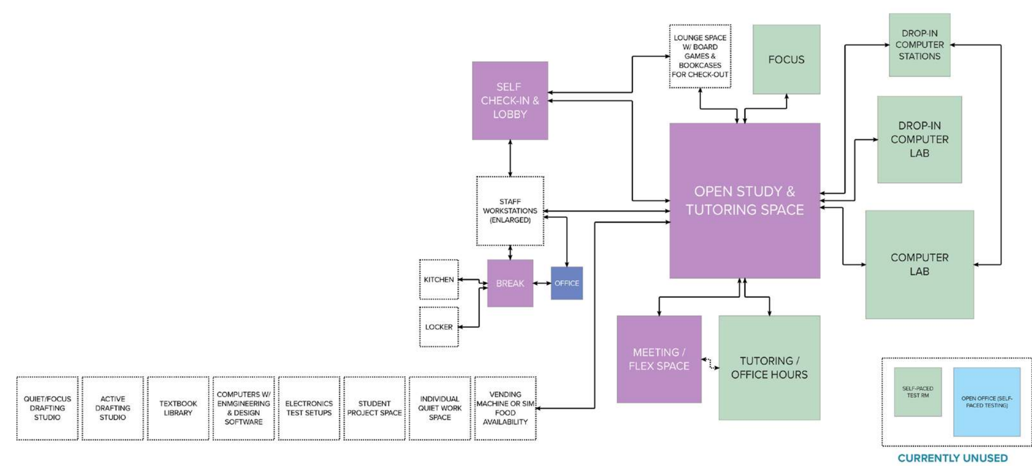
DEPARTMENT ADJACENCY STUDY

WORK AREA

MATH + ENGINEERING STUDENT CENTER



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electronics test setup to practice electronics	project space for team projects, storage space for students to save in progress work	vending machines or food availbility		

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
User Group Workshops: MESC

Date: May 25, 2023

Location: MS Teams

Attendees

1. Diablo Valley College / Contra Cost Community College District

• PJ Roach	District Director of Capital Construction Program Operations
• Despina Prapavessi	Dean of Math and Engineering
• Jenny Freidnreich	Math / MESC
• Julie Walters	Math / MESC
• Adhitya Mohan	Math / MESC

2. Kitchell

• Ron Hoyle	Senior Project Manager

3. SmithGroup

• David Andreini	Project Manager
• Kenta Kamei	Architect / Lab Designer

General

General purpose of meeting is to document requirements for a new facility to be used by subsequent designers and contractors to design the space.

OPEN SUPPORT SPACE AND TUTORING SPACE

Layouts of spaces were reviewed, and the following preferences were indicated by the group.

- **Quiet study space:** for 15-20 individual carols. Visibility to open study space.
- **Open study space:** capacity of 70 desired. 10 can be individual carols. The remainder are gang-able desk stations that can be ganged into groups for 4 – 8 with moveable whiteboards. The open flexibility of this space is an important feature.
- **Office hours / tutoring:** Capability of supporting apx 3 tutoring sessions of 6-8, subdivided with open frames upon which whiteboards can be mounted. It is important to maintain sense of vibrancy and group camaraderie with a sense of openness. Consider secured tablets to provide access to class assignments at each station, and equipment to facilitate distant learning, including white boards with short-throw cameras. Office hours room should be clearly visible and accessible from open study space.

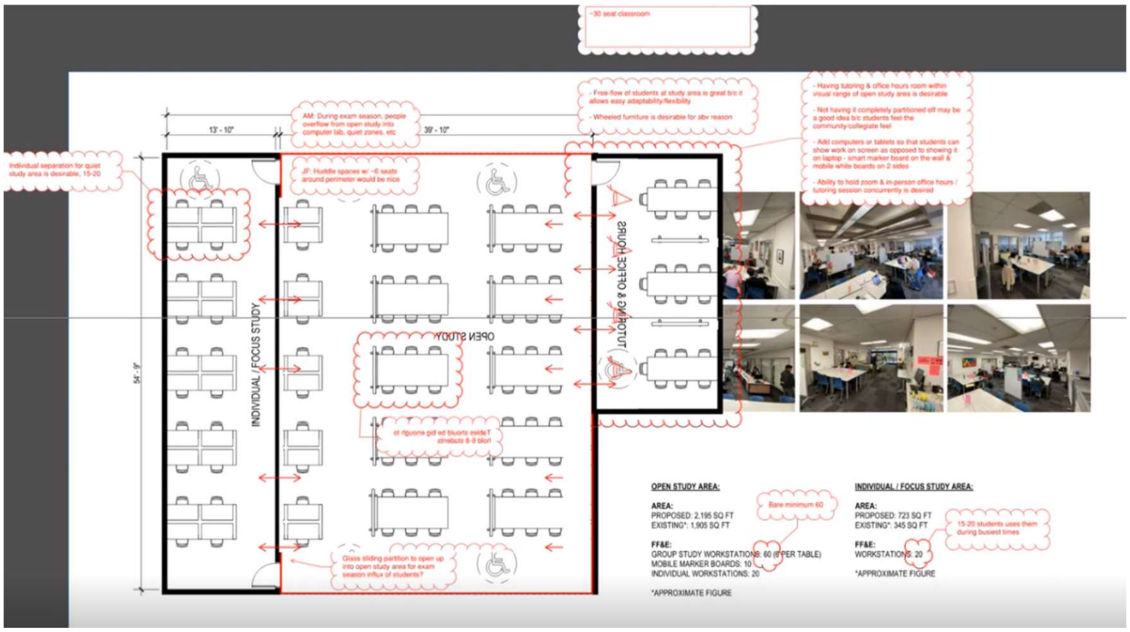
CLASSROOM (Currently 206)

Layouts of spaces were reviewed, and the following preferences were indicated by the group.

- A Mohan: This space is important for ad hoc and scheduled workshops, and can double as extra tutoring space and even study space around finals.
- Since class maximum is now 36 (vs 30) the current space is under-sized.

COMPUTER LAB (Currently 202)

- A Mohan: Need at least one computer lab to accommodate up to 36 students. This is in addition to the open drop-in computer stations that are required.



(Diagram of space configurations at main study area resulting from conversation)

End of Notes

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
User Group Workshops: Arch, Const, EngEnt, InDsgn, Elec.

Date: May 31, 2023

Location: MS Teams / Mural Boards

Link to DVC ET Programming Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

• PJ Roach	District Director of Capital Construction Program Operations
• Despina Prapavessi	Dean of Math and Engineering
• Jeffrey Smith	Department Chair / Engineering Technology
• Manuel Covarrubias	Electrical / Electronics Technology
• Daniel Abbott	Architecture
• Chi Zhi	Architecture
• Bob Logan	Architecture & Construction
• Ashley Erickson	Engineering
• Russel Holt	Electronics

2. Kitchell

• Ron Hoyle	Senior Project Manager

3. SmithGroup

• Bill Katz	Design Principal
• David Andreini	Project Manager
• Andrew Thurlow	Project Architect
• Kenta Kamei	Architect / Lab Designer

General
General purpose of the equipment review and discussion is to provide information to the Design-Build team that follows with the requirements for equipment.

ARCHITECTURE & CONSTRUCTION (5/31/23 9:30-10:30)

Participants:

- DVC ET Programs: Daniel Abbot, Bob Logan, Qi Zhu, Jeffrey Smith
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Andrew Thurlow

WOODSHOP

- Space typically used by 7-8 at a time. It would be good if new version could accommodate up to 10 safely.
- Common uses are to support construction of scaled construction framing models for Construction and design-build projects for Architecture like Design Village and the Chair class. There is sometimes low-level use in the evenings.
- Most commonly used equipment to date are: table saw, chop saw. Other high use equipment are the 3 bandsaws, drill press, Kalamazoo Belt sander, and the Orbital sander.
- Least used equipment: lathe, square mortiser, thickness planer, DeWalt scroll saw.
- There is not sufficient operating space for the lumber and sheet goods for some of the equipment.
- The new DVC Construction lead may have different priorities for equipment and appears to be more focused on using the woodshop.
- Dust collection system is old/antiquated and probably close to failure. Program uses port gates to increase CFM to machines in operation. Typically up to 5 machines may be used at a time. Biggest demands for air are the table saw and CNC machines.
- Air compressor is too small.
- In general, woodshop is too small for the equipment to be used concurrently. SG estimates it may be too small by 50% to safely operate 8 pieces of equipment at once.
- Acoustical isolation from the Construction lab is a prime concern that needs to be addressed in the renovation project.
- The shop is not used constantly, but is used during heightened periods of activity and occasional use on evenings. But the shop may be used more if not for the noise conflict with the Construction classroom.
- D Abbot suggested a potential consideration for the college to consider would be breaking up a woodshop into 2-3 cohorts.

CNC ROOM

- 3-Axis machine is the one used most frequently – sometimes nearly continuous use.
- 5-axis machine used more infrequently – usage is somewhat research-focused at the present. Machine requires compressed air to operate.
- Typically only 2-3 people are in the room at a time.
- The 5-axis machine is very loud. 120 db when running. Noise is currently an issue.
- Space is presently a bit cramped for operating these machines.

LAYOUT CONSIDERATIONS

- D Abbot shared idea of whether Materials / Testing has more synergy with the machining area (south building), or of using Room 122A for CNC machine area.

- The question was raised as to whether the outside storage "cathouse" (to east of roadway), could be reconfigured to a covered area for woodshop use. D Andreini noted the space will still want to be conditioned, will probably need a power upgrade, which will add to the cost.
- PJ suggested removing cathouses, and instead having enlarged outdoor spaces / canopy spaces.
- B Logan believes that the space must be completely enclosed to prevent theft and to prevent the equipment from rusting.

ENGINEERING, ELECTRICAL, ELECTONICS (5/31/23 1:00 – 2:00

Participants:

- DVC ET Programs: Ashleigh Erickson, Bob Logan, Manuel Covarrubias, Russel Holt
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Andrew Thurlow

MATERIALS AND TESTING

- Most to the equipment in Room 120 is antiquated and likely will need to be replaced soon. Some is 30+ years old. The Tension Testing machine however is only 7 years old and very expensive piece of equipment.
- Solvents are used to help clean-up after polishing is completed.
- It would be good if new design could improve visibility into Optical and Polishing rooms.
- There is a large hood over the testing equipment. Possibly for dust or chemical hazards from concrete curing?
- Mohammed Panahandeh is the person most familiar with the equipment in these rooms, and the status of equipment and how it is used.
- Space needs to be flexible to accommodate new equipment if required to address US and CSU transfer requirements, which may change over time.

ELECTRICAL / ELECTRONICS LABS

- A typical student work station consists of A Test Set-up, which includes a multi-meter and oscilloscope, and a circuit board panel, plus a computer station. The work stations require the width of apx 5' per student.
- Current setup is 3 phase coming into the room, with one phase going to each of the 3 benches , providing 115 V power to the work stations.
- To teach 30 students, there really should be 30 workstations. D Andreini noted that this would be considerably bigger than the current set-up.
- Consider 30 stations in one room with smaller width work station, and one room set up with wider work stations for 15 stations.
- Work surfaces are ESD mats.
- Trouble-shooting Training Centers: Used for classes 220, 230, 101. Currently sitting on desk tops when not sued. Students carry them to their stations for classes.
- Consider small-factor computer set-ups. IT does not allow the PCs to sit on the floor so they sit on the desks, where they take up space.
- Motor Control System and Electronic Drives System are currently not being used. These have 3-phase power.
- Soldering does happen in the space. Presently there are no provisions for fume extraction.

LAYOUT CONSIDERATIONS

- Consider consolidating storage. Some frequently occupied storage could within the space and more accessible, while other longer term storage could be located so more efficiently organized.
- The question was raised as to whether the outside storage "cathouse" (to east of roadway), could be reconfigured to a covered area for woodshop or CNC use. D Andreini noted the space will still want to be conditioned, will probably need a power upgrade, which will add to the cost. B Logan believes that the space must be completely enclosed to prevent theft and to prevent the equipment from rusting.

<u>ENGINEERING TECH / START / INDUSTRIAL DESIGN (6/1/23 1:00 – 2:00)</u>

Participants:

- DVC ET Programs: Jeffrey Smith
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, John McDonald, Andrew Thurlow, Kenta Kamei

Key Takeaways:

- J Smith noted DVC just approved for purchase of 10 new CNC machines, starting with 3 this fall. This will be done in phases over 3 years and lathes will be removed to make space for them.
- D Andreini noted that the schedule of the new equipment will over-lap with the machine shop being housed temporarily elsewhere during construction.
- J Smith: The Grinding Room needs to be retained (or an equivalent space). The Foundry room is no longer in use except for storage.
- J Smith: Industry partners are asking for DVC to retain 6 lathes and 6 of the Bridgeport-style mills. SG will do a test-fit to determine if the equipment can fit in the space available.
- J smith: Some of the grinders can go as well. D Andreini suggested the grinders would need dust collection (can be done as centralized system, or localized, filtered systems).
- 2 additional 3D printers have been approved (bench top models) so now there are four total (3 table mounted, 1 floor mounted).
- Space is required for horizontal band saw for cutting down aluminum stock.
- Need to account for a mobile spray booth, not currently shown on equipment plans.

Additional Notes:

- Locating CNC shop in the old arts building will be problematic due to lack of power to support them.
- J Smith suggested looking into Benchmark for temporary facilities.

End of Note

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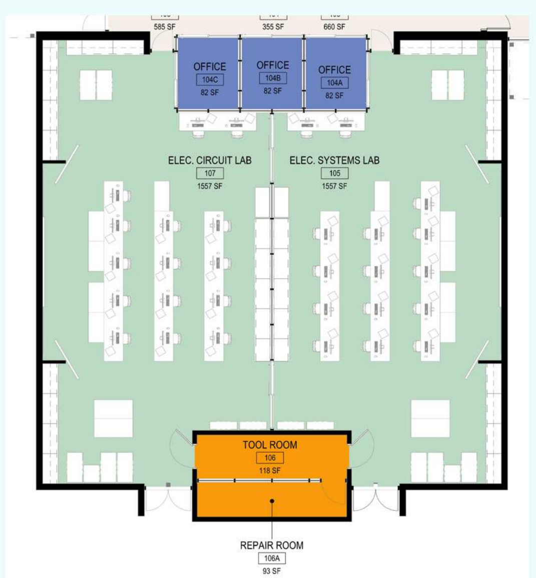
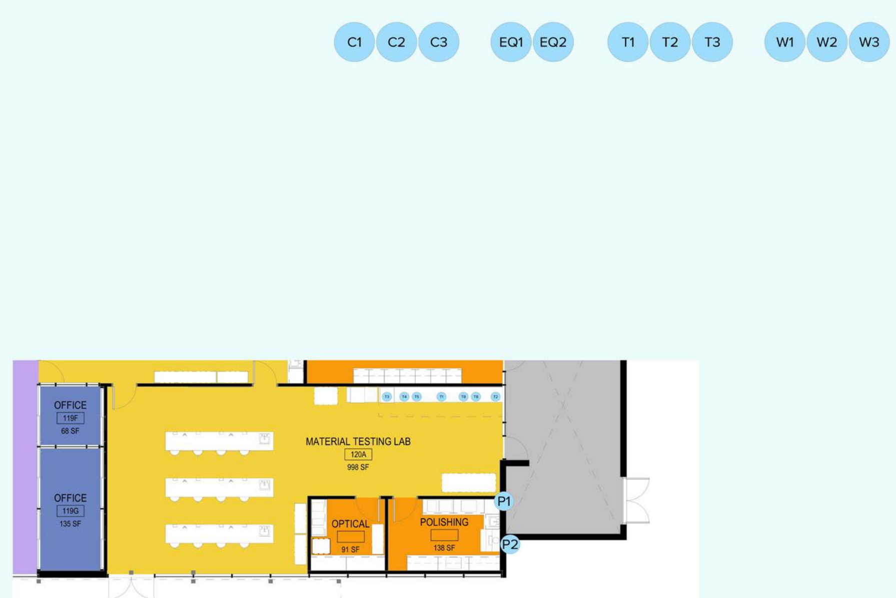
DVC - ET PROGRAMMING 02 MURAL

ARCHITECTURE, CONSTRUCTION

Reference Photographs

ELECTRICAL, ELECTRONICS, ENGINEERING





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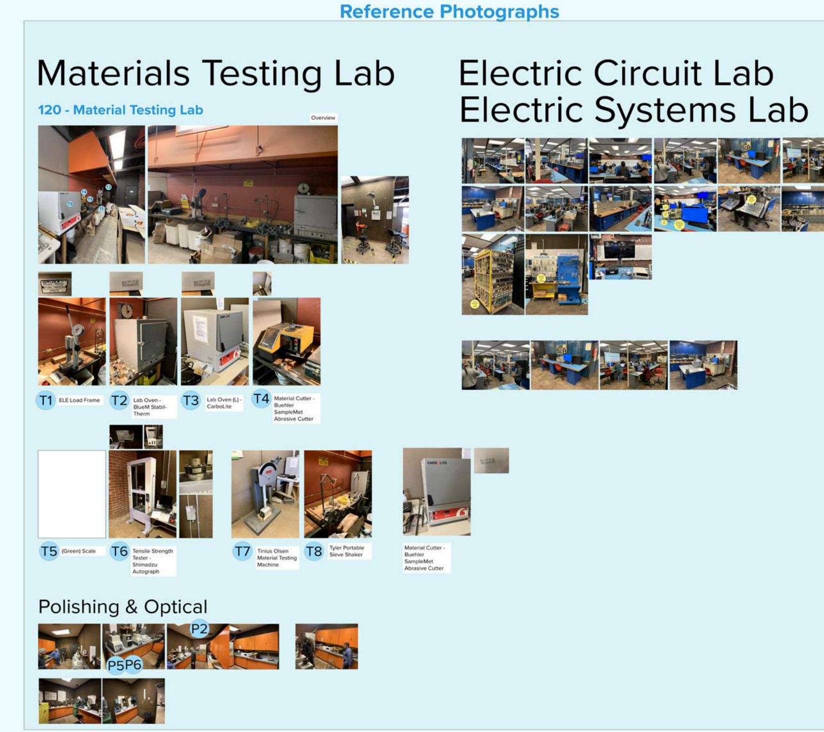

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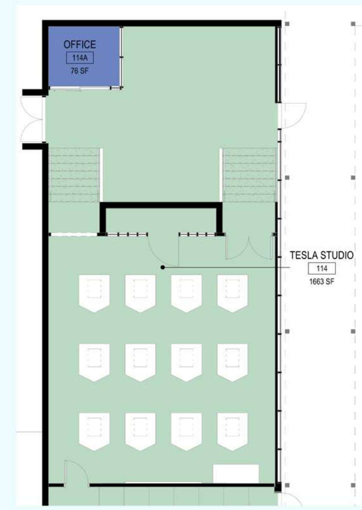

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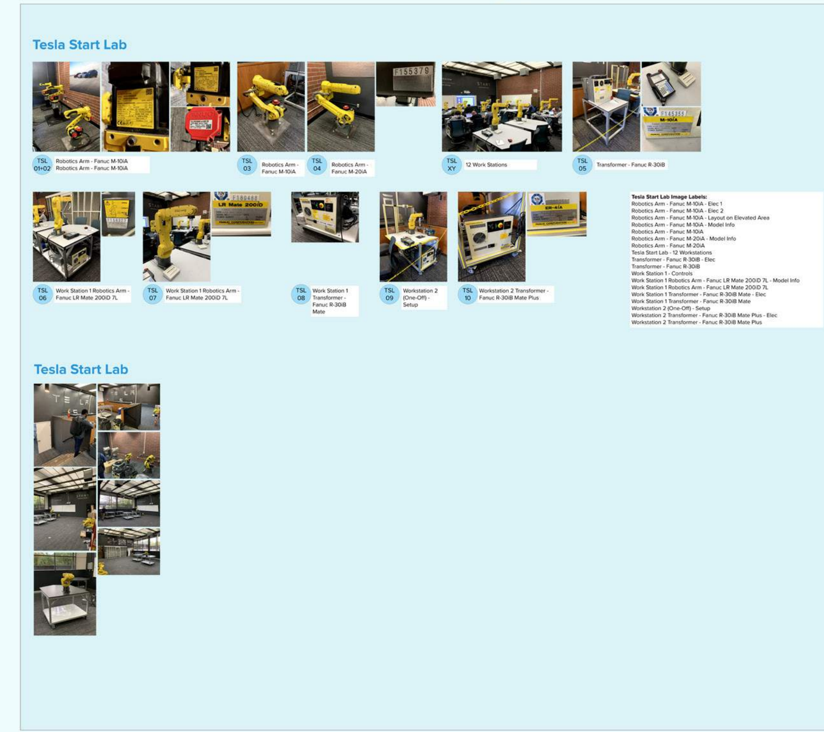

ENGINEERING TECH

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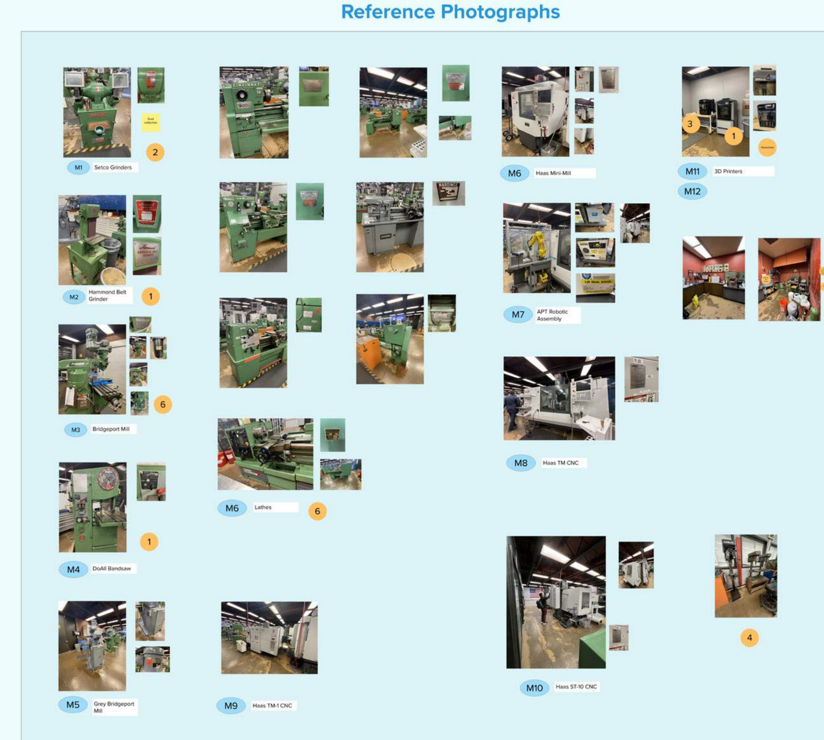
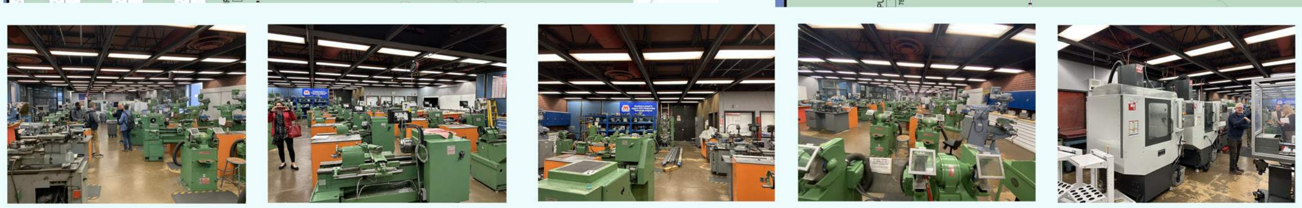




SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
User Group Workshops #3

Date: 7/10/2023 – 7/12/2023

Location: MS Teams / Mural Boards

Link to DVC ET Programming Mural Board

Attendees

1. Diablo Valley College / Contra Cost Community College District

• PJ Roach	District Director of Capital Construction Program Operations
• Jeffrey Smith	Department Chair / Engineering Technology
• Manuel Covarrubias	Electrical / Electronics
• Shawn Kammerer	Construction
• Daniel Abbott	Architecture
• Qi Zhi	Architecture
• Bob Logan	Architecture & Construction
• Ashley Erickson	Engineering
• Russel Holt	Electrical / Electronics
• Joseph Alvarico	Electrical / Electronics

2. Kitchell

• Ron Hoyle	Senior Project Manager

3. SmithGroup

• Bill Katz	Design Principal
• David Andreini	Project Manager
• Andrew Thurlow	Project Architect
• Kenta Kamei	Architect / Lab Designer

General

Thes notes are from the 3rd cluster of User Group meetings. The first cluster was focused on understanding how existing spaces functioned. The second was understanding specific equipment and workstation requirements. The goals for this third set of meetings to review preliminary room layout options prepared by SmithGroup, and to discuss specific requirements.

At each meeting, Room Data Sheet layouts were reviewed for the spaces noted below. It was noted that the intent of the layouts are not to establish a design or layout to be followed, so much as to establish the requirements and area requirements for each space.

The meetings were all conducted via MS TEAMS, reviewing content on a mural board. Participants left notes in meeting chat, left on the mural board, or voiced their observations. A summary of the feedback gathered is provided below.

ARCHITECTURE & CONSTRUCTION (7/10/23 1:00 – 2:30)

Participants:

- DVC ET Programs: Daniel Abbott, Qi Zhu, Shawn Kammerer, Bob Logan
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Andrew Thurlow, Kenta Kamei, Bill Katz

WOODSHOP / CONSTRUCTION

- S Kammerer envisions a woodshop that could support classes in woodworking. This would require a much larger woodshop—at least double the existing size.
- An important question is whether the woodshop is a supporting space to transfer-focused program (to prep materials for classes, with occasional use by students), or an instructional space for community ed programs in carpentry. Currently the size supports the former.
- D Andreini noted that the only feasible way of enlarging the woodshop to scale supporting a class is by combining the class/lecture space of Construction and Materials Testing into a single, shared space.
- Is there a possibility that Materials Testing can be operated more like a science class, where there is a "lecture" component in a standard classroom, followed by a hands-on learning component?
- For construction-related courses, S Kammerer believes that lecture and hands/on demonstration will work best when conducted in same space, at benches, with instructors being able to circulate.
- Operable Partition: S Kammerer asked about an operable partition between the wood shop and the Construction Lab.
    - Advantages noted: Ability for workshop space to flow more into Construction space, while providing some measure of noise management.
    - Challenges noted: High cost of high-STC (sound-rated) partitions, and management/ handling/care of the partition systems.
- Noise issue (between wood shop and construction lab). How frequently is this an issue? Can this be addressed with scheduling? D Abbot noted that architectural students tend to use the wood shop on Fridays.
- The existing Construction Lab space is heavily used also by the Architecture Program. Q. Zhu mentions she often runs studios in there for 30-student classes.
- Q Zhu – the large square tables are well-liked. Students can crowd around the table to work on shared projects. In lecture some students have to turn away from tables to face the lecturer. General preference is square tables over linear benches. D Andreini noted however that the bench format is more efficient spatially.
- Class size enrollment minimum is 30, and class spaces need to be designed to accommodate 30. D Abbott noted that due to space available, class sizes need to be reduced.
- Wood shop layout: Move miter saw closer to center with free space to feed at each side.
- AV: Flat screen monitors would work well here in lieu of projection screens.

CNC ROOM

- CNC room very loud.
- Format of media is max 4' x 4'.
- Additional space required between machines for feeding.
- Relocate to 117? B Logan concerned about noise if located here, and ability to support with loading.
- Access to loading area important.

3D PRINTING / LASER CUTTING

- D Abbot suggested that 3D Printer / Laser Cutting can be located within Architectural studio area. This may allow room 117 to grow into a larger space. (D Andreini noted however that even if growing into that space, room 117 would not be large enough to support a class of 30, based on the DVC standards.)

ARCH DESIGN STUDIO / COMPUTER LAB

- D Abbott noted the north-south aisle on the east side is a major circulation zone.
- D Abbott: ARCHI faculty like how the layout of 116A work related to rest of the studio with the sound separation and visual connection, and the narrowness of the space is ok. It would be significantly better if only 1' or 2' wider.
- D Abbott hesitant to reduce the design studio size down to 70 stations.
- Q Zhu noted that reducing space would be more tolerable if other factors like increasing height of space and improved daylighting can be accommodated.
- D Abbott recommends maintaining a variety of computer lab configurations within the ET facility. (not one-size fits all)
- ARCHI faculty would also prefer flat screens for higher resolution over projectors where possible.

<u>MATH AND ENGINEERING STUDENT CENTER (7/11/2023) 2:00 – 3:30</u>

Participants:

- DVC MESC: Julie Walters, Adhitya Mohan, Dora Arqueta-Rico
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Andrew Thurlow, Kenta Kamei, Bill Katz

GROUP STUDY / TUTORING / QUIET STUDY

- The needs for these spaces were reviewed in the previous User Group meeting. The participants reviewed the resultant layouts and shared the following additional comments:
- Existing quiet study area lacks good visibility to the space and has poor lighting. MESC group believes it is underutilized for these reasons.
- Food is allowed in the MESC. Finishes should account for this.
- Ensure some lunge seating is available for students.

DROP-IN COMPUTER AREA

- Should be open to group study space on at least one side, with good visibility into the space.
- MESC needs to incorporate a printer for free printing services (possibly 2x printers).
- Existing workstation sizes work well. Can match sizes of existing.

COMPUTER LAB

- 36 stations required.
- Assignment of MESC Computer Labs are currently controlled by the Math department. Faculty need to go through the Math Dept to gain assignments / access to this space.
- Math department does not have dedicated computer labs, and would use the existing space more frequently if it supported 36 students.
- The lab can also be used for ad hoc uses, such as exams, online learning sessions, .etc.

CLASSROOM / FLEX SPACE

- Capacity, desired but not necessarily required support 36 student class. Space will accommodate student groups, events, department meetings, presentations, small events. 20 -25 capacity should be sufficient.
- Technology in the room should support remote learning.
- MESC can provide a list of activities this space is used for.

STAFF AREA

- Work stations requirements: (2) at front desk. (Program assistants / tutor coordinators). (1) for Faculty Lead, (1) for Pedagogy Lead. 3 work stations in staff work area should be adequate since all staff is not on-site full time.
- Tutor coordinator should have visibility to the open study area if possible.
- 8 lockers would be adequate for tutors and staff.

ENTRANCE / CHECK-IN / LOUNGE AREA

- Lounge seating area should be more “social” than “doctor’s waiting room” model.
- MESC is trying to promote welcoming student-centric space. Space is not 100% tutoring-only space, but a place where students feel comfortable being in a supportive environment.
- Hang-out space where students can wait for colleagues and appointments.
- MESC wishes to promote board game rental program, and provide places for students to check out and play board games. Having a space for this outside of the Group Study area would help prevent that space from getting chaotic.
- A space should be set aside for textbook rentals. Textbooks are rented out and checked out with staff.
- Tutor coordinator should have visibility to the open study area if possible.
- 8 lockers would be adequate for tutors and staff.

ENGINEERING, ELECTRICAL, ELECTONICS (7/12/2023) 1:00 – 2:30

Participants:

- DVC ET Programs: Ashleigh Erickson, Manuel Covarrubias, Russel Holt, Joseph Alvarico
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Andrew Thurlow, Kenta Kamei, Harold Pintes

ELECTRONICS LABS

- Visibility between the two electronics lab spaces has been a great attribute. Noise between the two (through the glass) has not been an issue. Visual connection important for supervision and over-flow. Sometime one instructor will use both spaces.
- The storage shelving below the glazing wall is heavily used.
- A centralized storage system would reduce clutter and make storage more efficient.
- ELECT/ELTRN would benefit greatly from having an electronics lab that can support 30 individual stations. Current set up is 13-15 stations in each room, 6’ wide. To get 30 stations in a room, SG suggests 4’ wide stations, yielding a space apx 1,450 SF.
- It was agreed to attempt one space at 15 stations x 6’, and one space at 30 stations x 4’. The additional space required for the larger lab will come by centralizing storage and/or relocating offices.

- Another option: Consider a folding partition between the two spaces that allow them to flex as a) 2 x 15 station labs, or b) a single 30 station lab.
- Work surfaces in the electronics lab could be more efficient. Consider locating the 4 components of the testing stations off of the desk surface, and using computer work stations that do not take up so much desk space.
- Testing equipment is not always used. Consider hybrid lab space that can function as computer lab and have access (off desk surface) to testing equipment when not in use.
- Consider hybrid computer labs / classrooms.
- For additional space to support the program, consider adapting a shared classroom space in the facility that can also flex as electronics lab.
- Consider option of a space that supports wiring training center around perimeter, with electronics lab-supporting stations in the interior. Such a space would be apx 1,500 SF.
- A Erickson asked if Design Studio stations can be designed so that these can also flex as electronics training centers for evening classes.
- D Andreini noted that if Lecture Hall was converted to flat-floored space, it could also serve as a classroom spaces or lab space.
- ET 107 is frequently used currently in association with Tesla training cohorts during day time, and used for ELECT program for evening classes.

MATERIALS TESTING:

(Since no representation from Materials Testing, the needs for this space was not discussed)

OFFICES:

- Office space can be reduced by using shared office work/space with a shared quiet space for phone calls and private conversations, especially for adjunct faculty.

<u>ENGINEERING TECH / START / INDUSTRIAL DESIGN (7/12/23 3:00 – 4:30)</u>

Participants:

- DVC ET Programs: Jeffrey Smith, Manuel Covarrubias
- Kitchell: Ron Hoyle
- 4CD: PJ Roach
- SG Design Team: David Andreini, Andrew Thurlow, Kenta Kamei

INSTRUMENT ROOM

- Space for equipment in Instrument Room need to be accommodated. Does not need to be in separate room. GD&T class uses the equipment to measure precision of manufactured parts. CMM machine to be prioritized.

FOUNDRY ROOM

- Space no longer utilized for welding / casting.

3D Printer bath currently in this space. This is highly used. A sink and space for storage of bath and supplies

PAINT BOOTH

- Filtered air, recirculating system, on caster wheels.
- The Vacuum Former, adjacent to spray booth, is also used by the IDSGN students.

MACHINE LAB

- Hydraulic Press – Used infrequently, but essential.
- Bridgeport Mills – very important machines and useful.
- In-Room Storage: Roll-up, full height storage rack not used or important. However, narrow shelving under-counter storage is very highly utilized and well organized. New design should accommodate these.
- It is not necessary to have a specific area set aside to support the IDSGN program.
- Storage rack – currently at south side of room, for long pieces of metal is necessary. But J Smith would prefer a more open-spaced storage solution than enclosed storage.
- More natural light and visibility highly desired.

MOTOR TECH TRAINING

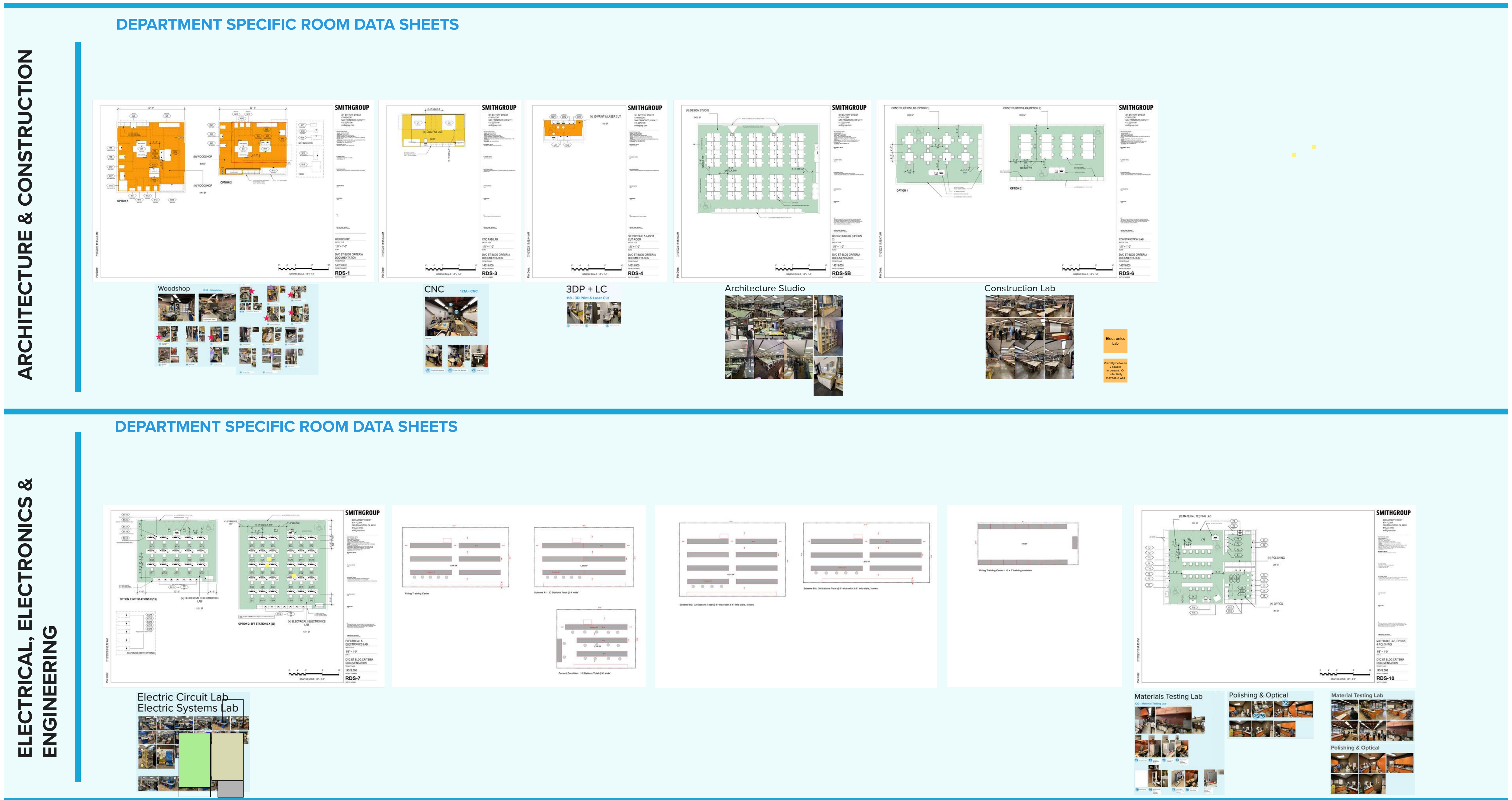
- Pumps are very heavy. Used for a few weeks in a trimester. Best if they can be left on a work bench or on a system with casters.
- If benches are deep enough, the motor pumps can he pushed to center, leaving enough remaining space for the remainder of the session.
- Ideally this space is adjacent to the Tesla START lab.

ADDITIONAL NOTES

- Offices used as storage adjacent to 125: These supported electronics courses related to water heaters and AC units. No longer active.
- A section of this storage used for Architecture slides, Arch History, archives, etc.

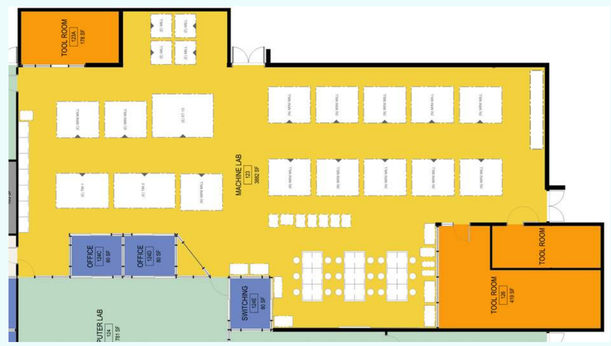
End of Notes

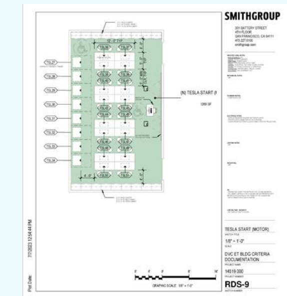
DVC - ET PROGRAMMING 03 MURAL

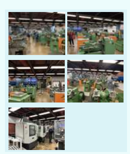


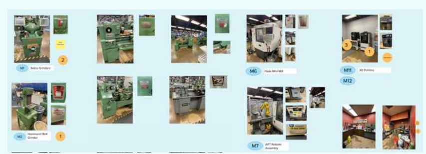
ENGINEERING TECH, INDUSTRIAL DESIGN & TESLA

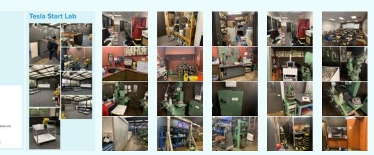
DEPARTMENT SPECIFIC ROOM DATA SHEETS





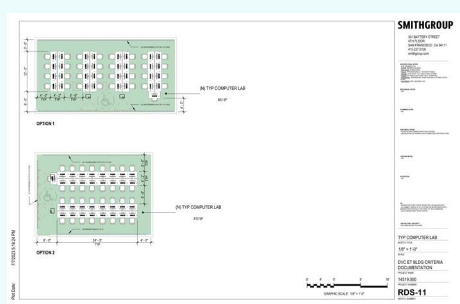


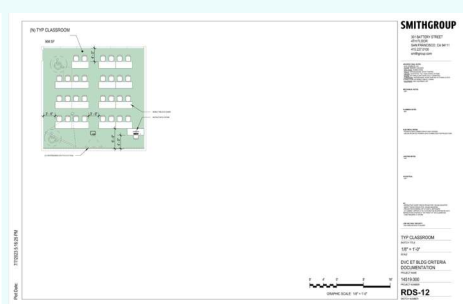


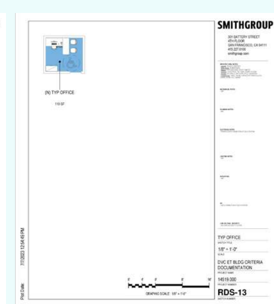


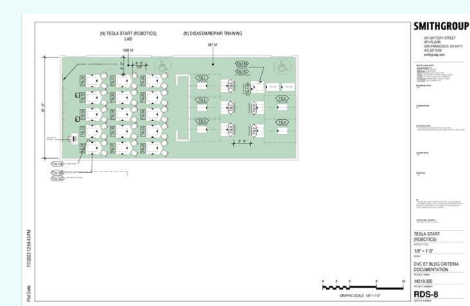
SHARED SPACES

DEPARTMENT SPECIFIC ROOM DATA SHEETS



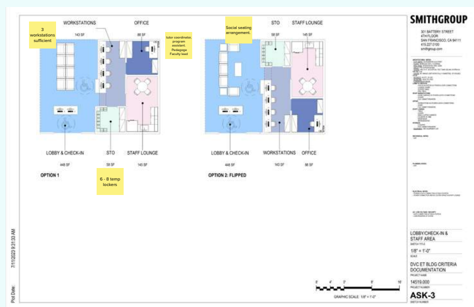


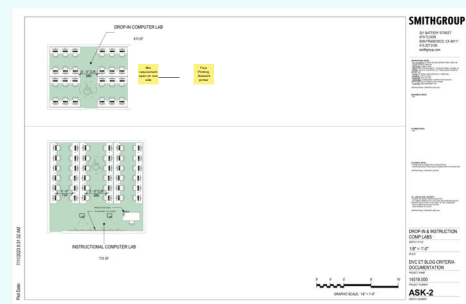


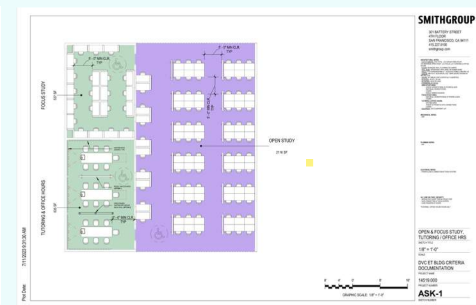


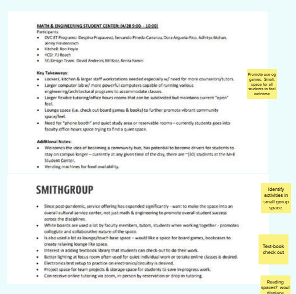
DEPARTMENT SPECIFIC ROOM DATA SHEETS

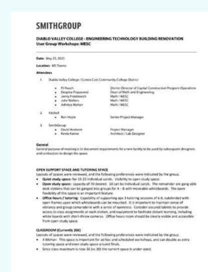
MATH + ENGINEERING STUDENT CENTER

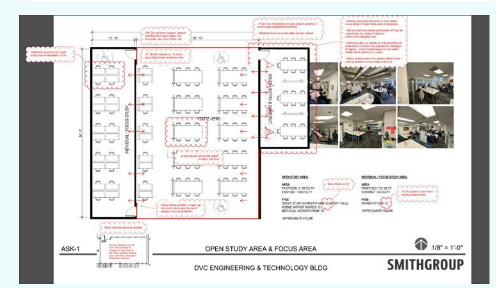


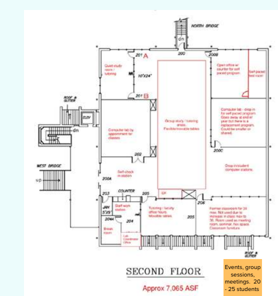


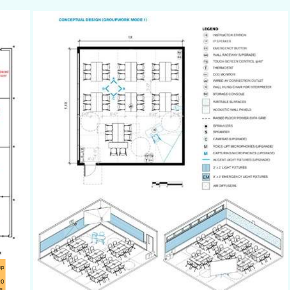












SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Building Systems and Sustainability

Date: May 11, 2023

Location: MS Teams Meeting

Attendees

1. Diablo Valley College / Contra Cost Community College District

PJ Roach	4CD	Director of Capital Construction Program Operations
Tracy Marcial	4CD	Energy & Sustainability Manager
Jim Buchanan	DVC	Maintenance & Operations

2. Kitchell

Ron Hoyle		Senior Project Manager

3. Design Team - SmithGroup (SG) and Sherwood Design Engineers

David Andreini	SG	Sr Project Manager
Kenta Kamei	SG	Architect / Lab Designer
John McDonald	SG	MEP Lead
Andrea Fortun	SDE	Sr Project Manager
Alex Cabrera	SDE	Design Engineer

Meeting Summary

1. Sustainability Overview – 2035 Districtwide Goals
   a. Project Goals:
      - Project goal should be to contribute to 2035 campuswide goals (vs Intermediate goals), but not all goals are achievable on a per-building basis.
      - Swing space will not be bound by 2035 goals.

   b. Category #1: Greenhouse gas reduction.
      - The assumed goal is that the building is fully electrical – no NG. Design team not aware of any NG process requirements.
      - Building design can leverage PV panels on parking lot structures. DVC to confirm allotment for ET project.
      - SG will reference PG&E and Constellation for carbon footprint analysis.
      - Scope 3 not in SG scope, confirmed.

   c. Category #2: Renewable Energy / EUI
      - Generally, DVC does not have metered data on per-building basis.
      - TM will share new Arts building EUI projected and measured.
      - Current DVC average is EUI 72 kBTU/SF-Yr.

   d. Category #3: LEED
      - LEED Gold, certified, should be the project goal.

   e. Category #4 – Transportation
      - Enclosed bike lockers have been problematic on campus.
      - No bike provisions aside from what are required per CalGreen and as need for LEED.

   f. Category #6 – Procurement
      - Applies to sustainable products only, using the LEED product sustainability method.

- PJ noted that criteria documents need to be clear in calling out LEED requirements as being required.

g. Category #7a – Water Reduction / Stormwater
- "Pre-development condition" in 2035 goals refers to building site pre-construction condition. Thus, for a 7,000 SF addition to an existing 32,000 SF building, the mediation required is for the added 7,000 SF.
- The existing lake is part of the storm drain system. Appears to be concrete ring with dirt base. But ET building site does not flow into the base.
- 4CD team to advise on specifics if additional mitigation is required.
- It may be possible to "offset" on site mitigation with mitigation elsewhere on campus (for example, adjacent parking area), if this approach is allowed by the county.

h. Category #7b – Reclaimed Water
- Campus reclaimed water is suitable for use in the building for toilet flushing.
- System is not reliable source for domestic water use. Arts building has experienced shut-downs due to reliance on this water source.
- The State has not accepted the reconfigure pipe approach.
- Student Services and HSF is using tank water approach.
- Consider a lessons learned field walk for existing reclaimed water use.
- Irrigation water line is available and nearby.

i. Category #7C – Domestic Water
- Domestic water reduction a requirement for the project. Likely driven by LEED and CalGreen.

2. Metering
   a. Electrical Meters: No Schneider meters.
      - Sub-meter by type.
   b. Water Meters.
      - Meter both potable and irrigation water.
3. Mechanical Systems
   a. DVC has had limited exposure with Air-Sourced Heat Pumps (metric unit at Arts) and has been experiencing commissioning issues.
   b. DVC has had difficulty with Daikin and McQuay units.
   c. Chilled beams have been used on campus. JB has noted they have experienced a tendency for them to "sweat".
   d. JB has shared issues with package units controls on getting program to do what SOO intent is.
4. BAS
   a. Campus system: ALC. 4CD has a master spec for controls.
   b. Campus central monitoring point: 4CD will provide the spec. Criteria Documents will include in the specification appendix.
5. District asked if any system or part of the project might align with the Inflation Reduction Act to provide additional funding. SG will evaluate.

End of Notes

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Building Systems and Sustainability

Date: June 15, 2023

Location: MS Teams Meeting

Attendees

1. Diablo Valley College / Contra Cost Community College District

• PJ Roach	4CD	Director of Capital Construction Program Operations
• Tracy Marcial	4CD	Energy & Sustainability Manager
• Jim Buchanan	DVC	Maintenance & Operations

2. Kitchell

• Ron Hoyle		Senior Project Manager

3. Design Team - SmithGroup (SG) and Sherwood Design Engineers

• David Andreini	SG	Sr Project Manager
• John McDonald	SG	MEP Lead
• Harshanna Thimmanna	SG	HVAC / Modeling
• Harold Pintes	SG	Electrical
• John Leys	SDE	Sr Engineer / Principal
• Alex Cabrera	SDE	Design Engineer

Meeting Summary

1. Stormwater Mitigation
    a. The existing pond used for retention volume seems like the most straightforward and cost-effective path for the project.
    b. It would be allowable in the county to "offset" mitigation to an adjacent parcel, for instance to mitigate an equivalent area of parking lot.
    c. For the new Arts building, District goals were not yet in place, so this project is not a model.
    d. District still needs to do some long-term master planning to distinguish and clarify retention vs detention goals:
        - Detention is a temporary hold on water that mitigates stormwater flow issues.
        - Retention holds and keeps water on site, often with re-use and percolation.
    e. The ET Building addition will need stormwater mitigation, but location, type, and size will need to be determined by DBE team.
    f. J Buchanan noted the college experiences issues with high water table.

2. Mechanical Systems
    a. SG introduced concepts for mechanical systems for initial impressions on system components.
        - Option A: Semi-custom heat pump AHU at existing locations.
            - Recirculating units in office and classroom program areas and non-recirculating AHU for shop program areas.
            - Advantage: Utilizes existing pads.
            - Simultaneous heating and cooling not provided.
            - AHU's distributed by building program.

- Option B: All-air AHU w/ Therma-Fuser zones at existing locations.
  - Thermally actuated diffusers with built-in temperature controls. Some entities have had bad experiences with older wax activated self-contained Thermafuser technologies in the past but the current versions are more reliable and provide BMS integration and control.
  - Heat recovery ASHPs generate HHW & CHW.
  - Zones can be either in heating or cooling mode based on AHU, while each room will modulate supply air for better occupant comfort.
- Option C: Hybrid VRF System – AHU at existing locations.
  - Can simultaneously heat and cool.
  - Long leads currently being experienced in market and currently limited vendors to choose from.
  - Heat recovery outdoor units provide refrigerant to branch controllers and then hydronic systems to the zone level.
- Option D: Zone AHU at new locations.
  - Requires new, more distributed AHU locations.
  - Simultaneous heating and cooling are not provided.
  - AHU's distributed by detailed program, and can be shut down when not in use in specific areas.
  - Heat recovery possible from filtered exhaust air in shops.
- High load / unoccupied areas: DX Fan-coil units with economizer.

b. SG introduced concepts for proposed water heating.
- Option P1: Electric tankless water heater.
- Option P2: Air-source heat pump water heater.
- Option P3: Electric tank-type water heater.
- Option P4: Indirect tank-type water heater with electric back-up.
- Option P1 is anticipated for remote sink locations, while the central restroom core would utilize one of the Options P2, P3, or P4.

c. SG introduced concepts for proposed reclaimed water.
- Option R1: Direct and separate reclaimed water to water meter, based on assumptions that the current operational / reliability issues will be resolved in the near future.
- Option R2: Reclaimed water line connected to DW via break tank and pump, allowing for domestic water to be used if reclaimed system is down.
- Option R3: Similar to R2, but with reclaimed water pump in-line of RW system to charge the break tank.

d. District will review and advise SG as to whether any of the options above can be narrowed for further development and inclusion in Criteria Documents.

e. SG will develop preliminary energy model based and preliminary EUI benchmarks on one to two options.

3. Inflation Reduction Act update (J McDonald)
   a. Grant rules have not been published and no date has been provided yet as to when they will be published.
   b. Anticipated to apply primarily to ground source heat pumps and thermal energy storage systems, which do not appear to be applicable to EnT renovation project.

4. Commissioning
   a. SG suggest that Cx agent is engaged early in SD phase.

End of Notes

Attachments: Meeting Presentation / Slide Deck.

SMITHGROUP

DIABLO VALLEY COLLEGE - ENGINEERING TECHNOLOGY BUILDING RENOVATION
Building Systems and Sustainability

Date: August 3, 2023

Location: MS Teams Meeting

Attendees

1. Diablo Valley College / Contra Cost Community College District

PJ Roach	4CD	Director of Capital Construction Program Operations
Tracy Marcial	4CD	Energy & Sustainability Manager
Jim Buchanan	DVC	Maintenance & Operations

2. Kitchell

Ron Hoyle		Senior Project Manager

3. Design Team - SmithGroup (SG) and Sherwood Design Engineers

David Andreini	SG	Sr Project Manager
John McDonald	SG	MEP Lead
Xiaowen Gu	SG	HVAC / Modeling
Harshana Thimmanna	SG	HVAC / Modeling / LEED
Harold Pintes	SG	Electrical

Meeting Summary

1. Mechanical Systems Basis of Design: 4-Pipe, Air Sourced Heat Pumps and AHUs.
    a. From the previous options shared by the SG Team, SG selected a scheme for purposes of establishing the basis-of-design in the Criteria Documents. This is the Option A: 4-Pipe, Semi-Custom Heat Pump and AHU at Existing Locations. The other options will be available as alternatives in the appendix, for further consideration by the DBE teams should they provide significant cost-savings or energy reduction benefits.
        - Recirculating units in office and classroom program areas and non-recirculating AHU for shop program areas. (JM to confirm non-recirculating in Machine Shop)
        - Utilizes existing pads, with intent of not increasing weight loads to existing structure.
        - In the event the MESC is an addition, the roof can be designed to support the ASHPs. In the event the MESC is a separate building, it will require its own, separate system, and the ASHP will be located somewhere at ground level, or an ASHP plant could serve both buildings.
        - VAV boxes would be downstream (2-pipe connection).
        - At the units, chilled water would be available on one end, hot water on the other, and unbalanced load heating or cooling is rejected by the condenser fan on the units.
    b. Electrical rooms / MDF, and similar high load unoccupied spaces would have fan coil units for high load conditions. For mild ambient conditions, air is drawn from outside and exhausted through an exhaust fan.
2. Energy Model Review:
    a. Building was modeled with three different assumptions for the envelope:
        - Option 1: - Code Minimum: marginal, prescriptive code requirements, without improvement to the R value of the exterior walls. Projected load of 3309 kBtu/276 tons. EUI of 144.

- Option 2 - Good Envelope: With exterior walls upgrade to be similar in performance to new building code. (Exterior walls with interior insulation.) Projected load of 2778 kBtu/231 tons. EUI of 131
- Option 3 - High Performance Envelope: Walls upgraded to R-35, requiring re-cladding of exterior. Projected load if 2619kBtu / 218 tons. EUI of 128.

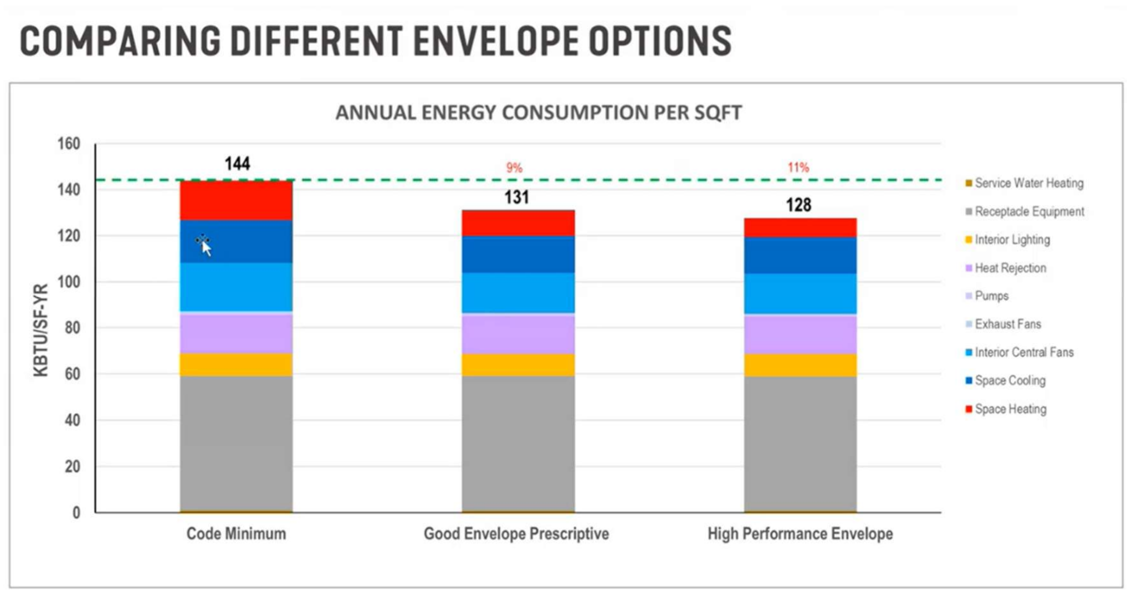
SUMMARY

	CODE MINIMUM (ADDING + ALTERNATE CODE)	GOOD ENVELOPE PRESCRIPTIVE (NEW BLDG. CODE)	HIGH PERFORMANCE ENVELOPE
Block Load	3309 kBtu /276 TONS	2778 kBtu/ 231 TONS	2619 kBtu/ 218 TONS
TONS SAVINGS/ % Difference		43 TONS (15.6%)	58 TONS (21%)
Total Energy (kBtu)	5,766 MBtu	5,254 MBtu	5,111 MBtu
Description	Wall –U-12tk Concrete (U-0.63) Roof –U-0.037, with at least R-10 above deck (R-23) Glazing-U-0.47 SHGC-0.31	Wall –U-0.253 (Mass Wall-heavy)(12"tk+R2.5Ci) Roof –U-0.034 (R-30ci) Glazing-U-0.41, SHGC-0.26 (Curtain Wall)	Wall –U- 12tk+R10Ci (U-0.086) Roof –U- 0.029 (R-35Ci) Glazing-U-SHGC- Curtain wall (U-0.38, SHGC-0.23)

Project Loads Summary

	Code Minimum kBtu/h	Code Minimum Btu/h ft²	Good Envelope kBtu/h	Good Envelope Btu/h ft²	High Performance kBtu/h	High Performance Btu/h ft²
Cooling loads:						
Coincident peak space load	1,851.57	46.23	1,480.92	36.98	1,326.41	33.12
Coincident peak plant & equipment load	3,309.89	82.65	2,777.73	69.36	2,618.91	65.40
Heating loads:						
Coincident peak space load	751.90	18.78	446.22	11.14	290.92	7.26
Coincident peak plant & equipment load	1,960.19	48.95	1,592.15	39.76	1,414.49	35.32

b. Observations.
- Options represent trade-offs in first cost vs life-cycle cost.
- Added costs to exterior envelope may be offset by smaller mechanical system (units ,ductwork, electrical systems) and reduced operating costs.
- Improvement to performance is not linear to cost. Going from Option 1 to Option 2 provides substantial improvement on energy use with modest cost or no cost impact. Option 3 delivers more modest energy savings improvement with substantial additional construction costs.
- Improving the envelope has a bigger impact on energy savings related to heating vs cooling.
- EUI values are still higher than what campus is accustomed to seeing. Likely driven by the equipment loads. With metering information provided by the existing ET building, that number can be checked.



c. Next Steps
   - SG will provide estimates on differences of construction costs and energy costs, to assist DVC in completing an analysis.
   - The life cycle costs should be re-evaluated with the DBE team as the engineering and construction cost estimating becomes more refined.
   - T Marcial will provide metered data on electrical for the ET building.

3. Plumbing Systems Basis of Design.
   a. Hot water at isolated sinks (North Building), electric heaters at source.
   b. Hot water at restrooms: tanked system, with interconnect to ASHP to preheat water.
   c. Reclaimed water: Due to reliability issues, the reclaimed water will have a water pump / break tank, which can be filled as well with domestic water, with an air gap to the domestic water system Similar system to what is used at the Food Service building.
   d. District will review and advise SG as to whether any of the options above can be narrowed for further development and inclusion in Criteria Documents.
   e. SG will develop preliminary energy model based and preliminary EUI benchmarks on one to two options.

4. Criteria Documents Narrative Review
   a. Outdoor and Indoor Design Criteria reviewed.
      - Outdoor temperature assumptions accepted.
      - DVC/4CD to confirm hours of operation and required indoor temperatures during custodial hours.
         - Classes end at 10:00.
         - Custodial teams all night (10:00 – 6:30 AM).
      - Air temperatures in IDF rooms need to follow new 4CD design standards.
   b. Ennvelope systems
      - The envelope assumptions will be based on the “Good Envelope.”
   c. Shop spaces
      - SG to confirm if machine labs require dedicated exhaust for CNC machine and paint spray booth.
   d. Hydronic system: ASHP as a modular system with buffer tanks. Hydronic system may support IDF/electrical systems if piping is convenient to layout (vs dedicated condensers).

e. T Marcial requested to make sure the design standards are referenced for building controls and IT.

f. Plumbing:
   - HW indicating both point of use and tank system.
   - Reclaimed water per description referenced above.
   - Compressed air: 2 compressed air system, one with higher quality air to the CNC machine.

g. Electrical
   - Upsizing electrical service (apx doubling size form 1,000kVA to 2,000 kVA). If 7,000 MESC is a separate building, this would involve 1,500 kVA for the ET, and 150 kVA transformer of the new building.
   - Emergency lighting inverters and UPS for the IT system.
   - Spare capacities at 20%.
   - Lighting controls per Cal Title 24 requirements.
   - Solar requirements: Due to building being existing, code will not require PV installation, but will require "solar ready", with 15% of roof area set aside for future PV panels. However, if the MESC is treated as a new building, then it will be subject to the requirements to install PV panels.
   - The alteration would not trigger new construction requirements.

5. Preliminary LEED Checklist Scorecard
   a. Criteria Docs LEED scorecard based on v4.
   b. Prime intent of sharing the Preliminary LEED scorecard is to identify the items in the "no" category, for the DBE teams to reference. The specific selection between "Yes" and "Maybe" categories will largely be worked out with the DBE teams.
   c. T Marcial will provide LEED scorecard for Arts Building. (Construction not yet submitted).
   d. The LEED scorecard was updated during the meeting to reflect what was obtained in the design phase for the Arts Building.
   e. The LEED scorecard updated from this meeting is attached.

End of Notes

Attachments: Meeting Presentation / Slide Deck.

7.6 CONCEPTUAL COST MODEL SCOPE ASSUMPTIONS

The following annotated plans were provided to the cost estimating consultants as part of the Criteria Documents phase. These plans were accompanied by the Criteria Documents to provide scope assumptions for the conceptual cost model. These plan diagrams are not intended to represent specific design requirements, but intended to represent reasonable scope assumptions for purposes of confirming the construction cost budget component of the project budget.

NOTE: WHERE IN CONFLICT, INFORMATION THIS SHEET SUPERSCEDES CRITERIA DOCUMETN NARRATIVES AND ROOM DATA SHEETS

D

SMITHGROUP

301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
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- ALL EXTERIOR WALLS - INSIDE FACE TO BE INSULATED / FURRED WITH 6" STUDS.
- ASSUME ALL INTERIOR PARTITIONS ARE NEW. ASSUME ALL PARTITIONS CONTINUE TO UNDERSIDE OF DECK--SEE ACOUSTICAL NARRATIVE FOR MORE INFO.

WHERE INDICATED - 4' DIA POLYCARBONATE SKYLIGHT.

WHERE INDICATED - UNDERSIDE OF DECK TO BE EXPOSED / PAINTED. ACOUSTIC PANELS (HERADESIGN 1) AT 50% OF CEILING. EXPOSED DUCTWORK TO BE PAINTED. PENDANT-MOUNTED LIGHTING (FINELITE).
- ALL OTHER CEILINGS TO BE LAY-IN 5' PANELS SPANNING BETWEEN TRUSSES (USG MARS 2' x 5' AP). LIGHTING TO BE FINELITE RECESSED LINEAR.

WHERE INDICATED -3/16" EPOXY RESIN FLOORING.
- ALL OTHER TO BE CARPET TILE PENDANT-MOUNTED LIGHTING (FINELITE).
- ALL OTHER CEILINGS TO BE LAY-IN 5' PANELS SPANNING BETWEEN TRUSSES (USG MARS AP). LIGHTING TO BE FINELITE RECESSED LINEAR.

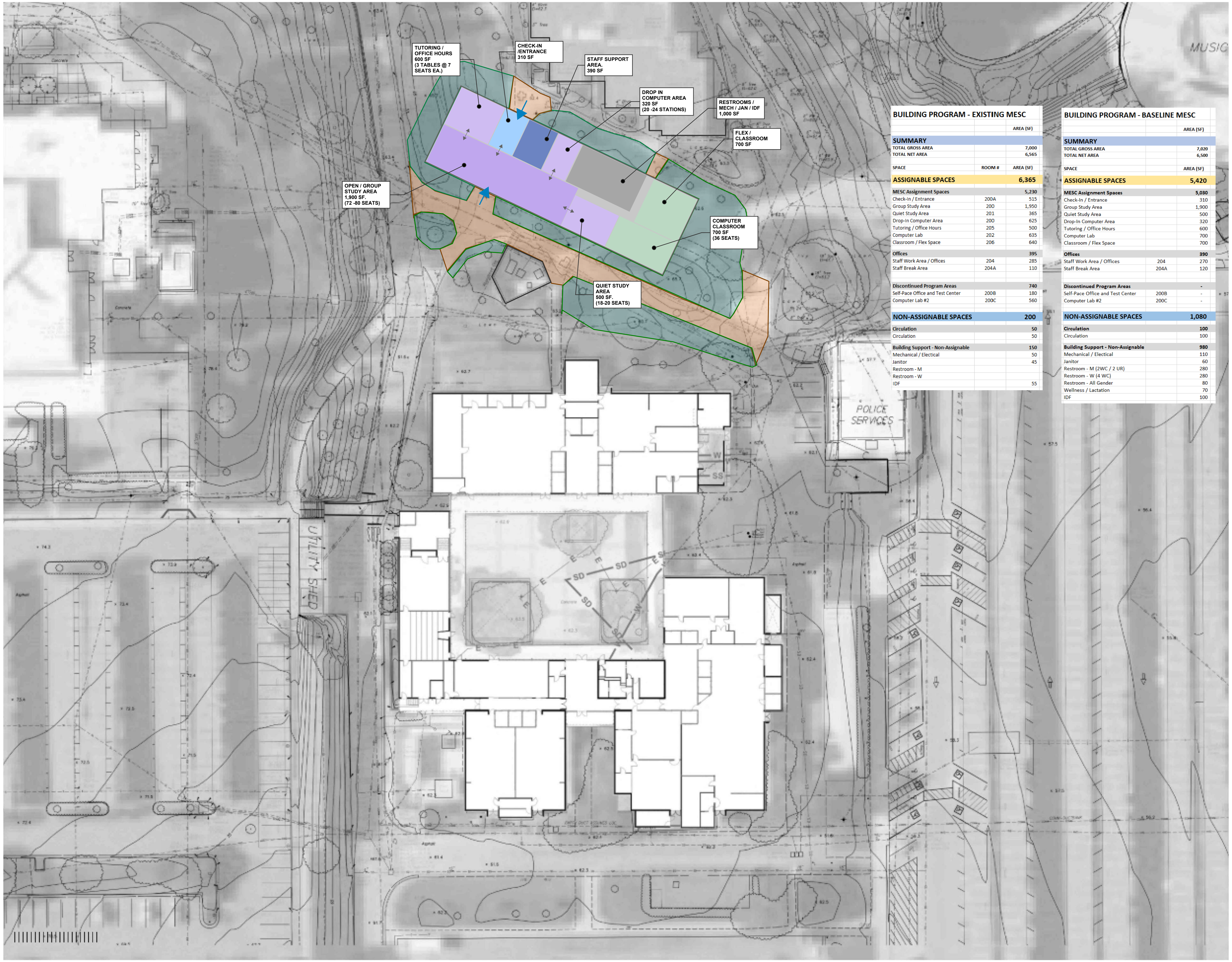
(E) PROGRAM PLAN - CORE AND SHELL ONLY
SKETCH TITLE

1/32" = 1'-0"
SCALE

DVC ET BLDG CRITERIA DOCUMENTATION
PROJECT NAME

14519.000
PROJECT NUMBER

A2.1.2
SKETCH NUMBER



2 SITE CONSTRAINS
SCALE: 1" = 20'-0"

NORTH

BUILDING PROGRAM - EXISTING MESC

SPACE	ROOM #	AREA (SF)
SUMMARY		
TOTAL GROSS AREA		7,000
TOTAL NET AREA		6,565
ASSIGNABLE SPACES		**6,365**
MESC Assignment Spaces		**5,230**
Check-In / Entrance	200A	515
Group Study Area	200	1,950
Quiet Study Area	201	365
Drop-In Computer Area	200	625
Tutoring / Office Hours	205	500
Computer Lab	202	635
Classroom / Flex Space	206	640
Offices		**395**
Staff Work Area / Offices	204	285
Staff Break Area	204A	110
Discontinued Program Areas		**740**
Self-Pace Office and Test Center	200B	180
Computer Lab #2	200C	560
NON-ASSIGNABLE SPACES		**200**
Circulation		**50**
Circulation		50
Building Support - Non-Assignable		**150**
Mechanical / Electical		50
Janitor		45
Restroom - M		
Restroom - W		
IDF		55

BUILDING PROGRAM - BASELINE MESC

SPACE		AREA (SF)
SUMMARY		
TOTAL GROSS AREA		7,020
TOTAL NET AREA		6,500
ASSIGNABLE SPACES		**5,420**
MESC Assignment Spaces		**5,030**
Check-In / Entrance		310
Group Study Area		1,900
Quiet Study Area		500
Drop-In Computer Area		320
Tutoring / Office Hours		600
Computer Lab		700
Classroom / Flex Space		700
Offices		**390**
Staff Work Area / Offices	204	270
Staff Break Area	204A	120
Discontinued Program Areas		**-**
Self-Pace Office and Test Center	200B	-
Computer Lab #2	200C	-
NON-ASSIGNABLE SPACES		**1,080**
Circulation		**100**
Circulation		100
Building Support - Non-Assignable		**980**
Mechanical / Electical		110
Janitor		60
Restroom - M (2WC / 2 UR)		280
Restroom - W (4 WC)		280
Restroom - All Gender		80
Wellness / Lactation		70
IDF		100

DVC ET BLDG

SMITHGROUP
301 BATTERY STREET
4TH FLOOR
SAN FRANCISCO, CA 94111
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ISSUED FOR | DATE

SEALS AND SIGNATURES

NOT FOR CONSTRUCTION

KEYPLAN

NORTH

SHEET TITLE
SITE CONSTRAINS

14519

PROJECT NUMBER
14519

A1.0

SHEET NUMBER

Plot Date 8/17/2023 11:09:37 AM

START Sheet

7.7 REVIEWER COMMENTS OF DRAFT CRITERIA DOCUMENTS

Reviewer Comments of Draft Criteria Comments and Responses				Updated: Oct 3, 2023
Comment Location	**Author**	**Comment**	**Design Team Response**	
DCD Page 5, TIC	R Hoyle	Fire Protection?	DA	Fire Protection not a code requirement.
DCD Page 5, TIC	R Hoyle	General note throughout - us ET, not E&T	DA	Documents revised accordingly.
DCD Page 25, 3.1.3.2 Strategies	D. Abbott + Q. Zhu	Room utilization should be pulled from more semesters than SP 2023. Previous utilization from pre-pandemic semesters and data from multiple semesters should be used for accurate data. ET 125 and 127 were used regularly by ARCHI, ENGIN and CONST as well as ET112.	DA	Noted. Intent of this section is to layout strategies for DBE to follow. Text clarified to indicate that room data sampling is impacted by Covid. SG suggests DBE evaluate fall 2023 data, and validate with spring 2024 data, as part of design phase program validation.
DCD Page 25, 3.1.3.2 Strategies	J. Smith / Dept. Chair	The ET Department's User group met together and has agreed that Option D that levels out ET 112 is acceptable. This will provide more lab space.	DA	Information noted.
DCD Page 25, 3.1.3.2 Strategies	A. Erickson	Following up on Jeffrey's comment here: According to my notes, the department did not fully agree about ET112. We had agreed that ET112 was one of the items still open which needed further discussion about whether to level out 112 or keep it as an auditorium. I recommend that we keep this as an item for further discussion with the design build architect to see how they could best accommodate our needs. I think we need more time to discuss these further as a group before we move on to the next phase.	DA	Criteria Docs based on Option D per direction from District. SG agrees that discussions should continue about program adjustments within Option D.
DCD Page 25, 3.1.3.2 Strategies	D. Abbott	Ashley is correct, the department did not agree to leveling ET112. Notes on this document show other opinions from different faculty members, but there is no total department agreement or consensus.	DA	Criteria Docs based on Option D per direction from District. SG agrees that discussions should continue about program adjustments within Option D.
DCD Page 25, 3.1.3.2 Strategies	D. Abbott + Q. Zhu	We need to be more clear on this statement about ET112. The room is used for a number of classes we have with 40 student class max. If this room is leveled off it is not a usable or inviting space for daily use for programs in the building.	DA	Noted. Text in 4.2.5 revised to reflect the space had seen greater use in the past for 40+ students.
DCD Page 25, 3.1.3.2 Strategies	D. Abbott + Q. Zhu	The ET 112 auditorium, if leveled off would also need greater visual connection to the courtyard and natural light to be a space that could be considered for regular instruction.	DA	Noted. This would be addressed in design phases. The intent of this section is layout general strategies for the project.
DCD Page 25, 3.1.3.2 Strategies	Unknown	DVC's Disability Support Services (DSS) has offered to pay for a lift as required for ADA in ET 112	DA	Information noted.
DCD Page 25, 3.1.3.2 Strategies	D. Abbott	The installation of a lift to meet ADA in these spaces (ET 112 and 114) would be much more affordable than the expense of constructing an entire floor to level the room.	DA	Our preliminary cost models suggest there is not a significant cost difference. We believe that some raised floor area will be required in 112 for ADA compliance. This cost trade-off can be measured with greater accuracy in design phases of the project.
DCD Page 26, 3.2.1.1 Features of Baseline Program	J. Smith / Dept. Chair	One of the faculty recommendations is to look at utilizing ET119 lobby area to gain additional space for Architecture, Construction, and Engineering	DA	Requires further review and discussion in design phases. Locating instructional spaces here may result in needing to relocate adjacent offices as well and finding additional space for project reviews.
DCD Page 26, 3.2.1.1 Features of Baseline Program	D. Abbott + Q. Zhu	This should say "in conjunction with the department faculty." This decision should be made by all faculty in the ET complex, not by a "program director"	DA	Revised in final document
DCD Page 26, 3.2.1.1 Features of Baseline Program	Q. Zhu	The TESLA space was just renovated with a ribbon cutting ceremony this year. it would be more resourceful if we can respect what has been done with minimal intervention to the space.	DA	Information noted. Due to structural, mechanical, lighting, and ADA upgrades, much of this space will likely need to be renovated to obtain permit.
DCD Page 26, 3.2.1.2 Features of the Alternate Program	M. Covarrubias	Wouldn't one lift take going from in between ET112 and ET114 suffice? This way a stairwell could be eliminated in the TESLA room and thus get more room.	DA	A lift will bre required to connect two levels of the same space (imagine a wheelchair-using instructor trying to teach a course in this space).
DCD Page 26, 3.2.1.1 Features of the Alternate Program	B Parks	Reserved space for Tesla program "How that space is utilized will be up to the DBE team" - This is a risk as the DBE will need to revisit.	DA	Sentence re-worded. A choice will have to be made in design as to whether retaining recessed floor is most optimal cost and efficiency.
DCD Page 26, 3.2.2 Baseline Program for MESC	B Parks	"The DBE team should review with the MESC need for gendered restrooms…" Could this be determined now?	DA	Section revised to state assumptions based on current DVC practices, and noting that these requirements should be confirmed. (these are often in flux).
DCD Page 31, Building Program - Baseline ET Building	B Parks	Add "Option D"?	DA	We recommend not indicating Option D, as the process has not yet been introduced in the document. It is sufficient that this is the program. Later we explain how the program was informed by Option D.
DCD Page 26, 3.2.1.2 Features of the Alternate Program	M. Covarrubias	I think some roll up door would be needed to roll in and out equipment of the lower level of TESLA room.	DA	Information noted, and this detail can be evaluated by DBE team. Please note difficulties associated with having a roll-up door that connects two different levels. A roll -up door also suggests vehicular access to the roll-up door.
DCD Page 27, 3.2.2 Baseline Program for the MESC	A. Erickson	The MESC could provide very useful opportunities to create multipurpose spaces for the math and engineering programs. Engineering faculty should be included in these discussions since we are also using the space. I have noted multiple opportunities for MESC to create beneficial multipurpose spaces in the comments on Mural.	DA	Suggestion has been added to revised document.
DCD Page 28, 3.2.1.1 Features of Baseline Program	R Hoyle	All gendered restrooms? Food Options, Vending Machines?	DA	Single stall all-gendered restrooms indicated in program for MESC and ET Reno.
DCD Page 33, 103/108 Combined Studio/Computer Lab (Archi, Engin, Idsgn)	Tom via M. Covarrubias	Should have whiteboards all long the non-glass walls for ideas exchange.	DA	RDS documents indicate white board and pin-up board requirements. The detailed layout of whiteboards will be addressed in design phases.
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	M. Covarrubias	My only suggestion is whenever possible, make the Electronics / Electrical area remodel to be able to use the electrical infrastructure of the building to be use for lab and demonstration purposes. Examples, have every motor used in the building to have sensors that transmit the motors Volts, Amps, KVA for remote monitoring by students. This would allow students to measure inrush current and power line quality. Have sensors on the electrical supply for lights again for remote monitoring. Have a store room not on a central HVAC system but on a mini-split system that the students can monitor and adjust. You saw how I used the 208 VAC 3 phase panel in our lab room for a demonstration for that course. So, my big picture suggestion it to make the room remodels accommodate using the room infrastructure for teaching purposes as much as possible.	JPM	Suggestion added to Section 4.2, as optional, if costs permit.
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	A. Erickson	Worth noting that the electronics program is one of the fastest growing programs and has experienced significant growth even during the pandemic. Enrollment in ENGIN-230 has also grown and we have added an additional section since the pandemic. We need these spaces to be flexible to accommodate our existing courses and provide room for growth in the future. Currently the room becomes quite crowded if a full 30 students are present.	DA	Information Noted. Room Data Sheets include version for rooms for 30 students (which require more space than the current layouts).
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	D. Abbott	Tagging on Ashley's comment, I would really like to see that ET105 and 107 can hold 30 students each (ideally even 32 or 35 without presenting any challenges to Manuel's storage issues which he needs. Having both rooms accommodate 30 students minimum will give us better options for scheduling.	DA	Room Data Sheets include version for rooms for 30 students (which require more space than the current layouts). These larger spaces then must be balanced with program reductions elsewhere. Current program indicates one larger space for 30 students.
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	B Parks	Provide more guidance on storage systems?	DA	Best provided in design when room configuration is fixed. DVC should provide a storage inventory.
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	B Parks	Guidance on concept of raising testing equipment on shelf?	DA	See section 4.4.6 furniture solutions.
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	B Parks	Are these ideas accounted for in estimate?	DA	Section language changed to describe solutions in Option D, and accounted for in cost model.
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	M. Covarrubias	Just keep in mind that a lot of the walls have demos examples mounted on it.	DA	Accepted: Added to room descriptions.
DCD Page 34, 105/107 Electrical Systems Lab (Elec, Electron, Engin)	M. Covarrubias	In the front for the instructor there should continue to be a long table as there is now. It is perfect demoing how to use test equipment, how to build certain circuit, etc. Teacher station should not be reduced to a table that only computer can sit.	DA	Accepted: Room Data Sheets revised.
DCD Page 35, 106 Tool Room/ 106A Repair Room (Elect, Eltrn, Engin)	M. Covarrubias	Leave the two rooms as is - They work for us. Locked space for valuable equipment	DA	If program is adopted as indicated, reconfiguration of this space almost certainly a requirement. Noted for further consideration. A locked storage space can be provided.
DCD Page 35, 112 Lecture Hall (General)	M. Covarrubias	Seems pretty costly to fill this space up vs. just adding a lift. Don't have any other space to have 40+ people.	DA	Option D (adopted by PSC/district) requires the space to be used for other program needs. Note that retaining existing lecture hall will result in not meeting other program requests, like training space for Tesla program.
DCD Page 35, 112 Lecture Hall (General)	D. Abbott	We have classes that have a 40 student max and which often overenroll, attracting as many as 52-55 students when offered. These classes include ARCHI 156, 157, 158 (four sections a semester). We also have ARCHI 160 which is 40 max, and a new ARCHI 151 which is 40 max. These classes have been online but we would like to have the option to offer them in the ET building now that we are back in person. The quality of instruction and student engagement was much better. The Construction OSHA class also has a 40 class max. Typically in the past the college was pushing for higher enrollments - 35 minimum and 40 preferred since this increases productivity. All of these ARCHI and CONST classes were offered in person prior to the pandemic and we would like to return to offering them in person for a number of reasons now that we are back on campus. Also the lecture hall is used every Thursday evening in the spring for the architecture lecture series. This is a pretty significant event every Spring semester. This use is not shown on room charts since it is not scheduled through the scheduling office, we just use the room but don't officially book it. Heres a link: https://architecture.dvc.edu/lectures . The ET112 was also used for ARCHI 120 and ARCHI 130 classes in the past. The room is also used and preferred by students for their student club activities. Heres a link: https://youtu.be/FZvKn46FPwM . I would be willing to look at increasing class max to 45 for the history classes if it meant retaining the auditorium.	DA	Information noted for further discussion with DBE. Option D (adopted by PSC/district) requires the space to be used for other program needs. Note that retaining existing lecture hall will result in not meeting other program requests, like training space for Tesla program. Per PSC meeting 7/27, Math Lecture hall available for larger classes. Other options A & B retained Lecture, but these were note adopted by PSC/District.

DCD Page 35, 112 Lecture Hall (General)	D. Abbott	There are a number of reasons why ET112 was not scheduled frequently in recent times: 1.The room has a very loud HVAC unit overhead which you have to shout over. It is extremely disruptive to lecture and the unit is so loud and the room vibrates so much that we asked Buildings and Grounds to set the timer so it would turn off during class times prior to 2020. Instead of ventilation we opened the doors. However this means that ET103/108 then doesn't get ventilation and in the era of covid, turning the HVAC off isn't an option anymore. 2. The room was generally not used for classes during 2020-2023 due to the pandemic and moving to online teaching. 3. The room was closed down due to asbestos contamination in Spring 2023 so it was unavailable. 4. Equipment was moved into the room without department discussion and this prevents multiuse activities and lecture. These factors have made us unable to schedule the ET112 room as much as we would like. if quiet and available, it would be used for multiple ENGIN and ARCHI classes as well as CONST and other programs.	DA	Information noted for further discussion with DBE. Option D (adopted by PSC/district) requires the space to be used for other program needs. Note that retaining existing lecture hall will result in not meeting other program requests, like training space for Tesla program. Per PSC meeting 7/27, Math Lecture hall available for larger classes. Other options A & B retained Lecture, but these were note adopted by PSC/District.
DCD Page 36, 114 Tesla Training Center (Engtc)	D. Abbott	High ceilings inspire students and are a special place on campus. They also bring daylight deep into the room avoiding dependence on electric lighting. Energy benefits...	DA	To be addressed in design phases. Retaining the lower floor area is an option, but at a cost to space layout efficiency. It is a choice with pros/cons boths sides.
DCD Page 36, 114 Tesla Training Center (Engtc)	M. Covarrubias	We have already spent a whole lot remodeling this area. In general, it should just be left alone. The money could be spent elsewhere. Maybe at roll up door to push equipment in, network drops for at least 2 per table. Maybe get rid of set of stairs.	DA	To be addressed in design phases. Retaining the lower floor area is an option, but at a cost to space layout efficiency. It is a choice with pros/cons boths sides. Roll-up doors not viable for lower level, but may be considered for ground level.
DCD Page 36, 114 Tesla Training Center (Engtc)	Unknown	DVC's Disabilities Support Services (DSS) has offered to pay for a lift to keep the robotics training center's high ceilings and sunken floor to be ADA compliant.	DA	Information Noted.
DCD Page 36, 114 Tesla Training Center (Engtc)	B Parks	Tesla Training Center - Need to review how we make these determinations (retaining lower level) so the DBE team isn't spending a lot of time re-visiting previous issues	DA	Some revisiting will be necessary with more detailed information / cost modeling. This is one time that will be good to evaluate through design phases.
DCD Page 36, 114 Tesla Training Center (Engtc)	M. Covarrubias	Reason to keep as is: 1. We are asked to have all TESLA courses in this room. The storage area is needed to keep Motor Control kits, PLCs and any other miscellaneous electrical equipment/supplies. Raising the floor you loose square footage -roof of cage is lost. 2. TESLA has been given us 20 to 22 students it has not gotten to 30 in the last 2 cohorts even with the few DVC students that join one of the classes. 3. Higher ceiling are here for any type of expansion possibility.	DA	To be addressed in design phases. Retaining the lower floor area is an option, but at a cost to space layout efficiency. It is a choice with pros/cons boths sides.
DCD Page 37, 116 Drafting Studio (Archi, Engin)	K. Odgen	wired network connections should be provided at stations	TeeCom	It is not anticipated that heavy laptop or other computer use is anticipated in this space.
DCD Page 37, 116 Drafting Studio (Archi, Engin)	B Parks	Very scope of evaluating storage requirements	DA	Text clarified to designate DBE as responsible.
DCD 4.2.8 116 CAD Drafting Lab A	R Hoyle	Figures 4.2.8.1 and 4.2.8.2 - Are these the right pictures?	DA	Document revised with corrected photos
DCD Page 37, 116 Drafting Studio (Archi, Engin)	B Parks	Is this in the estimate? (making space 2' - 3' wider)	DA	Yes. Sentence re-worded to state this as an actuality, rather than an opporunity.
DCD Page 37, 116 Drafting Studio (Archi, Engin)	B Parks	Is this in the estimate? (making space 2' - 3' wider)	DA	Yes. Sentence re-worded to state this as an actuality, rather than an opportunity.
DCD , 117 Classroom	B Parks	Include photo of this room. Are skylights accounted for in the estimate?	DA	Photo included. Yes, skylights included in estimate.
118 3D Print & Laser Cut	B Parks	Clarify what provisions need to be made for accessibility	DA	Text revised.
DCD Page 39, 120A Materials Testing (Engin/Const)	D. Abbott	ARCHI 120, 131 and 221 use this space for reviews, discussion and pinup on a weekly basis, often two days a week throughout morning and afternoon. In previous years this space was used by architecture students for model making on a daily basis. This space is also utilized by ARCHI 110 and IDSGN 107 for fabrication activities on Fall and Spring on Fridays.	DA	Requires further review and discussion during design phases.
120 A Materials Testing	B Parks	Is there a way to setup a meeting with this faculty? Ho to confirm requirements on this sheet?	DA	To be addressed by Kitchell team / DVC. Faculty will need to represent the requirements for the project as part of the validation phase.
DCD Page 40, 120A Materials Testing (Engin/Const)	D. Abbott	Lecture is never held in this space. it is only used for lab activities two hours a week on Wednesday.	DA	Noted: The word "lecture" will be changed to "instruction" in the final document. Please note that per meeting on 7/27, it was noted that having additional lecture space in this space would be a valued asset.
DCD Page 40, 120B Construction (Const/Archi)	D. Abbott	This room is utilized by ARCHI as well for weekly lecture and lab activities twice a week. These classes are ARCHI 110 (on Fridays in Spring), ARCHI 120, ARCHI 131, ARCHI 221. Also this room is used for IDSGN 107 on Fridays in Fall	DA	Information Noted
DCD, 120 B Construction Lab	B Parks	Is 30 students a requirement?	DA	Yes, according to DVC. This has been clarified in revised text.
DCD, 120 B Construction Lab	B Parks	Add photos of wood shop	DA	Photos added.
DCD, 120 B Construction Lab	B Parks	How do we decide what options for right-sizing wood-shop?	DA	This will be impacted by resultant size of Construction lab and other choices confirmed in the north building.
DCD, 120 B Construction Lab	B Parks	Confirmation of display and storage requirements?	DA	DVC Faculty will need to provide an inventory of storage they and displays they wish to retain, and determine if it can fit in the space provided through design phases.
DCD, 121 Dry CNC Lab	B Parks	Can additional width be accomplished or are there strucutral issues to consider?	DA	It is possible to increase width without impacting structure.
DCD Page 42, 122A Classroom (General Assignment)	D. Abbott + Q. Zhu	ET122A is the most desirable configuration for architecture instruction (as well as many engineering and construction classes). This is because of the availability of a chalkboard on one wall, the whiteboard/projector screen on another wall and the pinup area on a third wall. The large tables are also ideal for architecture and construction which use models, and blueprints as well as drawing activities. The chalkboard is necessary for ARCHI drawing classes and live demonstrations of technical drafting (the whiteboard will not work, we need the properties the chalkboard has to get good results for drawing demonstrations). The room also allows notes and drawing with slides on the screen and design review/pinup simultaneously. If all classrooms could be configured with this three part scheme (1. whiteboard/screen, 2. chalkboard, 3. pinup wall) that would be ideal and offer the most flexibility for many programs and classes.	DA	Accepted. Information added to Room Data Sheets.
DCD Page 43, 123 Machine Lab (Engtc/Idsgn)	D. Abbott	An observation and just a heads-up: If workbenches are eliminated in the machine shop, the lecture (which is currently held in the machine shop at the workbenches) will need to move to classroom spaces. This will make classroom spaces in ET more necessary to accommodate the lectures that were previously in the shop.	DA	Information Noted
DCD 123 Machine Lab (Engtc/Idsgn)	B Parks	Additional natural light with skylights and added glazing - are these in the estimate?	DA	Yes
DCD 123 Machine Lab (Engtc/Idsgn)	B Parks	Hydraulic pumps - where do they go?	DA	A room is provided in Option D. Intent if these document is to lay out requirements, not a final design.
DCD Page 44, 124A Computer Lab	D. Abbott	The ET124 space is also used for ARCHI and ENGIN instruction. The location and design of this room should be confirmed by all faculty in all programs.	DA	Please reference item below
DCD Page 44, 124A Computer Lab	D. Abbott	We should be clear that we are not abandoning a need for a computer lab (we want to retain this computer lab since it is used by many programs). We are just abandoning location..? We just need to look at the current proportions and possible location of the space in its new version. I think not using the word "abandon" would be good and more clear...perhaps "relocate"	DA	Noted. Language to be changed to "relocate" as proposed in final document. The function of this space can be addressed in a typical computer lab, provided the right equipment is provided.
DCD Page 44, 124A Computer Lab	K. Odgen	All stations should have hard wired network jacks for either desktops or laptops.	Telecom	Noted. Current Room Data Sheets call for all desktop locations to be hardwired. Classroom space without computer stations will receive pathways to the spaces in case converted to computer use.
DCD Page 45, 125 Classroom (General Assignment)	D. Abbott + Q. Zhu	ET125 is used for ARCHI and ENGIN classes. It would be good if this room can be configured in a similar arrangement as 122A with a three wall system (projector/whiteboard, chalkboard and pinup wall.	DA	Intent of this section is to describe functionality of existing spaces. Intent in baseline program is that this space and 127 are combined into a single, larger space.
DCD Page 45, 127 Classroom (General Assignment)	M. Covarrubias	Room 125/127 can have 3 phase brought in easily for electrical needs. Make sure this is brought out. From my understanding the Transformer is right there really close.	SG-Elect	Consideration will be provided in Room Data Sheets
DCD Page 45, 127 Classroom (General Assignment)	D. Abbott + Q. Zhu	ET127 is used for CONST every evening and for daytime meetings of ENGTC 119. To expand the flexibility of this room, it would be good if this room can be configured in a similar arrangement as 122A with a three wall system (projector/whiteboard, chalkboard and pinup wall.	DA	Intent of this section is to describe functionality of existing spaces. Intent in baseline program is that this space and 127 are combined into a single, larger space.
DCD Page 45, 127 Classroom (General Assignment)	Tom via M. Covarrubias	My only suggestion is when ever possible, make the Electronics / Electrical area remodel to be able to use the electrical infrastructure of the building to be use for lab and demonstration purposes. Examples, have every motor used in the building to have sensors that transmit the motors Volts, Amps, KVA for remote monitoring by students. This would allow students to measure inrush current and power line quality. Have sensors on the electrical supply for lights again for remote monitoring. Have a store room not on a central HVAC system but on a mini-split system that the students can monitor and adjust. You saw how I used the 208 VAC 3 phase panel in our lab room for a demonstration for that course. So, my big picture suggestion it to make the room remodels accommodate using the room infrastructure for teaching purposes as much as possible.	JPM	Suggestion added to Section 4.2, as optional, if costs permit.
DCD Page 47, U1 North Storage yard (Archi/Const/Engin)	D. Abbott	I believe that the renovation of the cathouse and solar shed are actually one of the highest priority items in this remodel, since it would allow for EET electrical wiring, staging area for CONST and ARCHI and a flexible space for use by the OSHA class for the rigging and gantry crane. It would allow the construction program to pursue other types of hands-on instruction and activities beyond the limited space in ET120B. It would permit long term construction projects that need to be set up for extended class sessions. It would also alleviate the pressure on the woodshop by providing a place for storage of tools, especially union/job site tools like contractor saws, rolling tool chests, Knaack boxes, etc. These spaces could also be used as a wet area for concrete mixing and casting for materials and construction activities. These spaces should not be underestimated as major solutions to ET challenges! They can also present a clean, orderly exterior to the parking lot that is much more inviting to students. Keep in mind if there is no storage or staging areas, the storage or staging will inevitably happen in even more inconvenient or unsightly ways... in classrooms....we really need a space.	SG	Per direction from district, the scope of the project does not include renovations to these 2 structures. The cost challenges of converting these spaces into any kind of instructional/occupied spaces, with associated DSA permitting, ADA, and Cal Green compliance are noted elsewhere in this document. However, re-organizing the storage within these sheds is a viable option.

DCD Page 48, Remote East Storage ("Cathouse")	Unknown	One of the recommendations is to create a robotics welding area in what was a DVC's welding area in the "cathouse".	SG	Per direction from district, the scope of the project does not include renovations to these 2 structures. The cost challenges of converting these spaces into any kind of instructional/occupied spaces, with associated DSA permitting, ADA, and Cal Green compliance are noted elsewhere in this document. However, re-organizing the storage within these sheds is a viable option.
DCD Page 48, Remote East Storage ("Cathouse")	D. Abbott	Both the east "cathouse" and the south "solar shed" do not need to be conditioned space. They just need to be clean, enclosed and weathertight. They are used frequently despite their disorganized appearance. If they are not available, student projects end up in classrooms and become quite disruptive (image to right). These cathouse and solar shed spaces can then be used for activities such as design build projects, wiring or electrical/solar projects and other activities that do not require conditioned space. many of these activities are for short duration so a flexible non-conditioned area is ideal. A suggestion: Locating the "solar shed" to be south of ET105 107 electronics labs could be convenient and could make the entrance to the campus appear better while providing more direct access for Manuel's program across the fire road. There could be large doors to connect this space to the south doors of ET105 and 107. It could possibly house electrical wiring training which could be done in a non-conditioned space as long as it is enclosed and dry. Ultimately Manuel can give more input or thoughts	SG	Per direction from district, the scope of the project does not include renovations to these 2 structures. The DBE can confirm with the district about policies and union agreements related to controlled indoor air temperatures for occupied spaces. Any kind of instructional space occupied by students or faculty would require approvals from the DSA due to change of use, and associated seismic upgrades. This would include a wiring training center.
DCD Page 48, Remote East Storage ("Cathouse")	D. Abbott	These are a small portion of pieces of projects from ARCHI 110 that end up in ET120A if the "cathouse" is not available. They have to constantly be moved in and out of the room for Wednesday's classes. It's a huge inconvenience and problem in terms of finding students and telling them they need to move their projects out by Wednesday afternoon, then move them back in do the work in progress is not left in the courtyard. it also negatively impacts the materials lab space  	SG	Noted. Use of storage sheds can be addressed with the College. The college can determine if the funding allows to improve the storage with enclosure.
DCD Page 55, 202 Computer Lab	K. Odgen	Network jacks should be provided at each location for computer.	Telecom	Accepted: Addressed on revised room data sheet
DCD Page 54, 206 Small Classroom/Flex Space	K. Odgen	Technology should be wired.	Telecom	Accepted: Addressed on revised room data sheet
128/129 Restrooms	B Parks	Lactation room - is thei a code requirement?	DA	Not required per the CBC.
DCD Page 31, 4.1.2 Existing ADA Paths	B Parks	"Opportunity to continue this accessible pathway to the south of the ET Building"...Is this captured in the budget?	DA	Yes. Sentence re-worded to state this as an actuality, rather than an opportunity.
DCD Page 31, 4.1.2 Existing ADA Paths	B Parks	"If the district intends for these storage areas to be utilized....then accessible pathways will need to be extended..."...Is this captured in the budget?	DA	No. Sentence re-worded to state clearly this is not intended to be part of the scope.
DCD Page 45, 4.1.3 Existing Site Utilities	R Hoyle	"+Data"	DA	Incorporated
DCD Page 46, Figure 4.1.3	R Hoyle	Call out Main Campus Elec Service Yard	DA	Incorporated
DCD, 4.1.4 Locatiion of MESC	B Parks	Could this be determined now to be able to give the DBE team more direction? In either option isn't the MESC building a stand-alone building on the North side of ET? Is there an option to shift the stand-alone building to miss the bank of existing utilities?	DA	This section has been revised to make the base assumption a stand-alone building, oriented to miss the utilities. However, there may be other reasons the MESC as an "addition" is a better fit for the project as well. One version is not so clearly advantageous over the other in terms of cost and efficiency. SG recommends the DBE be permitted to explore a range of opportunities for the MESC, located between the ET and the Math buildings. The narrative has been revised to reflect this.
DCD Page 66, 4.3.3 Exterior Glazing	Unknown	The faculty would like to bring in as much light as possible into the dark and cavernous ET building.	SG-Elect	Acknowledged - provided within Criteria Docs
DCD Page 66, 4.3.3 Exterior Glazing	D. Abbott	Can we include a picture of Neutras Corona School classroom as an example of a space that can open with sliding or operable large doors?	DA	Best to address with DBE team. The cost of the system, plus impacts on HVAC system, may make this challenging, but also very appealing.
DCD Page 66, 4.3.3 Exterior Glazing	D. Abbott	Thank you for this recommendation	DA	Acknowledged
DCD Page 67, 4.3.4 Transparency	D. Abbott	Yes. Thank you! We like the Transparency	DA	Acknowledged
DCD Page 69, 4.3.6 Furniture Solutions	M. Covarrubias	Glass partition works very well between ET105 and ET107. Noise is never an issue.	DA	Acknowledged
DCD Page 69, 4.3.6 Furniture Solutions	M. Covarrubias	I like the idea of creative furniture helping with classroom scheduling issue, space issues, etc. From my understanding other departments on campus are using this type of furniture. We should go and talk to them to see what the challenges have been, if any.	DA	Acknowledged
DCD, 4.4.1 Ceiling Conditions	B Parks	Is referenced acoustical material required based on acoustics?	DA	Text revised to indicate acoustical panels will be required to satisfy acoustical requirements.
4.5.3 Composite Layout D	R Hoyle	Add "Baseline" where "Option D" called out	DA	Incorporated
4.5.4 Composite Layout A	R Hoyle	Add "Alternate" where "Option A" called out	DA	Incorporated
DCD Page 72, 4.7.3 Composite Layout 1 (D)	D. Abbott	Removing the two faculty offices in the lobby is not beneficial for students, since it provides faculty availability when students enter the building and a small common workroom for students to sit and solve problems during office hours in the lobby.	DA	The baseline plan assumes these offices are relocated in order to make room for growth of ELECT labs, which requires those offices to relocate. DBE should consider alternative options during design phase to retain offices in this location.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	D. Abbott	The construction lab feels too small in this configuration . This should be reexamined since it really limits the program's ability to take on a range of projects and activities. The location and use of the materials lab should be thought out more in the broader scheme of the ET complex to try to make ET120A more useful for 30 students.	DA	Option D was selected by PSC / Distric as baseline plan. See design concepts as expressed in Option A for an alternative layout. There is insufficient space in south building to relocate Materials Testing there.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	D. Abbott	The materials lab in this plan is much too confined, it will not be possible to fit 30 students in this space. We should look at other options that can accommodate 30 students	DA	See Option D layout for this room in Room Data Sheets
DCD Page 72, 4.7.3 Composite Layout 1 (D)	A. Erickson	Mohammad has requested that the materials lab contain separate rooms for polishing and optical, and also have a room for the tensile strength tester. We also need the lab space to have sufficient lab bench area for 30 students to complete a lab lecture and hands on labs.	DA	See Option D layout for this room in Room Data Sheets
DCD Page 72, 4.7.3 Composite Layout 1 (D)	A. Erickson	We should also consider whether the underutilized lobby in the north building could be made into the tesla training area and move the 4 offices to the hallway near the machine shop.?	DA	Requires further review and discussion in design phases. Locating instructional spaces here may result in needing to relocate adjacent offices as well and finding additional space for project reviews.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	J. Smith / Dept. Chair	The faculty recommendation is to look at utilizing ET119 lobby area to gain additional space for Architecture, Construction, and Engineering	DA	Requires further review and discussion in design phases. Locating instructional spaces here may result in needing to relocate adjacent offices as well and finding additional space for project reviews.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	Unknown	The old auditorium in no longer used, but is nice to have on the occasions when we have a guest speaker who requires a large audience, but it is really too small for anything over 40 students, so it is rarely used.	DA	Noted.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	A. Erickson	Could auditorium be created in the underutilized lobby of the north building if we move the 4 offices to the hallway in the south building to blend options A and D? Or create tesla training area in underutilized lobby of north building and keep auditorium?	DA	Requires further review and discussion in design phases. Locating instructional spaces here may result in needing to relocate adjacent offices as well and finding additional space for project reviews.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	D. Abbott	If this auditorium is used for Tesla motor training, the motor training class currently meets 14 days of the semester for approximately seven hours a day 8:30am-4:30pm MTWThF. This prevents any other classes from using this room except in the evenings, (assuming there is no equipment in the space). The entire space becomes non-schedulable for any other courses, and with only a 14 day utilization for one motor training class, the efficiency ratio is 2 weeks out of a 16 week semester, or 12% use. This increases overall ET inefficiency and excludes programs from a space that was previously available to all programs. There is room for shared use: This room could be used for motor control if the motor control boards could be stored in the HAM radio room, and if the class was scheduled on a regular DVC block schedule, not a two week intensive schedule. I would still want to keep the sloping seating if possible.	DA	Information noted for further discussion with DBE. Option D (adopted by PSC/district) requires the space to be used for other program needs. Note that retaining existing lecture hall will result in not meeting other program requests, like training space for Tesla program. Per PSC meeting 7/27, Math Lecture hall available for larger classes. Other options A & B retained Lecture, but these were note adopted by PSC/District.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	J. Smith / Dept. Chair	These comments about 2 weeks are not accurate nor include reflect with the needs of the Industrial Automation and Robotics classes that Tesla's students are taking M-F each week along with other DVC students all year long. These are all very hands-on classes that include large electrical equipment, 24 feet of hydraulic & pneumatic trainers, machine repair classes, new Allen Bradly PLC's, motor controllers, new factory OSHA classes, industrial & manufacturing engineering equipment, and much more hardware. Students no longer are subjected to long lectures in auditoriums, but rather, they are being trained with the latest industrial equipment in labs such as this proposed training room.	DA	Information noted
DCD Page 72, 4.7.3 Composite Layout 1 (D)	J. Smith / Dept. Chair	The START program includes students taking hands-on lab training classes for the following classes: ENGTC-175, ENGTC-160, ELECT-120, ELECT-130, ELECT-271, ENGTC-180, & CONST-110. These classes repeat three times a year during the Spring, Summer, and Fall semesters. In addition, a separate Manufacturing Development Program (MDP) cohort of Tesla students take ENGTC-160, ELTRN-107, ENGTC-165, ENGTC-176 classes in the late summer and fall semesters in the ET building that also require lab and machine shop lab space.	DA	Information noted
DCD Page 72, 4.7.3 Composite Layout 1 (D)	A. Erickson	Can some auditorium/classroom/multipurpose space be created in the math and engineering student center to make up for the auditorium being replaced in this layout?	DA	If by Auditorium, one means tiered seating, then any new tiered seating space is highly unlikely due to associated costs. The MESC is currently tightly programmed, and any requested additional spaces will reduce space from the MESC programmed areas of open group study space. This MESC program currently includes a small classroom/multi-purpose space, as well as computer lab. The multi-purpose space is likely too small to be of much use other than as a sub-30 student class or event space. The computer lab is generic and supports up to 36 stations. The ability for ET to schedule classes there would be a policy discussion with the Math dept. However, there is a an auditorium-styled space in the adjacent Math building.

Layout 1 (D)		meeting. We used to have ENGIN-110 meet in this space and we could configure these spaces to be usable for other computer labs if needed.		
DCD Page 72, 4.7.3 Composite Layout 1 (D)	M. Covarrubias	Could hydraulic and pneumatic (TESLA Motor room) come here and share the space with residential wiring	DA	Space-wise this a possibility for further consideration in Design phases, but will mean displacing a computer lab. This could also result in eliminating the new N-S hallway as the single space can be accessed from the E-W hallway.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	D. Abbott	Yes! This is much more effective. But it would need to preserve ET125 and use ET127 for the shop based instruction. This idea saves major $$ on construction of leveling ET112 and positions the hydraulic/motor/pneumatic shop equipment closer to tools and across from the machine shop area. It can also serve as workbenches for the machine shop and for shop-based lecture. There is also 3 phase power here. It also preserves the ET112 for large enrollment classes, and for future use should we need a lecture hall, and for campus scheduling of other classes. Convenience, proximity, cost savings. This option makes a lot more sense. CONST classes in this room could probably meet in ET112 or ET125.	DA	See notes above. For consideration during design phases.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	A. Erickson	Could we consider taking the architecture faculty offices in the north building and moving them to this hallway in order to create space for an auditorium in the lobby area of the north building? Or use the lobby of north building for tesla space?	DA	Requires further review and discussion during design phases. Considerations for this to happen: Is ARCHI and CONST ok with their offices located in the other building? (in which case consider moving ALL offices here, including ELECT), can ENGTC give up the SF in the Machine Lab? (This will mean a reduction in the number of machines and/or storage space). See notes below.
DCD Page 72, 4.7.3 Composite Layout 1 (D)	D. Abbott	Architecture offices need to be located close to the ET116 drafting area since they are needed throughout the day and make faculty available to students	DA	For Information. See notes above.
DCD Page 75, 4.7.5 Composite Layout 2 (A)	A. Erickson	We should also consider whether the underutilized lobby in the north building could be made into the tesla training area and move the 4 offices to the hallway near the machine shop.?	DA	Based on comments above from D Abbott, regarding utilization of this space.
DCD Page 72 05 Basis of Design and Systems Approach	R Hoyle	WE saw no discussion on fire suppression - no fire sprinklers and only vague references to fire alarms. It is noted an additional fire hydrant is is needed. Code Analysis Section 7 says fire sprinkler/alarms are not required. Really?	SG- FA/FP	Section 7 embellished to explain code requirements for FA and FP. FP not required by code. FA required for new MESC and for ET Reno only if state funding provided. However, FA is added in Criteria Docs requirements as a reasonable life safety measure.
DCD Page 77 5.2.1 Landscape Architecture	R Hoyle	M& O prefers fewer trees	SG- LA	Note added.
DCD Page 77 5.2.1 Landscape Architecture	B Parks	Are new building faces planned?	DA	Yes, at MESC and new storefront of ET building.
DCD 5.2.1 Landscape Architecture	B Parks	Terracing a part of the courtyard - is this in estimate?	DA	No. Section deleted. Other non-scoped descriptions removed as well.
DCD Page 77 5.2.3 Planting	B Parks	Arborist: Look at now or add to DBE scope?	DA	Often this report is soft cost direct from Owner.
DCD Page 77 5.2.2 Hardscape	B Parks	M& O prefers fewer trees	SG- LA	Assuming there will be some trees, tree requirements are still provided in document.
DCD Page 77 5.2.3 Planting	R Hoyle	Tree protection will be required during construction.	DA	Note added in narrative.
DCD Page 77 5.2.3 Planting	R Hoyle	Are flow-through planters required by code?	DA	Flow-through planters are one possible solution to meet stormwater management design requirements.
DCD Page 77 5.2.5 Irrigation	B Parks	Do we know model and manufacturer of existing system.	DA	For criteria, it is sufficient to direct DBE to match existing.
DCD 5.2.6 Drainage	B Parks	Are there district standards that should be considered for landscape drainage facilities?	DA	We are not aware of standard specifications in the standards for these systems.
DCD 5.3.1.2 Site Demolition	B Parks	Should reference to hazardous materials report be made?	DA	This is added to referenced documents list.
DCD 5.3.1.Site Conditions	B Parks	Fire Hydrants - included in estimate?	DA	Yes, included.
DCD 5.3.1.Site Conditions	B Parks	Existing road as alternative compliance - possible to determine now?	DA	Review with FD should occur when design for MESC is more developed. Current estimate includes road widening.
DCD 5.3.2 Utilities	B Parks	Are utility relocations in the estimate?	DA	This section revised to no longer require these relocations.
DCD Page 87 5.3.2.4 Natural Gas	R Hoyle	"Both of these structures will need to be relocated as part of the proposed project" - Are we sure?	SDE	Changed to, "will not be impacted" due to MESC building location.
DCD Page 87 5.3.2.4 Natural Gas	R Hoyle	Is this building going to be all electric?	DA	Yes, all -electric.
DCD Page 87 5.3.2.5 Electrical	R Hoyle	"The proposed expansion will impact the existing electrical utility....should be relocated along the north edge of the proposed building expansion". - Are we sure?	SDE	Section calling for re-routing removed from revised text.
DCD 5.5 Structural	B Parks	Any geotechnical considerations evlauted as part of the sturcutral narrative?	DA	To the extent that structural report influenced the Thornton Tomasetti report, which this document references.
DCD 5.7.1 Plumbing Demolition	B Parks	Is this correct that we are going to remove the SOG to demo all sanitary sewer piping below SOG?	DA	At restrooms, the entire sanitary line below slab will need to be reconfigured for new plumbing fixture layouts.
DCD 5.7.11 Emergency Fixtures	B Parks	Not included in the estimate, labeled as Group 2 - FF&E	DA	Estimate updated to include the emergency fixtures.
DCD 5.8.2 Proposed Electrical Design	B Parks	Should a preliminary study be done to make sure we don't have a large unforeseen condition here?	DA	Not yet resolved
DCD 5.8.13 Solar Requirements	B Parks	If PV Panels are installed in the parking lot, how does that impact this requirement?	DA	Current version of the CEC does not allow for the use of campus solar PV at the community colleges to be counted towards the PV requirements.
DCD Page 190 6.7 Fire Protection Systems	R Hoyle	Please Elaborate on no sprinkler system or fire alarm system required	DA	Section provided with elaboration, and Fire Alarm section added.
DCD Page 108, Controls	K. Odgen	Only managed network switches provided by owner may be used.	DA	Noted and addressed in narrative
DCD Page 117, 5.7.6 Uninterruptible Power	K. Odgen	IT standard for backup in the rack is a minimum of 30 min.	DA	Noted and addressed in narrative
DCD Page 118, 5.7.12 Lighting Controls	K. Odgen	These lighting controls must be wired and only managed switches provided by owner can be used.	DA	This controls requirement addressed in Electrical.
DCD Page 123, 5.8.1.3 Base Building Pathways	K. Odgen	The fiber that serves the ET building is from mid 90's and brittle. It's probable that it will need to be replaced all the way to the library.	DA	Noted. Addressed in Cabling
DCD Page 127, 5.8.2 Audiovisual	K. Odgen	Network requirements for these systems need to be included in overall IT port counts for IDF sizing. Only managed network switches supplied by owner.	DA	Noted and addressed in revised narrative.
DCD Page 133, 5.8.3.3 Electronic Security Systems (ESS)	K. Odgen	NO DISTRICT WIRELESS FOR ACCESS CONTROL! Zigbe or other non-interfering wireless protocols need approval.	BS	Reference to "wireless" was removed from the draft design criteria and subsequent final design criteria
DCD Page 137, 5.8.3.4 Video Surveillance Systems (VSS)	K. Odgen	Coordinate with District IT regarding all programing for cameras and access control.	BS	Final design criteria was updated as noted.
DCD Page 142, 5.8.3.10 Network Requirements	K. Odgen	District IT		Final design criteria was updated as noted.
DCD 5.9 AV/IT	B Parks	Isn't Telecom providing project requirements and design criteria now?	DA	Misleading / confusing text deleted from narrative.
DCD 5.9 AV/IT	B Parks	Should a preliminary study be completed early to make sure that we don't have an unforeseen conditions here?	DA	Sizing of the IT rooms will follow with detailed cable count. Sizes of spaces allocated in the program are based on assumptions about the number of racks required. If additional racks require a larger room, the impact will be modest and will need to be addressed by the DBE.
DCD Page 197, RDS - 2 Machine Lab	K. Odgen	Do any of these machines need network connections? Wireless is not an option for security reasons.	Telecom	Accepted: Noted in revised RDS
DCD Page 197, RDS - 2 Machine Lab	J. Smith / Dept. Chair	There are some options on how to reconfigure the space to be more efficient for teaching. Sierra College provides a fantastic footprint to follow.	DA	Noted for Information. Layout of spaces to be refined in design phases.
DCD Page 198, RDS - 3 CNC	K. Odgen	Do these need network connections? Wireless is not an option for security reasons.	Telecom	Accepted: Noted in revised RDS
DCD Page 198, RDS - 3 CNC	D. Abbott	Computers cannot be oriented with the operators back to the machine	DA	Accepted: Noted in revised RDS
DCD Page 199, RDS - 4 3D Print and Laser Cut	K. Odgen	Do these need network connections? Wireless is not an option for security reasons.	Telecom	Accepted: Noted in revised RDS
DCD Page 200, RDS - 5 - Drafting Studio	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	DA	Not Incorporated: This space is not a networked lab.
DCD Page 200, RDS - 5 - Drafting Studio	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	DA	Not Incorporated: This space is not a networked lab.
DCD Page 201, RDS - 6 Const Lab	D. Abbott	This is extremely confined for construction activities and will likely present access and circulation issues. Please consult with Shan Kammerer and Bob Logan	DA	Challenge is in providing 30 seats, as required by District. Note alternative as expressed in Option A has more space (@1,200 SF vs 1,000 SF)
DCD Page 202, RDS - 7A ELTRN Lab	M. Covarrubias	Instructor table should be more than a computer station it should also have test equipment on it.	DA	Accepted: Noted in revised RDS
DCD Page 202, RDS - 7A ELTRN Lab	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 203, RDS - 7B ELTRN Lab	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 203, RDS - 7B ELTRN Lab	M. Covarrubias	Instructor table should be more than a computer station it should also have test equipment on it.	DA	Accepted: Noted in revised RDS
DCD Page 204, RDS - 7C ELTRN Lab	M. Covarrubias	Two HD TVs with a projector work well in this lab.	DA	Not Incorporated: To be reviewed with District AV and DBE AV Consultant. These rooms are now longer and may benefit from 2 projection screens.
DCD Page 204, RDS - 7C ELTRN Lab	M. Covarrubias	Instructor table should be more than a computer station it should also have test equipment on it.	DA	Accepted: Noted in revised RDS
DCD Page 204, RDS - 7C ELTRN Lab	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 205, RDS - 8 Tesla	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 206, RDS - 9 Motor Tech	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 207, RDS - 10 Materials Testing	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	TeeCom	Accepted: Noted in revised RDS
DCD Page 208, RDS - 11 - Comp Labs	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 210, RDS - 13 - Hybrid Lab	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 213, RDS - 16	K. Odgen	Please include network drops at every location including printer stations. Even if this is a laptop lab, wired network connections will provide better and more reliable performance.	Telecom	Accepted: Noted in revised RDS
DCD Page 214, RDS - 17	K. Odgen	NO WIRELESS ANYTHING FOR LOCKS!	Telecom	Accepted: Noted in revised RDS

DCD Page 60, 4.1.3 Resiliency & Sustainability	T. Martial	Also required to provide sub metering of various loads so we can separate out lighting, from plug, from HVAC, etc., as well as the total electrical demand and usage of the building.	DA	Incorporated into revised Criteria Docs
DCD Page 60, 4.1.3 Resiliency & Sustainability	T. Martial	I would target LEED ZNE as well. Our Art and PEK Complex are going for that as well.	DA	We understand this comment to mean to achieve additional LEED credits by providing 10% annual energy useage in PV Array. The amounts of PV required to meet these credits will be noted in section 5.5.
DCD Page 60, 4.1.3 Resiliency & Sustainability	T. Martial	Category 5 is actually applicable if you're doing FF&E or waste bins outside and such. Some firms have included in the past. We need a 3 stream system setup across the building, generally with centralized locations. This is required by SB1383 now and should be part of every new building design. We need exterior bins as well that are also 3 stream, and we will also provide signage.	DA	Incorporated into revised Criteria Docs
DCD Page 60, 4.1.3 Resiliency & Sustainability	T. Martial	Also required to include water meters for potable water usage and reclaimed water usage as well as irrigation water usage, as part of this measure. All meters need to be tied into BAS (ALC).	DA	Incorporated into revised Criteria Docs
DCD Page 61, Landscape Architecture	T. Martial	One thing we learned in DVC PEK and Art Complex is that our reclaimed water has a high mineral content. Our Horticulture Faculty was involved in this conversation and helped us to understand this and helped the teams pick appropriate plants, which were NOT drought tolerant. She pointed out that there's an issue w/codes vs reclaimed water usage - at least our reclaimed water - we have to water our plants more with that water, and we can't use drought tolerant in most cases. So some of this is lessons learned to pass along to teams.	DA	Planting section revised to include a note to select plants compatible with the reclaimed water available.
DCD Page 82, 5.1.3 Furnishing	T. Martial	See comment on 3 stream bins required by AB1383. Can't have trash w/o compost and recycling.	DA	Requirement added to section 5.2.3
DCD Page 85, 5.1.5 Irrigation	T. Martial	All irrigation should be from reclaimed water, not potable water.	DA	Requirements added.
DCD Page 93, 5.3.1 Exterior Cladding	T. Martial	I really think this would be a big loss of comfort and energy, as well as total cost of ownership and life cycles costs by NOT both changing out all the windows ot be double pane, low E, high perf windows and putting interior insulation/framed walls on all the exterior walls/surfaces. This heat loss/gain is HUGE, and results in having to have much LARGER size of mechacnial systems, which impacts the first cost of MEP overall, as well as long term life cycles costs, O&M, etc. Major loss, if we do NOT do these changes, and overall negative toward our sustainability goals.SG MEP team shows a 15% savings in the mech eqiupment size and state dthat nearly ALL projects are able to pay for the envleop upgrades to the "GOOD" envelope condition by saved first costs of the MEP reduction of size of the system.	DA	See revised section 5.4.1.which clearly designates this as the project requirements.
DCD 5.4.3.4 Ceilings	T. Martial	Regarding stained tiles - The only thing that is "water" based mechanical on the roof is the condensate. There's no chilled water or heating hot water in the building. Maybe it's plumbing?	DA	Section deleted. Photos were referenced from MESC by mistake.
DCD Page 101, 5.5 Mechanical	T. Martial	In my design past, we always used median of extremes - maybe not the best for heat pump design now.	JPM	Per meeting and with regard to Climate Change, will retain noted design data and can use relaxing of this criteria as a VE option if needed in design phase of the project.
DCD Page 101, 5.5 Mechanical	T. Martial	We typically do night setback of 80oF for cooling, as that's written into union contracts, so it makes it ok to turn HVAC systems off at night, during custodial shifts and still maintain those indoor max temps. We also typically do 60 for heating setback.	JPM	Accepted - Setback points revised accordingly.
DCD Page 101, 5.5 Mechanical	T. Martial	These temps won't fly for IT rooms. They have stricter temp requirements in the IT standard. Their stated concern is that if we let the temps drift up to 85, when there's a power outage, their UPS will only hold for a bit, but then the room will get crazy hot, well above what's allowed/warranted for UPS, etc. But, if we start with a lower temp, we have longer before the space gets too hot, while it's still operating.	JPM	Changed to 80F for normal operation and added 4-hour override button to condition to 74 F for extended work in the room. This will allow a low temp if desired.
DCD Page 101, 5.5 Mechanical	T. Martial	I'm used to a little bit more detailed performance spec for mechanical projects. All of ours have been more detailed for handing off to DBE team - like 50 pages, detailing more of the allowed FSDs, detailed section of filters and insulation, etc. So, I feel a little at risk here, depending on who we get on the DBE team.	JPM	Code and standard references cover a lot of the items noted. SMACNA covers duct construction and support T24 covers insulation requirements NFPA and UL covers FSD Open to further discussion on perceived risk points
DCD Page 101, 5.5 Mechanical	T. Martial	I see nothing about Enhanced Cx requirements. The LEED scorecard has that, but nothing mentioned here for Cx.	JPM	Enhanced Cx is noted as a YES in the LEED score card
DCD Page 102, 5.5 Mechanical	T. Martial	Given the sizes that your team is coming up with, and the existing building electrical loads for the past year, I suspect these machine lab, wood shop and other labs are TOO HIGH. If you compare the Mech size of existing units, to the mech size of your proposed units, they are MUCH larger, I bet. I know the EUI is WAY higher than what we see campuswide. You should be able to see our "electric" EUI from the data I provided, which would be everything except heat and water heating for hand washing. I suspect that'll get these plug loads down to more reasonable assumptions.	JPM	Requires further review and discussion - Detailed operational information for high load equipment is still to be confirmed so certain assumptions have been made (on the conservative side to ensure sufficient capacity). Understanding in detail what the concurrent usage of lab equipment is expected to be will help refine these loads and this can be incorporated into next phase of modelling.
DCD Page 102, 5.5 Mechanical	T. Martial	2.The occupancy of the building – we have NOT been operating our building HVAC 24/7. That seems to be a misunderstanding between Jim and his O&M crew who adjust operating schedule in the BAS for mech systems. Typically building HVAC is on – on average M-F 7am-10 pm and Saturday 8-12 or so. This varies throughout the year, but should be a rough order magnitude for energy savings/costs/etc. We close down for 2 weeks during winter holiday, and the campuses are supposed to shut the HVAC off during that time. Ditto for holidays. If someone needs the building on holidays, then they have to special request it for that time. Same for Sundays and other non-typical timeframes. Our O&M staff is short at least 2 people right now so nobody is on top of the scheduling. In my email I provide screenshots of actual ALC BAS schedules on our newer projects, and none are 24/7 except IT spaces and cadaver lab spaces.	JPM	Noted. Occupancy schedule updated accordingly and added notes about holiday shut downs.
DCD Page 102, 5.5 Mechanical	T. Martial	Is this based on T24 prescriptive requirements?	JPM	Please see updated Table 6. T24 code minimum, improved and high performance envelope were considered but the values put forward were the recommended (over and above T24 prescriptive).
DCD Page 103, 5.5 Mechanical	T. Martial	Ensure we're dropping mins down to minimum allowed when CO2 met and/or when unoccupied, so we can save on ventilation/heating/cooling of that air, particularly in classroom/high occupant spaces	JPM	Noted - Demand controlled ventilation (DCV) shall be integrated per code requirment for high occ density spaces (classrooms). Addional column has been added to Table 7 to outline airflow rate under these conditions.
DCD Page 103, 5.5 Mechanical	T. Martial	I really dont' think that these copy/printing rooms that are intended for this exhuast/ventilation are used in this building, are they? I've found that to be vary rare cases of "printing" that require this.	JPM	Requires further review and discussion, however this was included (and is expected to remain) as this exhaust airflow is a code requirment for this room type regardless of usage.
DCD Page 103, 5.5 Mechanical	T. Martial	There won't be insulation on any exposed ducts in conditioned spaces, right? Do you need to write an exception for this here?	JPM	Correct and updated.
DCD Page 104, 5.5 Mechanical	T. Martial	Can we say no roof ductwork, so we don't have that possible issue later on?	JPM	Added note for no roof ducting
DCD Page 104, 5.5 Mechanical	T. Martial	Is that really necessary? Is that more for a lab with chemicals?	JPM	Requires further review and discussion - Although not a typical lab space, SS ductwork has been noted for exterior duct, as it has a longer life span.
DCD Page 104, 5.5 Mechanical	T. Martial	so is the exhaust ALWAYS on in these spaces? If not, shouldn't we be using an airside economizer and not do 100% exhaust?	JPM	Specialty exhaust fan is on only when the equipment it is dedicated for is in operation.
DCD Page 105, 5.5 Mechanical	T. Martial	We don't want any MERV8 pre filters in our final configuration. We only want final MERV13A (which usually means you have to go to MERV14 or 15 to get equivalent filtration). This is our DW standard for filters.	JPM	Requires further review and discussion. MERV 8 prefilter can be removed and final filter can be MERV14 or higher in order to meet campus design codes and standards. However it should be noted that design intent is to include MERV8 pe-filter for heat recovery air handlers to protect the air-to-air heat exchangers in order to maintain good efficiency + prolong life of equipment.
DCD Page 106, 5.5 Mechanical	T. Martial	All filtration of outside and return air is required to be MERV13A or better, per our districtwide COVID standards we set in place long ago. It's also required by Code now, based on what I've been told.	JPM	Noted - Make-up air filter to be MERV 13 or better per latest code requirements.
DCD Page 106, 5.5 Mechanical	T. Martial	Same comment on MERV13A requirements.	JPM	Noted - Make-up air filter to be MERV 13 or better per latest code requirements.
DCD Page 107, 5.5 Mechanical	T. Martial	Ditto on the MERV8 here, and only wanted final filters on units in the end.	JPM	Noted - Final filter on AHU to be MERV 13 or higher.
DCD Page 107, 5.5 Mechanical	T. Martial	Seems like we should spell this out more - "required points" can be pretty subjective - need access to all coils for cleaning, at all dampers, etc.	JPM	Noted - Defined AHU sections have been included.
DCD Page 107, 5.5 Mechanical	T. Martial	In other newer buildings, we've sometimes added a cooling only VAV box that handled the load when the building is occupied and central systems are on, and then a split systems unit like this to pick up when the central systems is off, or when it needs a little boost during occupied mode as well. Consider this, if budget allows.	JPM	Requires further review and discussion. This option can be explored next phase.
DCD Page 108, 5.5 Mechanical	T. Martial	We should really very clealy state that only ALC is allowed and reference our DW Master Controls standard/spec/template that must be used for all controls. IT's mostly using G36 everywhere. All electric, water, irrigaiton, meters need to be tied into it as well. Dashboard of energy monitoring exists on it and then tying this building into our existing Ecovox/skyspark energy dashboard mangement systems as well.	JPM	Noted ALC as campus standard
DCD Page 108, 5.5 Mechanical	T. Martial	The slide deck has energy analysis and EUIs in it, but nothing about that in these sections. Where does that info end up/how does it get used?	JPM	We are still trying to get to the correct EUI. I suspect SG calculations are a bit high and DVC is a bit low based on data provided. Can add section once settled.
DCD 5.6.2.6 Prelim Load Info	T. Martial	(Site Photos of Equipment) NAM report says 183 tons - and 3847 kBTUh of heating. So, not sure about the "photos" side. The units have remained the same since the NAM report from 2016.	JPM	Table updated to clarify.
DCD 5.6.2.6 Prelim Load Info	T. Martial	(Preliminary Calculations) Should say this preliminary load is based on the Green "good" assumptions above.	DA	Section updated to clarify.
DCD 5.6.2.5 Recommended Envelope	T. Martial	(Code Minimum) Is this the code minimum for our building project - so for an "alteration" as you've described, or is this the code minimum if we modify the envelope? Any idea what the "current" building is, so we can see the improvement in performance from now to our "new" building or base scope?	DA	This is code minimum requirements related to what code will require for the exterior walls of the alteration the roof insulation value is better than code minimum because it makes little sense to do only code min work when replacing the roof insulation). Code does not require improvement of the exterior walls and glazing systems if they are not replaced.
DCD 5.6.4 Air Distribution Criteria	T. Martial	(8. Exhaust Air Systems, under "no supply air ducting on roof") probably should say "no exhaust air"	DA	Corrected
DCD 5.6.4 Air Distribution Criteria	T. Martial	(10. Thermal Zoning under "each lab/classroom shall be a separate thermal zone with dedicated supply and return air valves") Are you saying we'd have VAV boxes for return? I think that's a big cost issue that we should get rid of. We should try to do plenum return, it's cheaper and more energy efficient, lower maintenance, etc. Return air VAV boxes are a big cost add, that's not necessary or desired.	JPM	Plenum return is an acceptable option. Section updated to clarify.
DCD 5.6.5.1 Air System Diagram for Shops	T. Martial	(c. MERV 8 filter bank (min 4" depth) I'd say "construction" filter here to be removed after construction/Cx final.	JPM	MERV 8 filter is to protect the heat recovery wheel from the shop exhaust, not just for construction activity.
DCD 5.6.5.2 Air System Diagram for Non-Shop	T. Martial	Should say Non-Shop (not Non-Stop)	DA	Corrected

DCD Page 116, 5.7.3 Site Normal Power Distribution	T. Martial	The writeup of all MEP and other areas, says this other new building is office space, but it's not, is it? Are all the assumptions for loads and such correct?	DA	The term "office" has been removed in the revised text.
DCD Page 126, 5.8.1.4 Cabling	T. Martial	I bet this isn't enough ports for BAS anymore. We're seeing a shift to ethernet VAV boxes, etc., and we're needing more ports for the BAS than in the past.	DA	Noted: The cable count is preliminary and will need to be verified by the DBE
DCD Page 194, 7.1 Reference Document Files	T. Martial	I'm not seeing our District Controls Standard listed here (master spec template)	DA	Added to list of reference files.
Appendix 7.2 Prelim LEED Scorecard	T. Martial	Not matching the Art building score card I sent over	DA	SG in process of updating Leed Scorecard. Please see below descriptions to the following comments
Appendix 7.2 Prelim LEED Scorecard - Location & Transportation	T. Martial	I'm not sure this is updated from our last meeting. For example, the Art project scorecard I sent over, has 2 Surrounding Density, and 2 Access to Quality Transit - so those are no brainers, I think? Bicycles will be No, as our staff wont' allow us to use those lockers. Green Vehicles is likely a no as well - we already have plenty of EV charging spots on campus, elsewhere - installed in 2020.	HT	Surrounding Density credit is revised to include 2 points. The Art building is located on the north side of the campus with access to many busses, however, the ET building is located at the south end of the campus and has access to Bus No. 18 only. Further investigation is necessary, however, at this time points under Access to quality transit credit cannot be achieved Bicycles credit is revised to not achievable Green Vehicles credit is revised to not achievable
Appendix 7.2 Prelim LEED Scorecard - Sustainable Sites	T. Martial	Art didn't get Credit 1-4, so trust you all are getting this based on your bases cope of work. Maybe the sustainability goals push us there? Not sure.	HT	The project scope includes open green space towards the north side of the building, provides opportunity to achieve the following credits. The Site development protect restore habitat credit, Open Space credit are updated to May-be, and rainwater management credit is confirmed as it is required by Cal Green.
Appendix 7.2 Prelim LEED Scorecard - Water Efficiency	T. Martial	For Art, we got 2 for outdoor water use and 6 for indoor water use - we used reclaimed water for irrigation and for flushing toilets to get there. Should we start with that?	HT	The LEED scorecard showcases the points without reclaimed water usage. 2 points and 6 points are achievable with reclaimed water for outdoor water use and indoor water use credit respectively
Appendix 7.2 Prelim LEED Scorecard - Energy and Atmosphere	T. Martial	Art and other building we got 6 points for Enhanced Cx, 18 for Optimize Energy Perf, 1 for Advanced Metering - and 3 for renewable (though we have to see how much we have left to see if we can get this one). But, largely we're s hort on energy points here, compared to our other designs.	HT	Enhanced Cx credit is revised to include 6 points Optimize energy performance credits shows the points associated with energy savings alone without the credit from photovoltaics(PV). Depending on the capacity of PV, more points can be achieved. Renewable energy credit is updated to May-be. Depending on the capacity of PV, a maximum of 3 points can be achieved.
Appendix 7.2 Prelim LEED Scorecard - Materials and Resources	T. Martial	We didn't get Credit 1 for Art, so trust you all know about this one and if it's applicable. We only got 1 point for Credit 2-5 on Art, so again, trust you all are on board with this. Vor Credit 5, we will likely get 2 points here on Art as our diversion is up at 95% I think.	HT	Credit 1: One point is considered under May-be category. As this is an existing building, some of the existing components such as walls, roofs etc. can be used towards preservation. Depending on the percentage of the preservation, up to 3 points can be achieved Credit 2-5: Credits 2 to 5 are updated to match the Art building scorecard
Appendix 7.2 Prelim LEED Scorecard - Indoor Environmental Quality	T. Martial	We didn't' go for Credit 1 on Art. Not sure what we'd need for that, but if it's a sensing the indoor air quality type of plan/software subscription/tool, we're not interested in that .	HT	The project includes MERV 14 filters and CO2 sensors in high occupant density areas. 2 points under Enhanced Indoor Air Quality credit is achievable. However, for conservative purposes, the credit is updated to show 1 point as confirmed and 1 point as may-be Thermal Comfort credit is revised to not achievable. Although classrooms are equipped with thermostats, occupants inside the classroom doesn't have control on the thermostat. Daylight and quality view credits are revised to not achievable Acoustical performance is revised to May-be. Based on the information included in the design documents, this credit is achievable.
Appendix 7.2 Prelim LEED Scorecard - Innovation	T. Martial	Not sure what some of these are, as they are diff from art. We had building as a Learning Tool - LEED Educational signage, which we've been doing in all our buildings - so this is required, low mercury lighting, Optimize Energy Performance, Renewable Energy Production and PC136 Safety First (which I'm not sure what that means)	HT	Changes made to the LEED scorecard to include innovation credits from art building project.
Appendix 7.2 Prelim LEED Scorecard - Regional Priority	T. Martial	For Art, we got 1 point for Credit 1-3, so would expect we could get the same on this building.	HT	DVC is currently aiming to achieve three points including indoor water use, outdoor water use and sourcing of raw materials. Optimize energy performance credit is achievable only with the inclusion of PV.

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