NEW CAMPUS CENTER

San Benito County Campus

PROGRAMMING AND PROJECT CRITERIA
SUMMER 2020

TABLE OF CONTENTS

PART ONE

PROJECT OVERVIEW

PART TWO

TECHNICAL CRITERIA

01

PROJECT DESCRIPTION

01

PROJECT DESCRIPTION

INTRODUCTION

The intent of this document is to provide the Design-Build Entity (DBE) with an overview of the general requirements for the first building on the San Benito County Campus (SBCC) as well as an illustration of the College's vision for the future Campus.

The SBCC Center, will house a mix of classrooms, laboratories, offices and student services spaces. The purpose of this building is to allow growth for the Gavilan Joint Community College District (GJCCD), and address the District need for updated classrooms that respond to today's pedagogy and new technologies. The District envisions SBCC Center to improve the utilization rates of instructional and student spaces and uphold the District's Planning Priorities through its focus on student success.

The following pages describe the Project scope and goals as well as Regional and Campus context.

NOTE: As we navigate this world health crisis, the GJCCD will need to explore and understand the implications to learning and working environments. As the District plans for post-COVID 19, there is a need to make careful choices for employees and students safety.

In designing the SBCC Center, the DBE must consider the need to be safe and feel safe with appropriate strategies. They include, but are not limited to:

- Increase physical distance
- Minimize exposure to pathogen
- Consider hands-free solutions
- Design adaptable spaces
- Promote videos and remote learning

PROJECT GOALS

OVERVIEW

The overarching goals of the SBCC Center are focused on student success and the student experience, efficiencies in utilization, maximizing impact within budget, and sustainability goals. The SBCC Center shall be a welcoming home to students, faculty, staff and visitors, reflective of the academic goals of the College.

Technology and furniture that are functional in multiple room configurations are imperative in order to promote active learning environments. Classrooms shall be flexible but not trendy, allowing the ability to adapt to the changing needs of the building occupants over time.

Space outside of classrooms for collaboration and study is equally important. It is expected that the Design-Build Entity (DBE) will find creative strategies to maximize enhanced student seating and study areas within the building. Some dedicated space has been provided within the assignable program area, however found opportunities for additional functional and sought-after student space is highly desired.

SIZE CLASSROOMS FOR STUDENT SUCCESS

Optimize classrooms to be efficient, while also maintaining square footages and student capacities required to enhance student success.

The SBCC Center shall have an explicit focus on student needs which exemplify student success. Classrooms will be sized and furnished in such a way to encourage and facilitate active learning environments that are conducive to student-to-faculty and peer-to-peer engagement and interaction. Instructional spaces shall be designed with student engagement and flexibility in mind.

ADMINISTER EFFICIENCY IN UTILIZATION

Design spaces that create a desire to hold courses in every classroom will be an imperative aspect to maintaining classroom utilization rates.

Designing all classrooms with equal thought and care will avoid causing faculty and students to generate preferences towards specific rooms, creating a lack of occupancy in other rooms. This, in turn, will encourage usage of all spaces and help maintain high utilization rates.

PROJECT GOALS CONT'D

PROVIDE INTERIOR NATURAL DAYLIGHT

Optimize opportunities to incorporate natural daylight into the majority (if not all) of the classrooms and student success spaces.

The infiltration of natural daylight throughout the SBCC Center will help establish welcoming spaces that produce desirable characteristics for health, wellbeing and student success. Care shall be taken when determining glazing locations as to not provide significant distractions to students occupying the room. Alternatively, skylights and tubular daylight devices can be used as a means to provide interior daylight when exterior windows are not possible or not desired.

Borrowed daylight can be used to provide natural daylight to spaces that may not have glazing directly adjacent to them, but only where explicitly stated in the criteria Room Data Sheets.

IMPLEMENT SUSTAINABLE PRINCIPLES

Create an environmentally friendly and sustainable facility.

The SBCC Center shall incorporate sustainable solutions as a reflection of the College's commitment to reduce greenhouse gas emissions, which will exceed the requirements of the California Building Code.

SUPPORT UNIVERSAL DESIGN

Utilize the "Principles of Universal Design" [North Carolina State University, The Center for Universal Design] to guide construction/ development of all aspects of the campus environment.

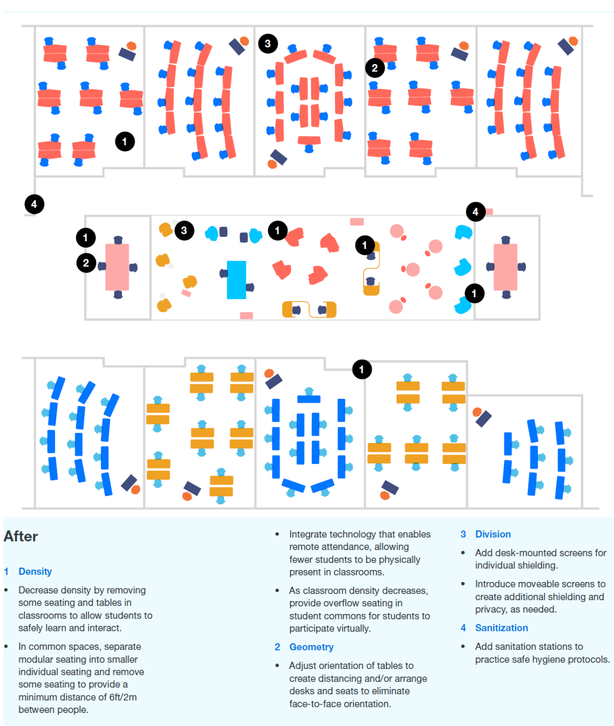
Accessibility should not be an additional or secondary consideration, but rather integrated into the main design of the project.

PROJECT GOALS CONT'D

PROMOTE FLEXIBILITY

Design learning spaces with the ability to reconfigure for a variety of activities and functions.

The importance of creating spaces that facilitate active learning in the SBCC Center requires careful consideration of room, technology, and furniture layouts. The SBCC Center shall be forward-looking, providing for the needs of today while also planning for the needs and the pedagogy of tomorrow. Building infrastructure, systems, and technology shall allow for long-term evolution. Planning solutions shall recognize that teaching and space needs change over time and shall as such, allow for easy future modification to meet new needs as they arise. Flexible and fluid spaces will better support future and more progressive pedagogies.



Source: Steelcase. Floor Plan Considerations

IMPROVE SAFETY FOR STUDENTS, FACULTY AND GUESTS

Consider strategies to create spaces that feel safe and allow people to confidently move around.

The SBCC Center shall promote physically and mentally safe design solutions.

A comfortable, accessible, and physically safe environment that students, faculty, staff, and visitors want to inhabit is vital to the project. The building shall be welcoming and create exciting experiences while also promoting healthy and safe habits. Design solutions should leverage technology in a way that creates a safe learning environment and better blended learning experiences.

PROJECT SCOPE

The Project scope includes the construction of a new facility providing general assignment classrooms, science laboratories, and student support spaces. Represented herein are the recommendations for the future development of the campus, including areas that may not be not be realized in this Project, or built to the extent shown, but do contribute to the desired future, complete campus.

BUILDING AREA SUMMARY

Building Gross Square Footage: ~35,000 GSF

SITE IMPROVEMENTS

The scope of work for the initial development of the SBCC Center is highlighted in Figure 1.1, and shall include, but not limited to the following:

- Hardscape entry plaza to the building(s)
- Parking layout
  East side and west side parking to be developed to the extent determined to accommodate the parking needs of SBCC.
- Driveway entrance
- Landscape improvements
  Indicated development south of the SBCC Center is diagrammatic of the desired features and integration within the site, to be developed to the extent affordable within the project.
- Outdoor instructional and work environments
- Site lighting
- All building and site signage
  Monument signage is desired in multiple places on the site to increase the campus' visibility. Minimally, the project shall include one (1) monument sign, location to be determined in design process.
- Fire protection requirements
- Security enhancement

Figure 1.1 also shows the setback, from center line of Fairview Road and from center line of Cielo Vista Court to the limit of work line, highlighted in magenta.

INFRASTRUCTURE

The scope for infrastructure shall be limited to the area highlighted in Figure 1.1, and shall include, but not limited to the following:

- Utility infrastructure connections to main utility services required for the operation of the facility
- Stormawater management facilities
- Central water plants
- Landscaping and irrigation
- Exterior lighting
- Data, phone connections
- Gas connections
- Access controls and security systems

All utilities will be in-place for their connection, at the time of construction.

LIFE CYCLE COST ANALYSIS

The DBE shall provide Life Cycle Cost Analysis throughout the design process, facilitating and validating decisions made in the final building design, construction, and operational requirements.

LIMIT OF WORK

FIGURE 1.1

Proposed Limit of Work

Proposed Lay-Down Area

Potential Alignment for Relocated Power Lines below Grade

Proposed Emergency Egress (by others) to follow PG&E Easement

REGIONAL AND LOCAL SETTING

GJCCD BOUNDARIES

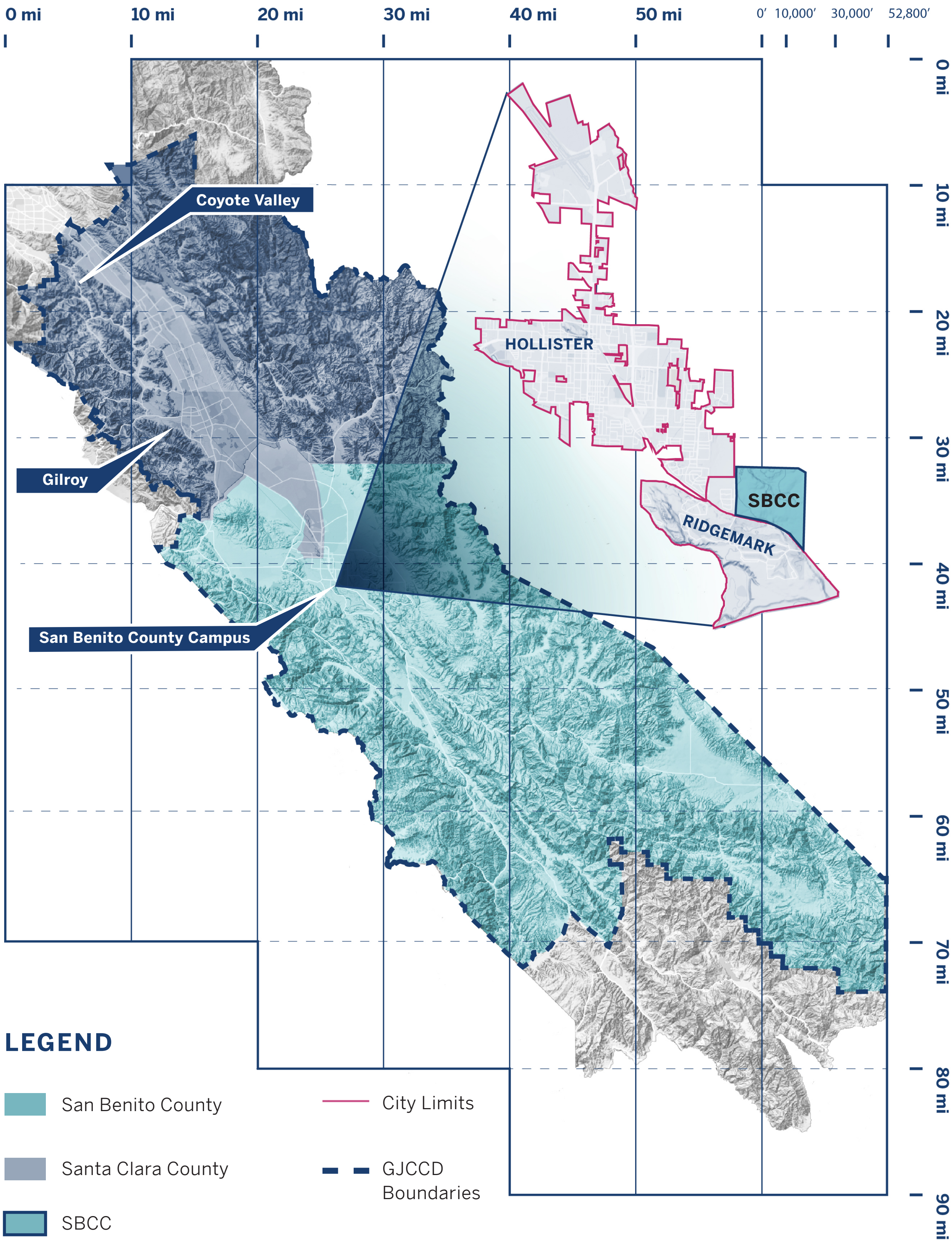
The SBCC is located in the unincorporated area of San Benito County, California, southeast of Hollister. The Campus is part of the Gavilan Joint Community College District (GJCCD), which is comprised of 2,700 square miles encompassing southern Santa Clara and most of San Benito County.

The SBCC site, set to be built on the Southeast corner of Highway 25 and Fairview Road, is located Southeast of San Jose and Silicon Valley, in the largest rural community in Central California.

Figure 1.2 illustrates the GJCCD boundaries and it only identifies the District properties. There are many other locations used for College instruction not shown on the adjacent map, for clarity purposes.

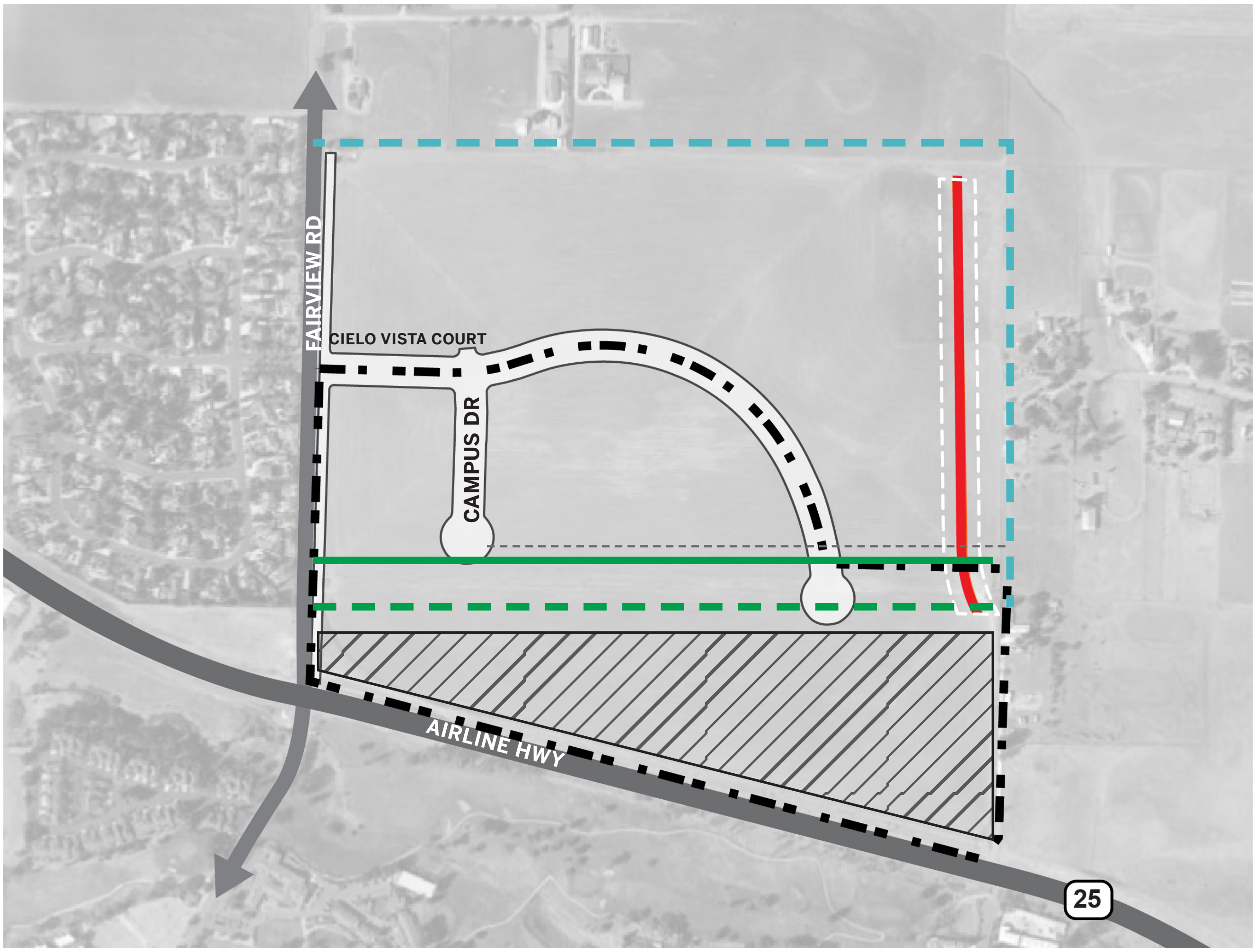
GJCCD BOUNDARIES

FIGURE 1.2



LEGEND

- San Benito County
- Santa Clara County
- SBCC
- Site Land Owned by the District
- City Limits
- GJCCD Boundaries



CONSTRAINTS

There is a utility easement running east-west through the site area. The existing utility lines will be relocated to allow for the new Campus Center building and future Campus growth.

The illustration above also shows the non-buildable area on Campus, at the southern edge of the College property.

The fault line is highlighted above in red. Areas within 50 feet of the active fault line are considered non-buildable.

Concurrently, an emergency egress route will be provided (by others) and will be co-located with the new underground easement.

LEGEND

- Existing Utility Easement to be relocated
- Potential Alignment for Relocated Power Lines below Grade
- Water Line Easement
- Fault Line
- Non-buildable Area
- Property Line
- Proposed Emergency Egress (by others) to follow PG&E Easement

FIGURE 1.4

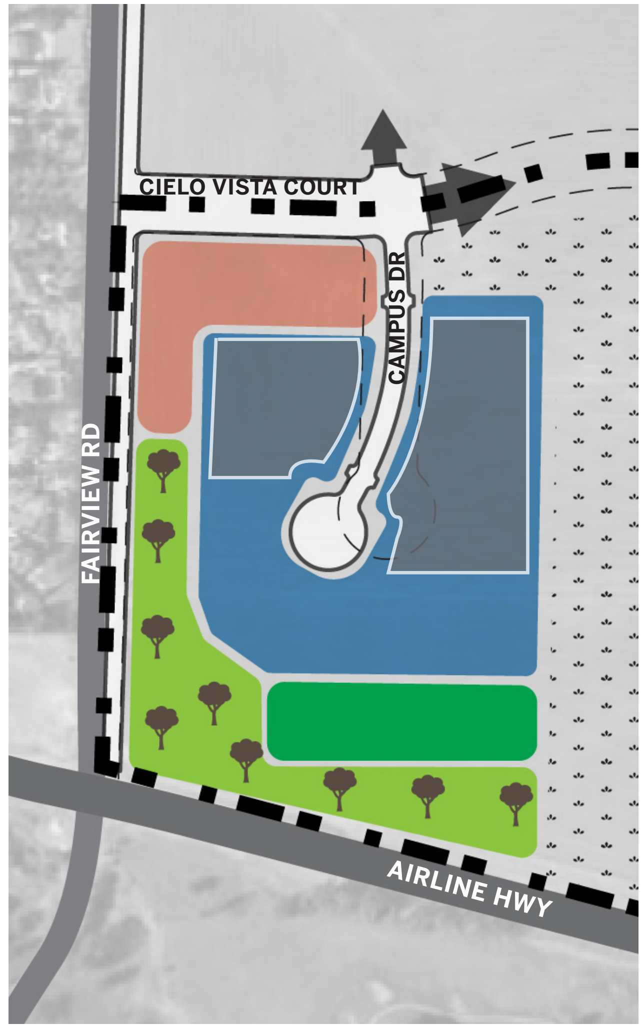
PROPOSED ZONING

Figure 1.4 identifies the key zoning locations for the proposed SBCC.

The first campus buildings are proposed to be located in the south-western portion of the Site, at the terminus of the Campus Road, Open space areas are proposed to the south and west of the new building(s) to maintain the picturesque image of the site from Airline Hwy and Fairview Rd.

Potential future retail zones are proposed at the corner of Fairview and Cielo Vista to increase visibility from the community.

Parking zones are proposed to flank Campus Drive.



LEGEND

- Phase One Campus Building(s) Zone
- Active Open Space
- Natural Landscape
- Future Development
- Future Retail
- Proposed Parking

PARTICIPANTS

Administration:

Dr. Kathleen Rose	Superintendent / President
Michael Renzi	Vice President, Administrative Services
Denee Pescarmona	Vice President of Academic Affairs
Jeff Gopp	Director of Facilities Services

Leadership

Judy Rodriguez	Site Director at Briggs Building-Hollister

Faculty

Christina Salvin	English Instructor
David Perez	Spanish Instructor

Bond Manager

A Kennedy Group (AKG)

Matt Kennedy	Program Management
Carol Anderson	Program Management Support

Project and Construction Manager

Felice Consulting Services

Construction Consultant

Umstot Solutions

Architect

Steinberg Hart

Civil Engineer

CSW

Landscape Architect

Spurlock Land

Structural Engineer

Degenkolb Engineers

Mechanical, Plumbing, Electrical, Fire Protection

P2S

Acoustical and Technology Consultant

Charles M Salter Associates Inc

Food Consultant

Webb Foodservice Design

Furniture, Fixture, & Equipment

Dovetail

CODES + REGULATIONS

All work on the SBCC Center shall be performed according to the building codes, ordinances, and laws of the Authority Having Jurisdiction (AHJ) on the project. The project shall require review and approval by the California Division of the State Architect (DSA).

Design and construction codes and standards are listed here. The codes and standards listed are minimum requirements. Codes and Standards shall be thoroughly examined for applicability to the project. Nothing is to prevent the architect, engineer, or design consultant from exceeding the applicable requirements. In most cases, the most recent editions of codes and referenced standards apply. However, the DBE is ultimately responsible for verifying and conforming to all applicable codes and standards.

Applicable Codes include but are not limited to:

Table: 1.6 APPLICABLE CODES

CODE TYPE	CODE TITLE
Building	California Building Code (CBC) 2019 Edition
Mechanical	California Mechanical Code (CMC) 2019 Edition
Plumbing	California Plumbing Code (CPC) 2019 Edition
Electrical	California Electrical Code (CEC) 2019 Edition
Energy	California Energy Code
Gas	California Mechanical & Plumbing Codes, 2019 Edition
Fire and Life Safety	California Fire Code (CFC) 2019 Edition / National Fire Alarm and Signaling Code (NFPA 72), as amended by the CBC, 2016 edition / Standard on the Installation of Sprinkler Systems (NFPA 13), as amended by the CBC, 2016 edition / Standard for the Installation of Standpipe and Hose Systems (NFPA 14), as amended by the CBC, 2016 edition / National Fire Alarm and Signaling Code (NFPA 72), as amended by the CBC, 2016 edition / Standard for Emergency and Standby Power Systems (NFPA 110) as amended by the CBC, 2016 Edition.
Accessibility	California Building Code / Americans with Disabilities Act (ADA)
Ventilation/ Indoor Air Quality	California Energy Code
Sustainability	California Green Building Code
Elevator	Elevator Safety Orders
Food	California Retail Food Code

REFERENCE DOCUMENTS

AV/IT STANDARDS

Standards are being developed at the same time of Criteria documents

DESIGN STANDARDS AND GUIDELINES

Gavilan Joint Community College District, Design Standards and Guidelines, Summer 2020

EDUCATIONAL MASTER PLAN

Gavilan Join Community College District, Educational Master Plan, Spring 2017

FACILITIES MASTER PLAN

San Benito County Campus Facilities Master Plan Update, Summer 2020

FF&E STANDARDS

Standards are being developed at the same time of Criteria documents

GEO-TECHNICAL REPORTS

Geotechnical Engineering and Geologic Hazards Report Gavilan College San Benito Campus Fairview Road And Airline Highway Hollister, California, July 2020

PRINCIPLES OF UNIVERSAL DESIGN

North Carolina State University, The Center for Universal Design

RELOCATION OF EASEMENT

RJA Base Sheet

WAYFINDING

Standards are being developed at the same time of Criteria documents

DEFINITIONS & ABBREVIATIONS

The following definitions will assist in the use of this Project Description and Criteria. Definitions for all other sections of this RFP may be found in the General Conditions.

ADA

The Americans with Disabilities Act

APPROVAL

The College's written statement indicating that the project complies with the College requirements and desires.

ASF

Assignable Square Feet - the usable area required to accommodate a function, equipment, an occupant, or an occupant group.

AV

Audio Visual

BOH

Back of House (kitchen equipment list)

CAPACITY

Identifies the seat count

CFM

Cubic Feet per Minute

CORE

Vertical circulation, restrooms, and building service.

DBE

Design-Build Entity, selected to undertake the Project

DBF/DBI

Design-Build Entity Furnished and Design-Build Entity installed.

DESIRED OR PREFERRED

Item or description is an enhancement which may be provided in the project's design

ESTIMATED EFFICIENCY FACTOR

The Space Program Matrix identifies a target efficiency factor for the building. This number was used for budgeting purposes.

FF&E

Furniture, Fixtures and Equipment

GSF

Gross Square Feet - the total floor area of a building, including all levels, that are totally enclosed within the building envelope.

IT

Information Technology

LVT

Luxury Vinyl Tile (or planks)

MUSEUM

The Museum is dedicated to the display of objects and artifacts of historical value for the San Benito County Community

N/A

Not applicable

OF/DBI

Owner-Furnished and Design-Build Entity installed.

OF/OI

Owner Furnished and Owner Installed

RC

Room Criteria

DEFINITIONS & ABBREVIATIONS CONT'D

REMARKS

Item or description must be provided

REQUIRED

Item or description must be provided

ROOM TYPE

A classification system defined by the State to classify all rooms in the community college system

SECURE ZONE

Access by restricted personnel only. Key card access required.

SLASH (/)

The symbol appears in place of the word "and"

02

PROGRAM + ROOM DATA

02

PROGRAM + ROOM DATA

INTRODUCTION

This chapter includes conceptual diagrams and matrices for the space program, adjacencies, and room data sheets for the new San Benito County Campus (SBCC) Center. The Program needs and goals were defined through a collaborative and inclusive process with District, College staff, and future building users.

The room data sheets provide descriptions for many of the technical requirements that will be needed for each space within the Project. Room data sheets follow the same order of the Space Program Matrix.

Final room dimensions, technical requirements, and FF&E should be discussed, confirmed, and finalized by the Design-Build team.

SBCC CENTER OVERVIEW

This first Campus facility will provide general assignment classrooms, science lab, and student support spaces. It will also include multipurpose/museum spaces and small serving kitchen(s) to support students on campus and community.

The following table outlines each Program component and its proposed square footage.

Table: 2.1 SPACE NEEDS SUMMARY

GENERAL CLASSROOM	**4,000**
SCIENCE LABORATORIES	**5,000**
MULTI-USE SPACE	**5,000**
LEARNING RESOURCES	**5,500**
OFFICE	**1,730**
LOBBY+WELCOME CENTER	**1,950**
	ASF **23,180**
TOTAL	GSF **35,662** (includes 65% efficiency)

GENERAL INSTRUCTION SPACE

General classrooms and computer labs shall be designed to encourage interaction, collaboration, participation, and a wide range of pedagogies to support multi-department use. Private, enclosed one-person rooms shall be adjacent to computer rooms and may function as office and impromptu private meetings for faculty, and staff, interchangeably. In some cases, computer rooms should serve as proctoring centers and shall guarantee privacy and quiet space for testing.

SCIENCE LAB

Class Labs and Service spaces, along with Classrooms, comprise the bulk of the SBCC Center program. These spaces shall be designed to be flexible, accommodating a variety of Science courses, none of which are intended to be highly specialized. Science Prep Lab Spaces shall have direct access to the class labs. Lab technician offices shall be located immediately adjacent to or within the lab service space to maximize work efficiency.

MULTI-USE SPACES

A large amount of square footage is dedicated to multi-use and community space. The San Benito County community will be an integral part of this campus and shall have ample use of this facility. These spaces shall be easily accessible during and after normal building hours. Adjacency with cafe and other public spaces is desired and recommended.

LEARNING RESOURCE CENTER (LRC)

The LRC shall be adjacent to high traffic spaces to facilitate access and collaboration. It is desired to be a highly flexible and dynamic space. A large amount of square footage shall be dedicated to reserves. There are no general book stacks envisioned in the configuration of this LRC.

FACULTY, STAFF + ADMINISTRATION SPACE

The new facility shall provide offices, meeting space, and support space for faculty, staff, and administrators. Supporting the *Guided Pathway* framework, these spaces shall be designed to promote interdisciplinary interaction and collaboration, including the co-location of all faculty offices in a single area. Faculty and administration offices must also be highly visible and readily accessible to students to promote student success. Additional office service spaces shall include an open reception area and open collaboration space.

SBCC CENTER OVERVIEW
CONT'D

BUILDING SUPPORT

The building support areas include, but are not limited to, loading/receiving area, service yard, restrooms, telecommunication rooms, mechanical/electrical rooms, and custodial spaces. Not all building support spaces have been identified herein and it is expected that the DBE will address the individual needs of the project. Here, these spaces are not calculated as part of the building's assignable square footage (ASF) but are specifically called out because of their importance.

CORRIDORS/OPEN COLLABORATION

To maximize opportunities for collaboration and to support dynamic instruction and active learning, seating areas, hallways, and in-between spaces shall be carefully designed. Where possible, provide tackable wall or writable surface, The minimum width of corridors shall be ten feet and shall have similar finishes as Lobby spaces.

RESTROOMS

The provision of restrooms must meet code requirements, at a minimum. A careful assessment of the uses and occupant loads must be done to ensure adequate facilities are provided.

Access to restrooms shall be provided throughout the facility, including areas of the building that may be operated separately.

At least one Gender-neutral restroom shall be provided.

LACTATION ROOM

Lactation rooms(s) should be distinct room(s) designed for their intended purpose (should not be in or accessed through bathrooms, locker rooms, or similar facilities).

Lactation room(s) may be located near lobbies or main corridors, in proximity to breakrooms, bathrooms, and other core building functions.

The room(s) shall be a private space, free from intrusion, and shielded from view.

Each room shall be equipped with a lockable door, table(s) or counter, comfortable ergonomic chair(s), trash can, adequate lighting, and multiple electrical outlets. A sink with hot and cold water is highly preferred to be within the room.

At least one Lactation room shall be provided.

CUSTODIAL SPACES

One Custodial Closet per floor, and preferably adjacent to the nearest restroom, is required to facilitate building maintenance and accommodate various storage of supplies and equipment. The door swing must not encroach on the usable storage space.

The first floor Custodial Closet shall have additional square feet of storage space. This larger central Custodial Closet will serve as a storage for bulk supplies to be delivered to the servicing closets.

SECURITY

Security Standards identified in the Campus *AV/IT Standards* set the minimum by which the security systems shall be designed at GJCCD.

Refer to *AV/IT Standards and Chapter 12 - Low-Voltage Technology Design Criteria* for details.

Table: 2.2 SPACE PROGRAM MATRIX

Room Type	Room ASF	Minimum # of Seats
GENERAL CLASSROOM	**4,000**	
General Lecture	1,000	48
General Lecture	1,000	48
General Lecture	1,000	48
General Lecture	1,000	48
SCIENCE LABORATORIES	**5,000**	
Science Lab (wet)	1,280	28
Science Lab (wet)	1,280	28
Science Lab (wet)	1,280	28
Science Prep Lab	1,216	
MULTI-USE SPACE	**5,000**	
Flexible Classroom	1,400	47
Multi-Use / Community Room	2,500	83
Storage + AV closet	200	
Students of San Benito Activities Office	900	30
LIBRARY & LEARNING RESOURCES	**5,500**	
Library and Learning Resources	2,500	83
Student Collaboration Spaces/Mtg	600	20
General Use Computer Lab	1,200	40
General Use Computer Lab	1,200	40
ADMIN, SERVICES, FACULTY	**1,730**	
Administrative Office	380	
Administrative Open Office(s)	600	
Faculty Offices	750	
LOBBY, WELCOME CENTER, OTHER	**1,950**	
Lobby/Welcome Center	250	
Open Collaboration Area	750	
Café / Seating	750	
SBC Museum	200	
SUBTOTAL ASF	**23,180**	
Desired Efficiency	65%	
TOTAL GSF	**35,662**	

SPACE PLANNING ADJACENCIES

Adjacency diagrams describe space/room groupings and their spatial relationships. Support spaces (such as restrooms) and program pieces with no critical adjacencies are not illustrated.

The adjacencies were organized into the following three categories:

- Required Adjacency
- Preferred Adjacency
- No Adjacency

REQUIRED ADJACENCIES

1. The Lobby/Lounge shall have direct connection to entry plaza or court. Connection to an outdoor plaza shall serve as an entry and a welcoming point of arrival.
2. The Lobby/Lounge shall have direct connection to the building's primary vertical circulation. Elevators and stairs shall be both easily visible and physically accessible.
3. The Learning Resource Center shall be centrally located.
4. Classrooms shall be placed throughout the building.
5. Open study shall be dispersed and occur on all levels of the SBCC Center. This will provide students with a variety of spaces from which to choose (i.e. active vs. quiet).

PREFERRED ADJACENCIES

1. It is preferred for some open study to be integrated with widened corridors in close proximity to classrooms. These spaces will allow students to queue for classes, academic discourse, collaborative work, or soft seating.
2. For security reasons, all restrooms are desired to be located within eyesight/ supervision of administration or faculty.

NO ADJACENCY

1. Consideration shall be taken in the transmission of sound that may occur from a lobby space to a quieter classroom environment.
2. Science Laboratories and coffee/lounge spaces shall not be adjacent, in order to keep a cleaner environment for classes.

CONCEPTUAL ADJACENCIES DIAGRAM

The illustration on the opposing page shows conceptual adjacencies. Each room or space is represented by a colored block. This block shows the proportional size of the room/space in comparison to the other spaces. Spaces of similar type/function shall be clustered together.

REQUIRED ADJACENCY

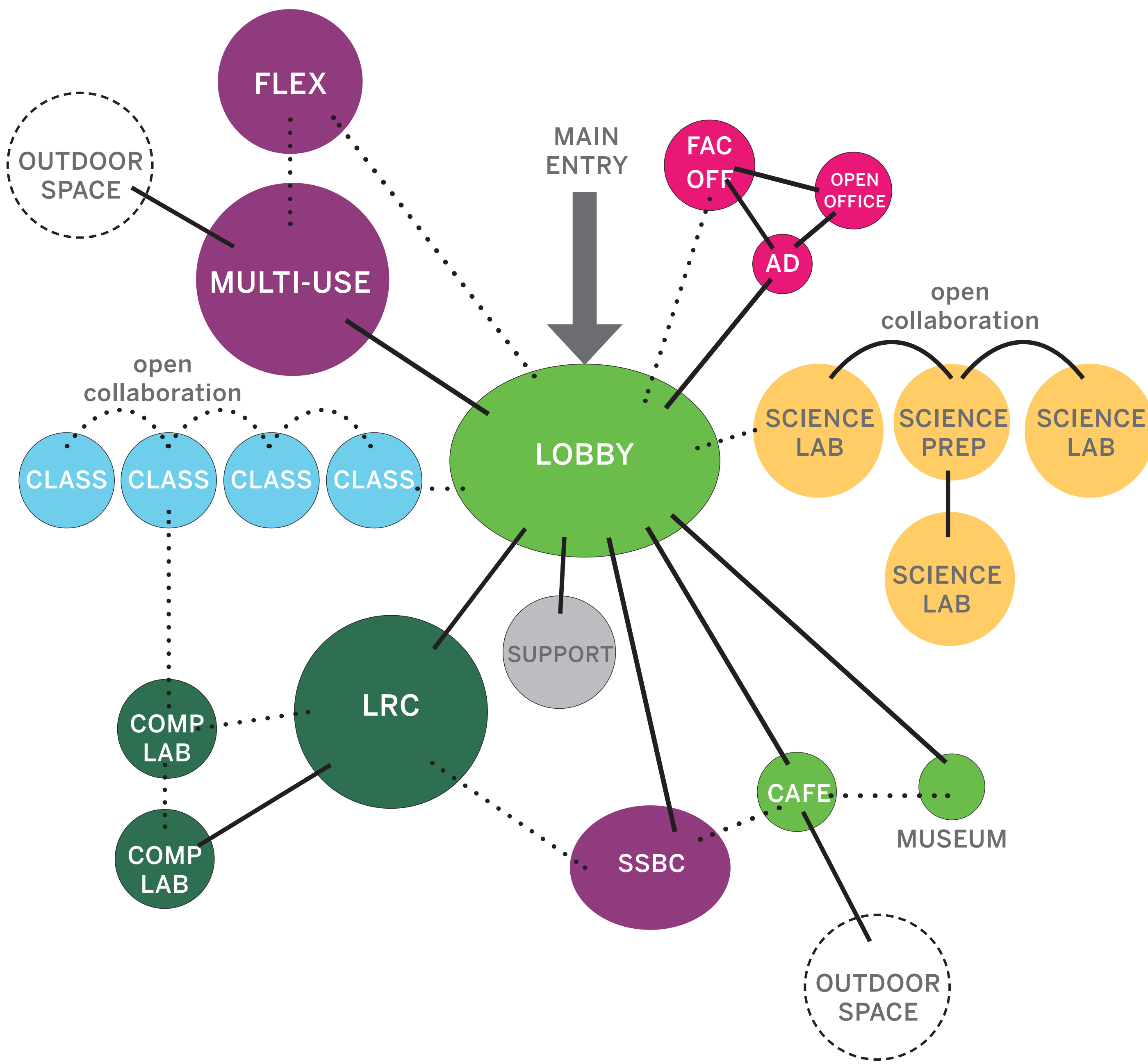
The solid line represents a physical connection between two spaces, allowing for direct access from one space to another.

PREFERRED ADJACENCY

The dotted line represents a desired physical connection. These spaces can be located within the same general area,

CONCEPTUAL ADJACENCY

FIGURE 2.3



LEGEND

Required Adjacency

Preferred Adjacency

ROOM CRITERIA

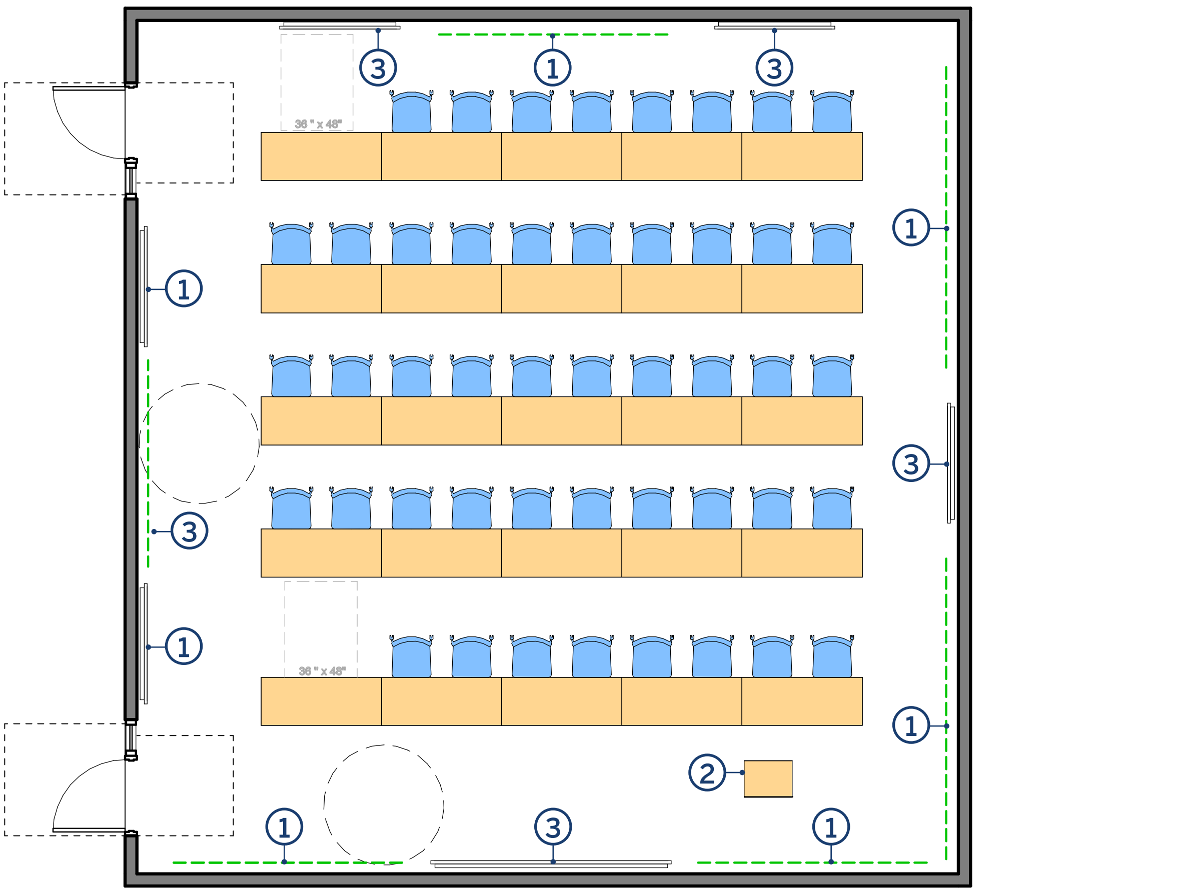
GENERAL CLASSROOM

DESIGN INTENT	This type of space will have scheduled general instruction. On occasion, the room will be used for non-academic purpose, such as student club activities, meetings, and open student study. These uses are anticipated throughout the day and week, inclusive of evening hours and weekends. Two entry/exit doors are desired.
SPACE ADJACENCY	The General-Use Classrooms shall be adjacent to the Welcome Center, the LRC, Multi-Use, and Flexible Class spaces.

CHARACTERISTICS

Capacity:	48
Floor Finish:	Resilient Floor Tile
Wall Finish:	Painted gypsum board. Painted writable surface
Ceiling Treatment:	Acoustic ceiling tile
Ceiling Height:	10'-6" minimum
Natural Light:	Required
Window Treatment:	Black-out Shades required. Non-heat conductive shades preferred.
Door:	Sidelight or vision panel in door, STC 30 or higher, see *Chapter 11 Acoustical Design Criteria* for more information.
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Casework:	None
Accessories:	Whiteboard attachment on tables and analog smart-sync clock (hardwired)
Other:	None

GENERAL CLASSROOM



LEGEND

1 WRITABLE SURFACE

2 MOBILE INSTRUCTOR MULTIMEDIA PODIUM

3 FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION

MOVABLE FURNITURE

MOVABLE SEATING

30”X48” ACCESSIBILITY CLEARANCE

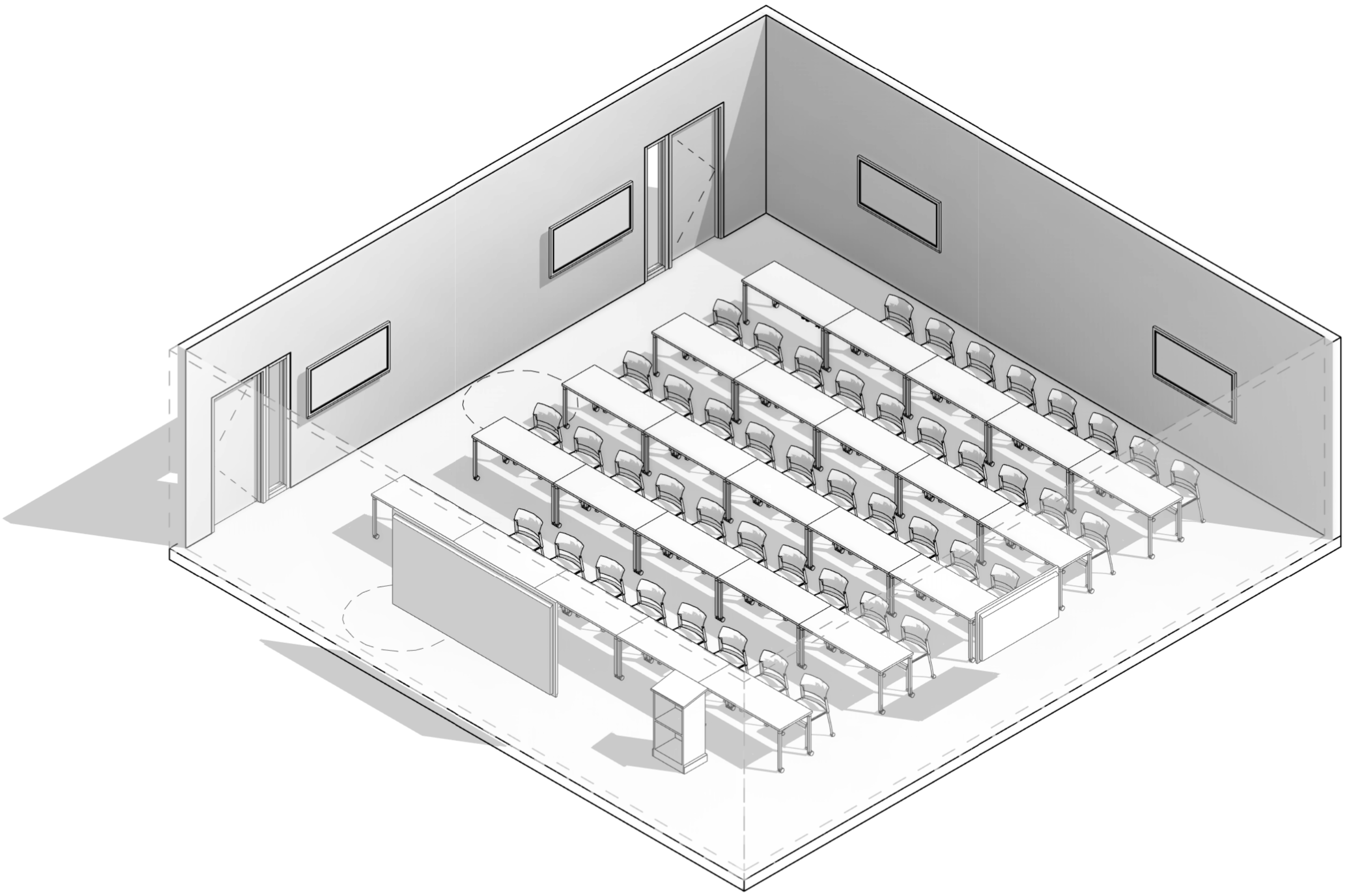
5’ ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

GENERAL CLASSROOM CONT'D

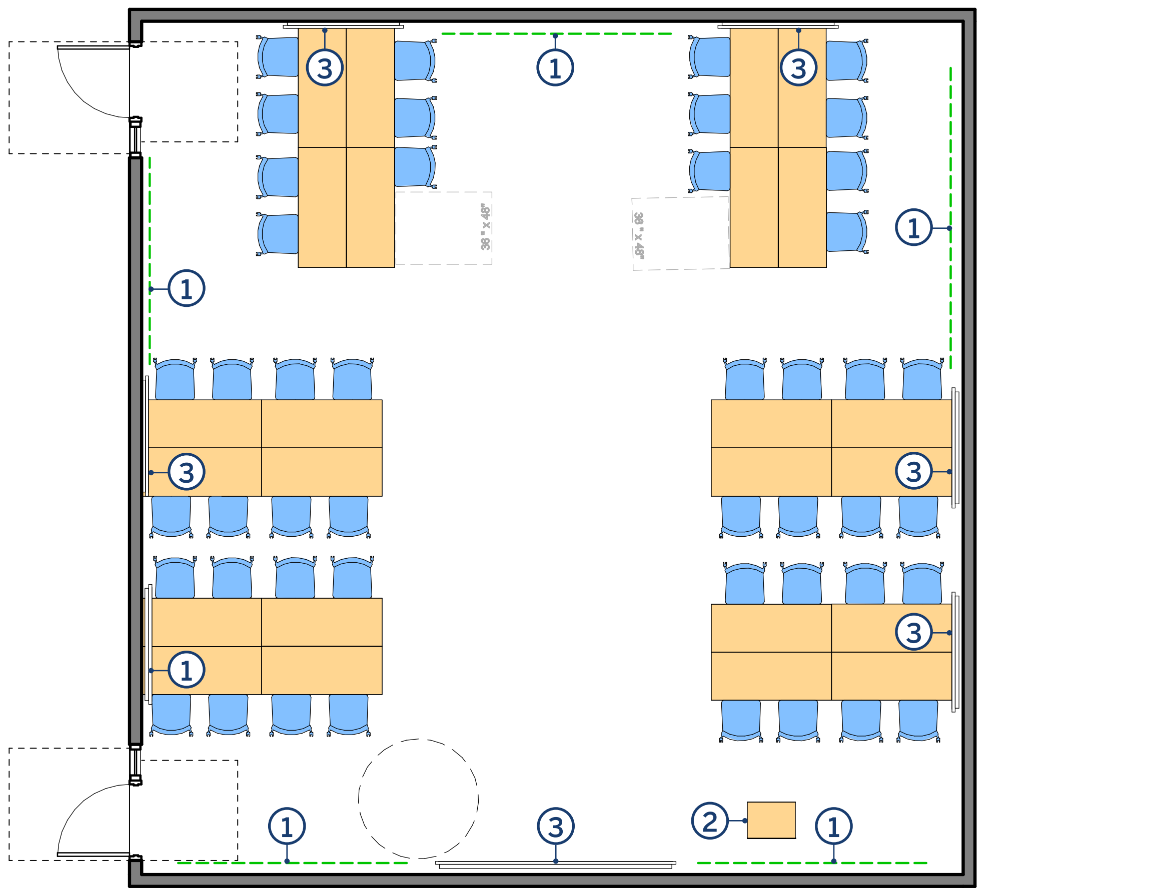
TECHNOLOGY	Audio/Visual:	Five (5) 45-55" and one (1) 98" Flat Panel Display. Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assistive Listening. Refer to *Chapter 12 Low-Voltage Technology Design Criteria* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (6) flush-mounted floor power boxes
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
EQUIPMENT & FURNISHINGS	Mobile chairs, nesting tables with locking casters, minimum one (1) mobile chair for sign language interpreter, OF/OI. When possible, furniture to accommodate technology for increased flexibility. Tables and chairs shall be selected for easy re-configuration and to promote flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.	
REMARKS	Flat panels shall allow for writable surfaces (whiteboard, glass surface, or painted Gypsum board) on either side.	

GENERAL CLASSROOM



ROOM CRITERIA CONT'D

GENERAL CLASSROOM ALTERNATE



LEGEND

1 WRITABLE SURFACE

2 MOBILE INSTRUCTOR MULTIMEDIA PODIUM

3 FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION

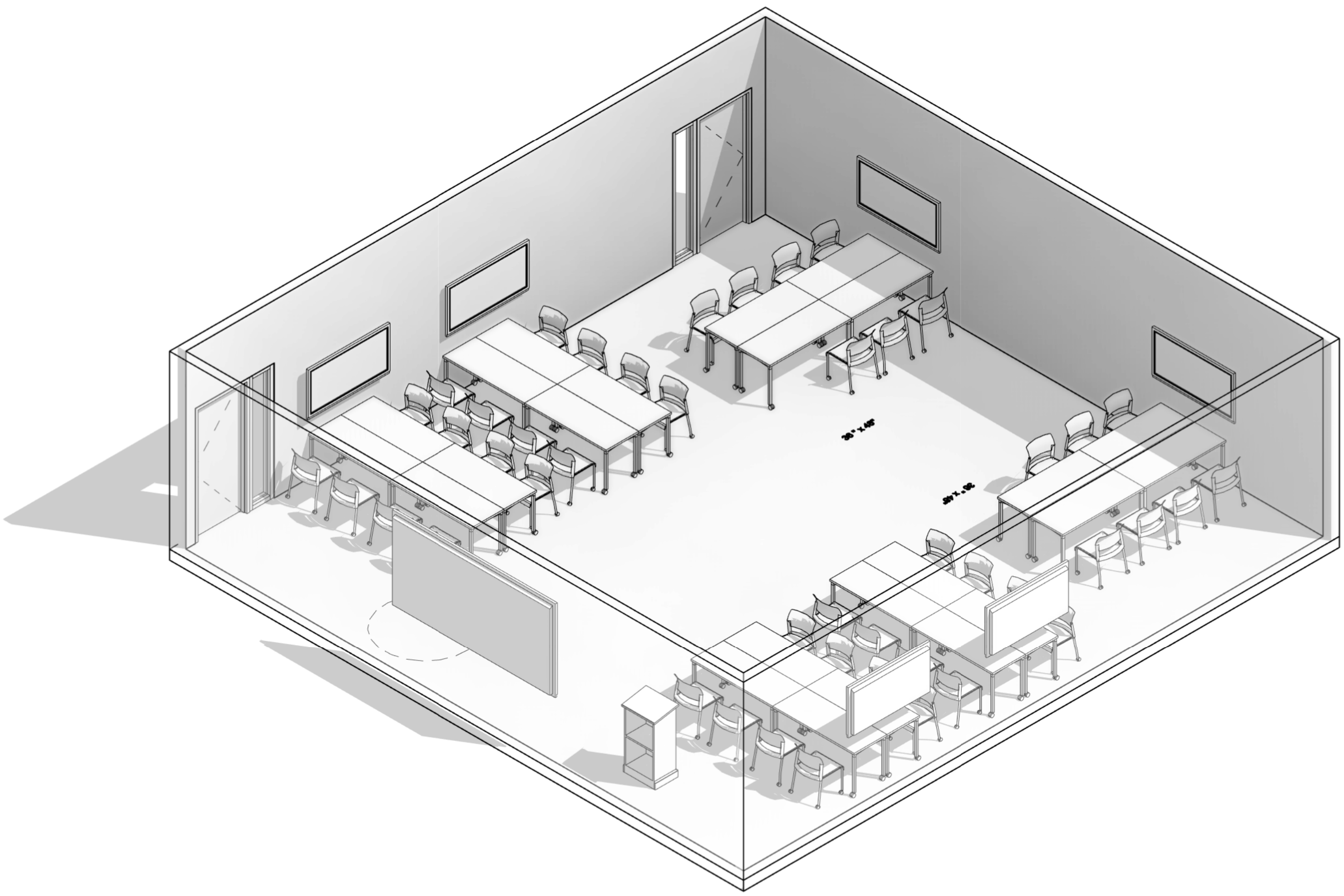
MOVABLE FURNITURE

MOVABLE SEATING

30"X48" ACCESSIBILITY CLEARANCE

5' ACCESSIBILITY TURNAROUND

GENERAL CLASSROOMS ALTERNATE



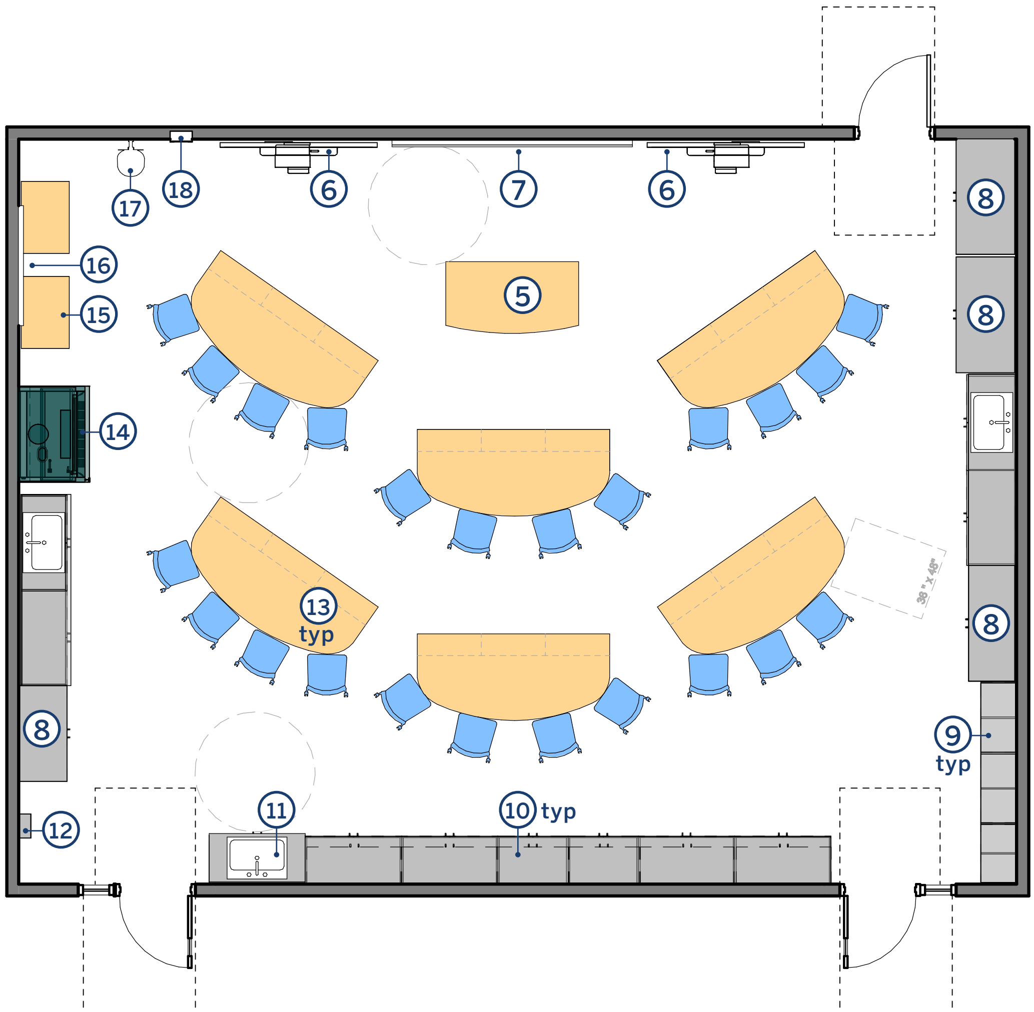
0' 2' 4' 8'

ROOM CRITERIA CONT'D

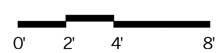
TYPE A SCIENCE LAB

DESIGN INTENT	The proposed arrangement of benches shall allow students to see one another, Smart Boards, white boards and instructor more easily. Benches can be either straight edge or segmented edge (as shown). Segmented edges help define each student's "zone" and improves visibility between students.	
SPACE ADJACENCY	Direct Adjacency to the Science Prep is required.	
CHARACTERISTICS	Capacity:	24
	Floor Finish:	Sealed Concrete
	Wall Finish:	Painted gypsum board - epoxy coated
	Ceiling Treatment:	Acoustic ceiling tile, Mylar Coated
	Ceiling Height:	10'-6"
	Natural Light:	Preferred
	Window Treatment:	Shades required. No Black-out shades. Non-heat conductive shades preferred. Glass break sensors
	Door:	Sidelight or vision panel in door. STC 30 or higher, see *Chapter 11 Acoustical Design Criteria* for more information.
	Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
	Casework:	Epoxy Resin Counter tops and Wood Casework. 24" deep lower and 18" deep uppers typ. All upper cabinets must be lockable
	Accessories:	Vertical Sliding Whiteboard and analog smart-sync clock (hardwired) Smart Board(s)
	Other:	Cabinets with same key as door is preferred.

TYPE A SCIENCE LAB



LEGEND



- 5 INSTRUCTORS STATION
- 6 SMART BOARD W/SHORT THROW PROJECTOR
- 7 VERTICAL SLIDING PANEL
- 8 TALL CABINET
- 9 BOOK-BAG CUBBIES
- 10 18" DEEP UPPER CASEWORK
- 11 ADA COMPLIANT SINK W/DI WATER
- 12 FIRE BLANKET WALL CABINET
- 13 MOBILE TABLE W/OPEN SHELF CABINETS FOR MICROSCOPES
- 14 4' BIO SAFETY CABINET
- 15 CART SPACE
- 16 WALL MOUNTED BULLETIN BOARD/PERIODIC TABLE
- 17 SAFETY SHOWER/EYE WASH STATION
- 18 RECESSED FIRE EXTINGUISHER CABINET
- MOVABLE FURNITURE
- MOVABLE SEATING
- FIXED FURNITURE
- 30"X48" ACCESSIBILITY CLEARANCE
- 5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

TYPE A SCIENCE LAB CONT'D

TECHNOLOGY	Audio/Visual:	Two (2) Smart Board Displays w/short throw projectors. Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assistive Listening. Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling | 100% exhaust, on emergency power, no recirculated air, 8 air changes per hour occupied/ 4 non-occupied. Negative pressure.
	Electrical	Minimum (7) power boxes (each located in bench stations) 110V, 20A, 1 Phase. (1) Duplex per Student at each student island (1) Fourplex at Instructor Island
	Artificial Lighting:	Indirect LED (500 LUX with dimmer) Zone Lighting for Monitor Presentation mode
	Plumbing:	Hot/Cold Water w/Vacuum breakers at Sinks: DI water at ADA compliant sink at perimeter. Domestic Water at Safety Shower/eyewash station; and Vacuum at Bio Safety Cabinet.
EQUIPMENT & FURNISHINGS	Instructor Bench: Mobile epoxy Resin Counter-top, wood casework. Demo Bench: mobile with folding resin counter top (not shown in layout). Student Benches: mobile with lockable wheels, epoxy resin counter top, wood casework, and open shelving to accommodate four microscopes per bench. Mobile lab chairs, fixed cabinet for AV station, (1) Bio Safety Cabinet, Emergency Shower/Eye Wash Station, Semi-recessed Fire Extinguisher Cabinet, and semi-recessed Fire Blanket Cabinet. Lab stools OF/OI. When possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.	

TYPE A SCIENCE LAB

REMARKS

Equipment Heat Gain: 25 btuh/sf

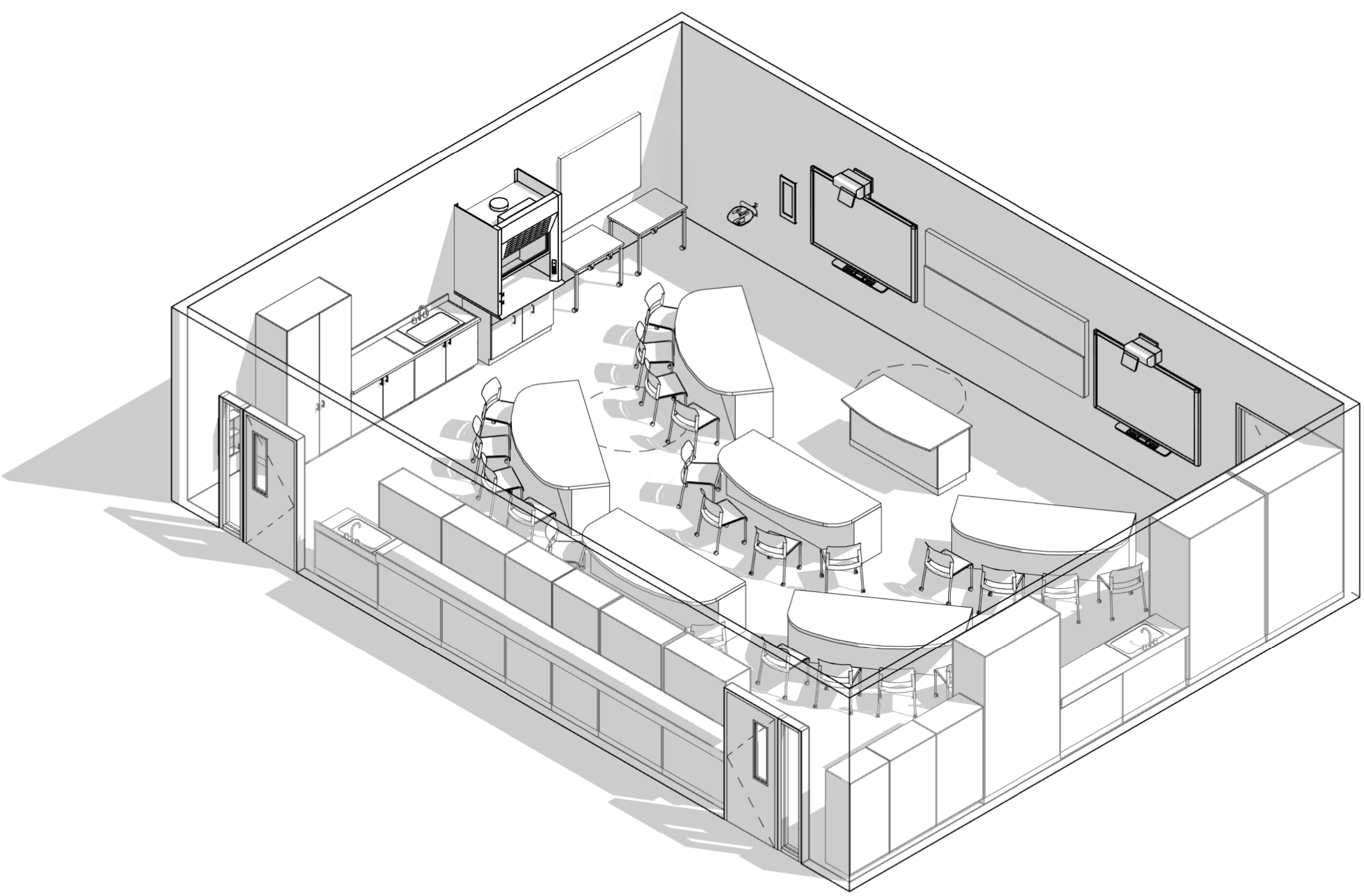
Emergency Gas Shutoff

All ducting, piping from hoods and other similar equipment must be concealed.

Accessibility at 5% of workstations, sinks and hood/bio safety cabinet.

Temperature: 68F - 74F Degrees, + / - 2 deg. F | Humidity: Ambient

Vibration attenuation: 4,000 micro inches/ sec or less (for microscopes)



ROOM CRITERIA CONT'D

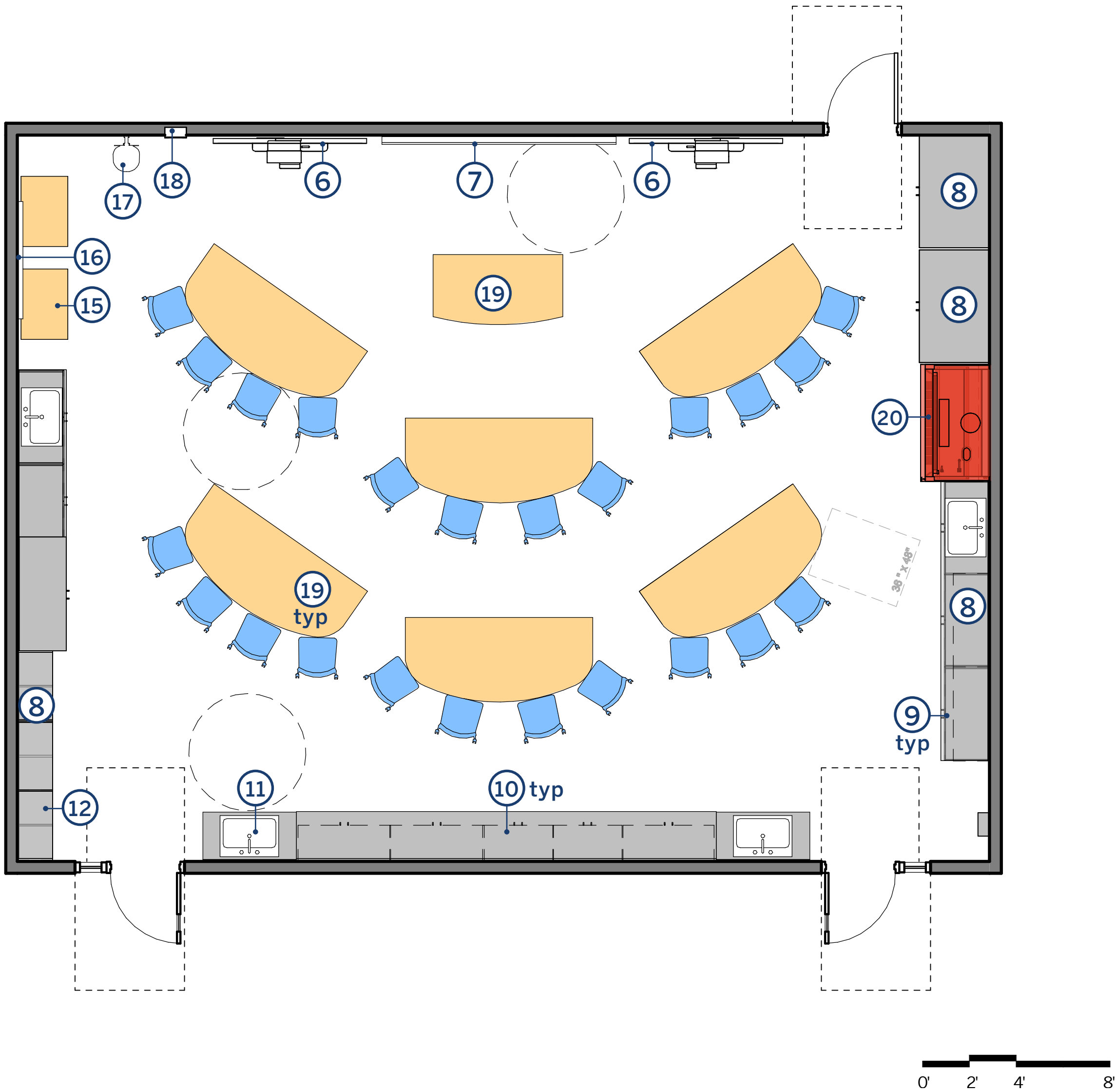
TYPE B SCIENCE LAB

DESIGN INTENT	The proposed arrangement of benches shall allow students to see one another, Smart Boards, white boards and instructor more easily. Benches can be either straight edge or segmented edge (as shown). Segmented edges help define each student's "zone" and improves visibility between students.
SPACE ADJACENCY	Direct Adjacency to the Prep Labs is required.

CHARACTERISTICS

Capacity:	24
Floor Finish:	Sealed Concrete
Wall Finish:	Painted gypsum board - epoxy coated
Ceiling Treatment:	Acoustic ceiling tile, Mylar Coated
Ceiling Height:	10'-6"
Natural Light:	Preferred
Window Treatment:	Shades required. No Black-out shades. Non-heat conductive shades preferred. Glass break sensors.
Door:	Sidelight or vision panel in door. STC 30 or higher, see *Chapter 11 Acoustical Design Criteria* for more information.
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Casework:	Epoxy Resin Counter tops and Wood Casework. 24" deep lower and 18" deep upper typ. All upper cabinets must be lockable.
Accessories:	Vertical Sliding whiteboard and analog smart-sync clock (hardwired) Smart Board(s)
Other:	Cabinets with same key as door is preferred.

TYPE B SCIENCE LAB



LEGEND

6	SMART BOARD W/SHORT THROW PROJECTOR	20	5' CHEMICAL FUME HOOD
7	VERTICAL SLIDING PANEL		MOVABLE FURNITURE
8	TALL CABINET		MOVABLE SEATING
9	BOOK-BAG CUBBIES		FIXED FURNITURE
10	18" DEEP UPPER CASEWORK		LAB EQUIPMENT
11	ADA COMPLIANT SINK W/DI WATER		30"X48" ACCESSIBILITY CLEARANCE
12	FIRE BLANKET WALL CABINET		5' ACCESSIBILITY TURNAROUND
15	CART SPACE		
16	WALL MOUNTED BULLETIN BOARD/PERIODIC TABLE		
17	SAFETY SHOWER/EYE WASH STATION		
18	RECESSED FIRE EXTINGUISHER CABINET		
19	FIXED TABLE W/1 DUPLEX, 1 GAS, 1 VACUUM PER STUDENT 1 EACH INSTRUCTOR		

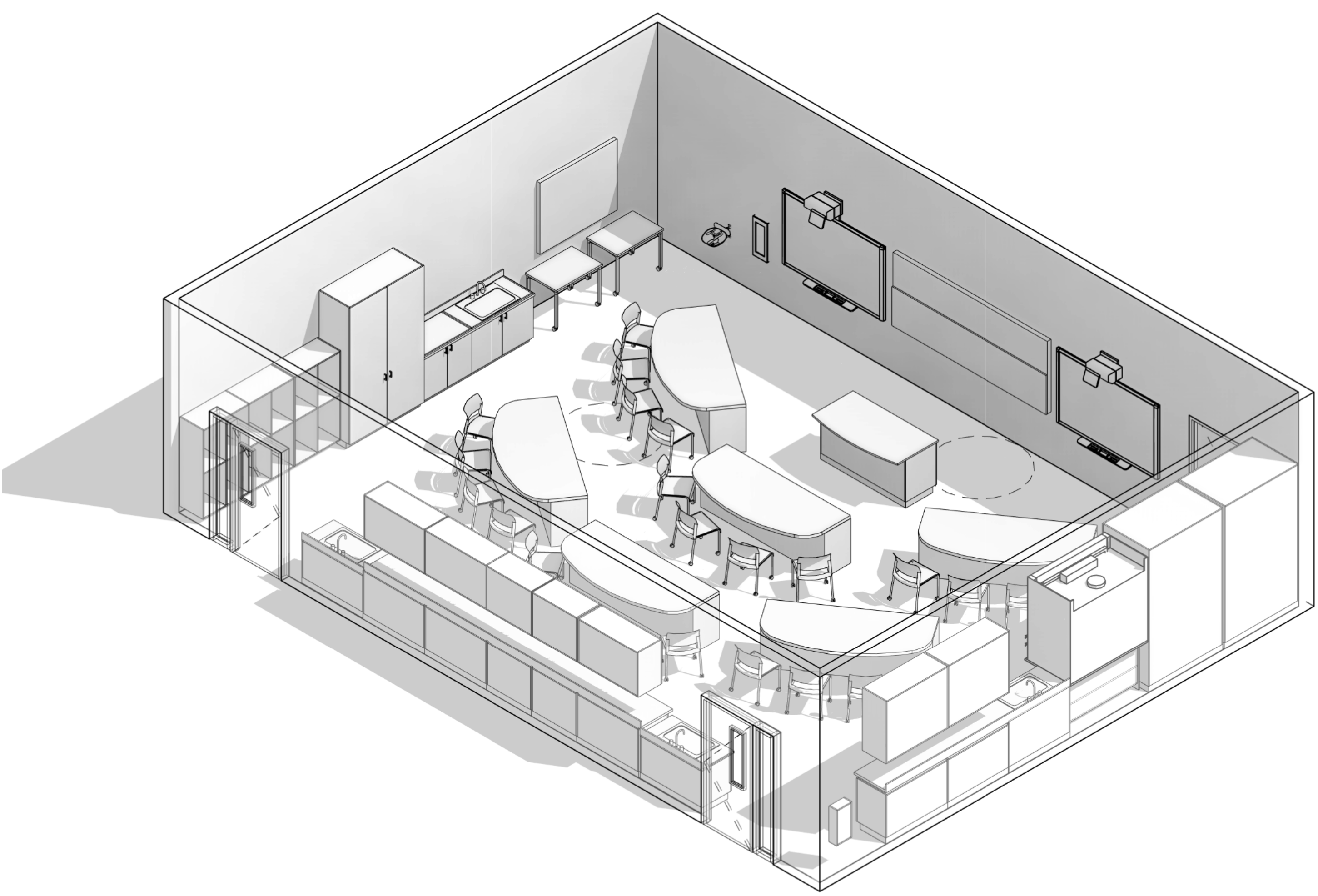
ROOM CRITERIA CONT'D

TYPE B SCIENCE LAB CONT'D

TECHNOLOGY	Audio/Visual:	Two (2) Smart Board w/ short throw projectors. Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assistive Listening. Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling | 100% exhaust, on emergency power, no recirculated air, 8 air changes per hour occupied/ 4 non-occupied. Negative pressure.
	Electrical	Minimum (7) power boxes (each located in bench stations) 110V, 20A, 1 Phase. (1) Duplex per Student at each student island (1) Fourplex at Instructor Island
	Artificial Lighting:	Indirect LED (500 LUX with dimmer) Zone Lighting for Monitor Presentation mode
	Plumbing:	Hot/Cold Water w/Vacuum breakers at Sinks; DI Water at ADA compliant sink at perimeter; Domestic Water at Safety Shower/eyewash station; Gas and Vacuum to all student benches instructor bench and fume hood.
EQUIPMENT & FURNISHINGS	Instructor Bench: mobile epoxy resin counter top, wood casework. Demo Bench: mobile with folding resin counter top (not shown in layout). Student Benches fixed, epoxy resin counter top, and wood casework. Mobile lab chairs, fixed cabinet for AV station, (1) Bio Safety Cabinet, Emergency Shower/Eye Wash Station, Semi-recessed Fire Extinguisher Cabinet, and semi-recessed Fire Blanket Cabinet. Lab stools OF/OI. When possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations. Accessibility at 5% of workstations, sinks and hood/bio safety cabinet.	

TYPE B SCIENCE LAB

REMARKS	Equipment Heat Gain: 25 btuh/sf Emergency Gas Shutoff All ducting, piping from hoods and other similar equipment must be concealed. Temperature: 68F - 74F Degrees, + / - 2 deg. F | Humidity: Ambient Vibration attenuation: 4,000 micro inches/ sec or less (for microscopes)



ROOM CRITERIA CONT'D

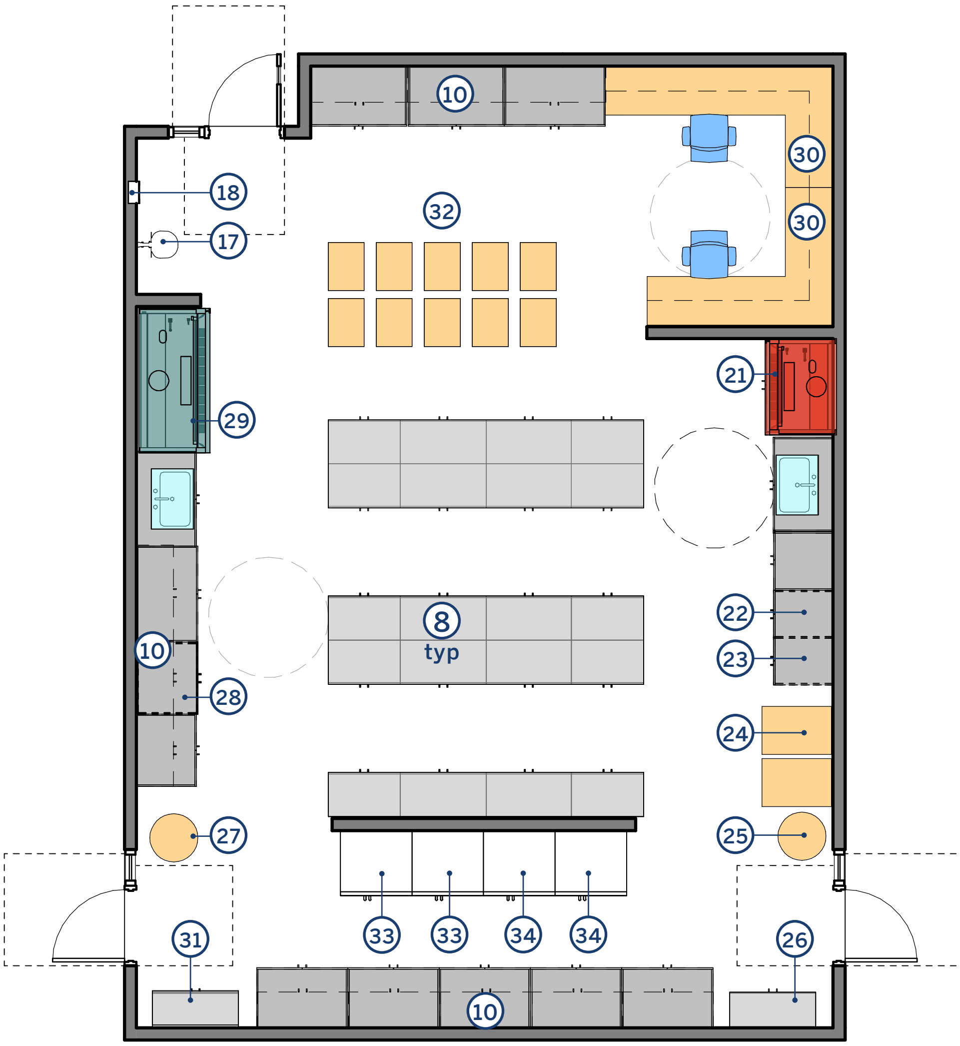
SCIENCE PREP LAB

DESIGN INTENT	The Science Prep Lab provides support services to the Life Sciences departments. Its functions include media preparation for student experiments, storage of media & equipment, cleaning of media & equipment, and waste collection of media.
SPACE ADJACENCY	The Prep Labs shall have immediate adjacency to the Science Labs and desired adjacency to Instructional Classrooms.

CHARACTERISTICS

Capacity:	N/A
Floor Finish:	Sealed Concrete
Wall Finish:	Painted gypsum board - epoxy coated
Ceiling Treatment:	Acoustic ceiling tile, Mylar Coated
Ceiling Height:	10' - 6"
Natural Light:	Preferred
Window Treatment:	Shades required. No Black-out shades. Non-heat conductive shades preferred.
Door:	Sidelight or vision panel in door, see *Chapter 11 Acoustical Design Criteria* for more information.
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Casework:	Epoxy Resin counter tops and Wood Casework | 24" deep lower and 18" deep upper typ.

SCIENCE PREP LAB



LEGEND

0' 2' 4' 8'

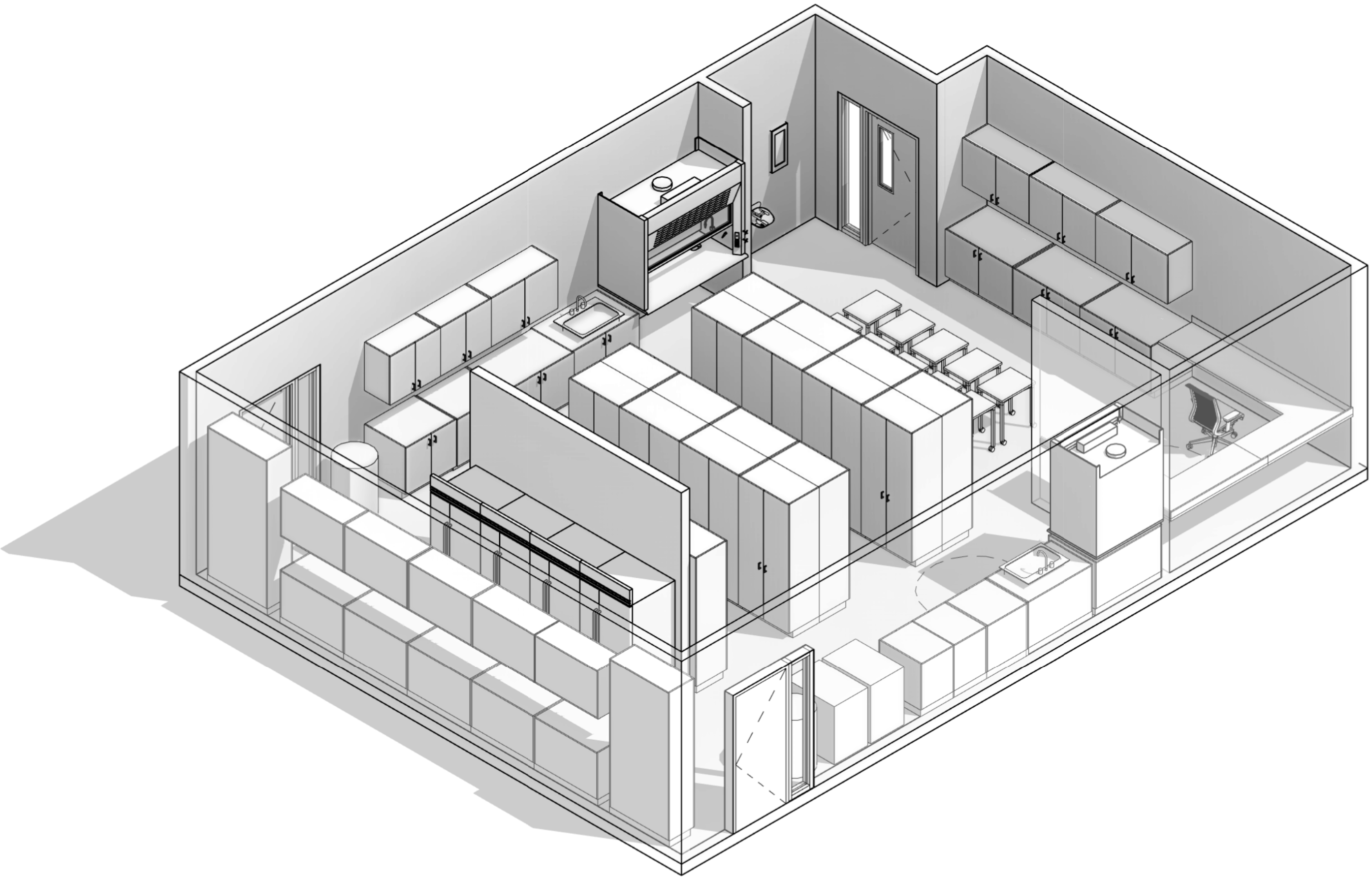
8	TALL CABINET
10	18" DEEP UPPER CASEWORK
17	SAFETY SHOWER/EYE WASH STATION
18	RECESSED FIRE EXTINGUISHER CABINET
21	4' CHEMICAL FUME HOOD
22	U.C. DISHWASHER
23	U.C. ICE MACHINE
24	MOVABLE INCUBATOR(S)
25	BIOLOGICAL WASTE DRUM
26	FLAMMABLES TALL CABINETS
27	CHEMICAL WASTE DRUM
28	DESKTOP AUTOCLAVE
29	SIX FEET BIO-SAFETY CABINET
30	TECH WORKSTATION
31	CORROSIVES TALL CABINET
32	MOBILE CARTS
33	REFRIGERATOR
34	FREEZER
	MOVABLE FURNITURE
	MOVABLE SEATING
	FIXED FURNITURE
	LAB EQUIPMENT
	30"X48" ACCESSIBILITY CLEARANCE
	5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

PREP LAB CONT'D

TECHNOLOGY	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet (connections shown in diagram are minimum required)
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling | 100% exhaust, on emergency power, no recirculated air, 6 air changes per hour occupied/ 4 non-occupied. Negative pressure. Ventilation at Corrosives Tall Cabinet.
	Electrical	110V, 20A, 1 Phase | 208V, 30A, 1 Phase | 208V, 30A 3 Phase Standby/Dedicated Power at Equipment Spaces
	Artificial Lighting:	Fluorescent w/multi-level switching, 75 fc at bench/desk
	Plumbing:	Hot/Cold Water w/Vacuum breakers at Sinks DI Water at Sinks. Domestic Water at Safety Shower/eyewash station (1) Gas and (1) Vacuum connection at each wall above counter; Gas and Vacuum at Bio Safety Cabinet, Vacuum at Chemical Fume hood; connections as required for desktop autoclave. Under counter dishwasher, Under counter Ice Machine, Incubators, Refrigerators and Freezers; Floor drain at Ice Machine.
EQUIPMENT & FURNISHINGS	Six foot Bio Safety Cabinet, 4 Foot Chemical Fume hood; Desktop Autoclave. Flammables Tall Cabinet; Corrosives Tall Cabinet; semi-recessed Fire Extinguisher Cabinet, and semi-recessed Fire Blanket cabinet. Two Tech Workstations and Chairs. Accommodate accessible stations, including height-adjustable tables at all accessible stations. Accessibility at workstations, sinks and fume hoods. Vibration attenuation: 4,000 micro inches/ sec or less (for microscopes)	
REMARKS	Temperature: 68F - 72F Degrees, + / - 2deg. F | Humidity: Ambient Equipment Heat Gain: 50 btuh/sf Emergency Gas Shutoff	

PREP LAB



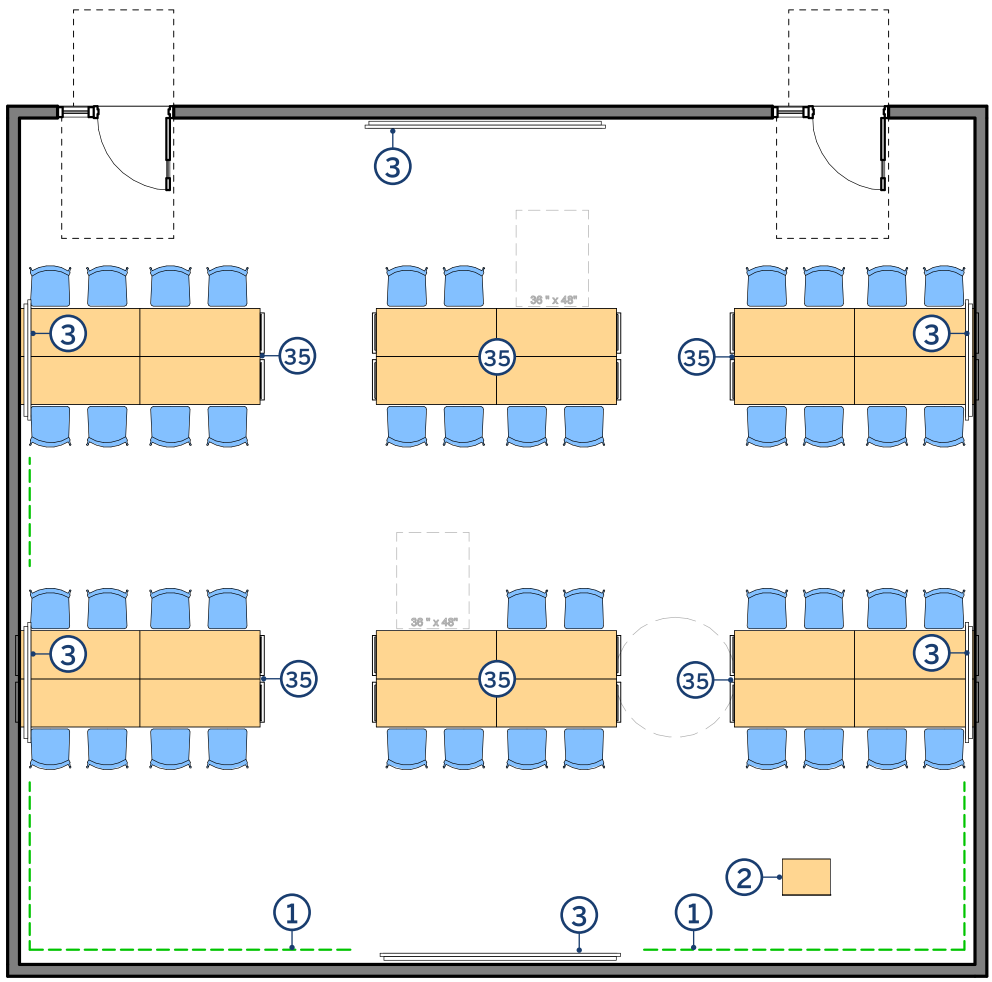
FLEXIBLE CLASSROOM

DESIGN INTENT	This type of space shall have scheduled general instruction. On occasion, the room will be used for non-academic purpose, such as student club activities, meetings, and open study. These uses are anticipated throughout the day and week, inclusive of evening hours and weekends. Two entry/exit doors are desired.
SPACE ADJACENCY	The Flexible Classrooms shall be adjacent to Welcome Center, Lobby and Multi-use room.

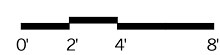
CHARACTERISTICS

Capacity:	48
Floor Finish:	Resilient Floor Tile
Wall Finish:	Painted gypsum board. Painted writable surface
Ceiling Treatment:	Acoustic ceiling tile
Ceiling Height:	10'-6" minimum
Natural Light:	Preferred
Window Treatment:	Black-out Shades required. Non-heat conductive shades preferred.
Door:	Sidelight or vision panel in door. STC 30 or higher, see *Chapter 11 Acoustical Design Criteria* for more information.
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Accessories:	Whiteboard attachment on tables and analog smart-sync clock (hardwired)

FLEXIBLE CLASSROOM



LEGEND



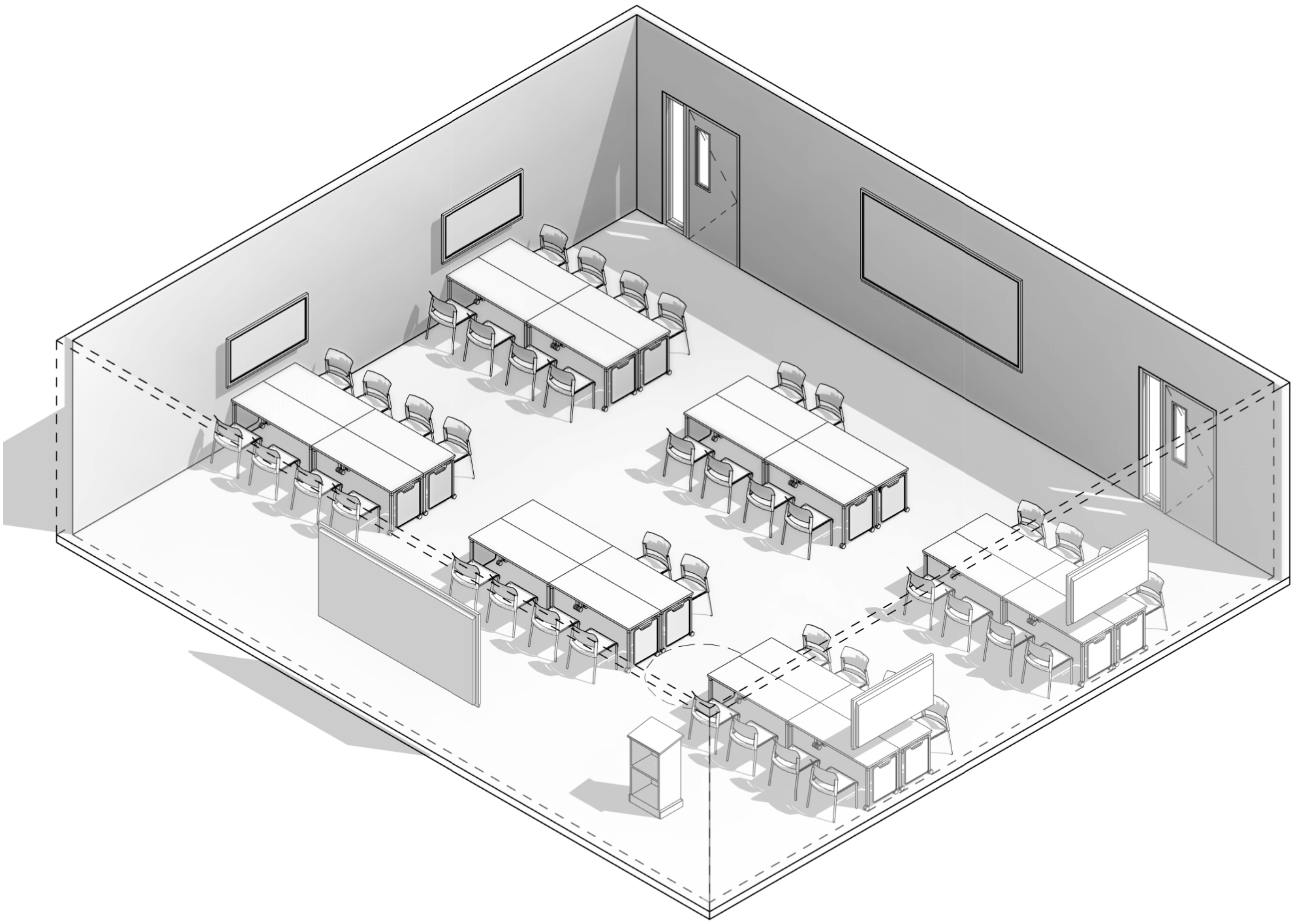
1 WRITABLE SURFACE
2 MOBILE INSTRUCTOR MULTIMEDIA PODIUM
3 FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION
35 MOBILE TABLE W/ INTEGRATED WHITEBOARDS
MOVABLE FURNITURE
MOVABLE SEATING
30"X48" ACCESSIBILITY CLEARANCE
5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

FLEXIBLE CLASSROOM CONT'D

TECHNOLOGY	Audio/Visual:	Four (4) 45-55" and two (2) 98" Flat-Panel Display. Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assistive Listening. Refer to *Chapter 12 Low-Voltage Technology Design Criteria* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (2) flush-mounted floor power boxes
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
EQUIPMENT & FURNISHINGS	Mobile chairs, nesting tables with locking casters OF/OI. When possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.	
REMARKS	Specify sound absorptive treatments to reduce reverberation time (RT60 at 500Hz) to 0.6 seconds or less.	

FLEXIBLE CLASSROOM



ROOM CRITERIA CONT'D

MULTI-USE COMMUNITY ROOM

DESIGN INTENT

The Multi-Use Community Room shall be used for the intent of scheduled general instruction, community and school events. These uses are anticipated throughout the day, week, and weekend, inclusive of evening hours.

The Staging Kitchen will be located at the Multi-Purpose Community Room and provide a back of house landing and finishing space for outside catering companies and special events vendors. Refer to *Chapter 14. Food Service Design Criteria* for more information and equipment layout.

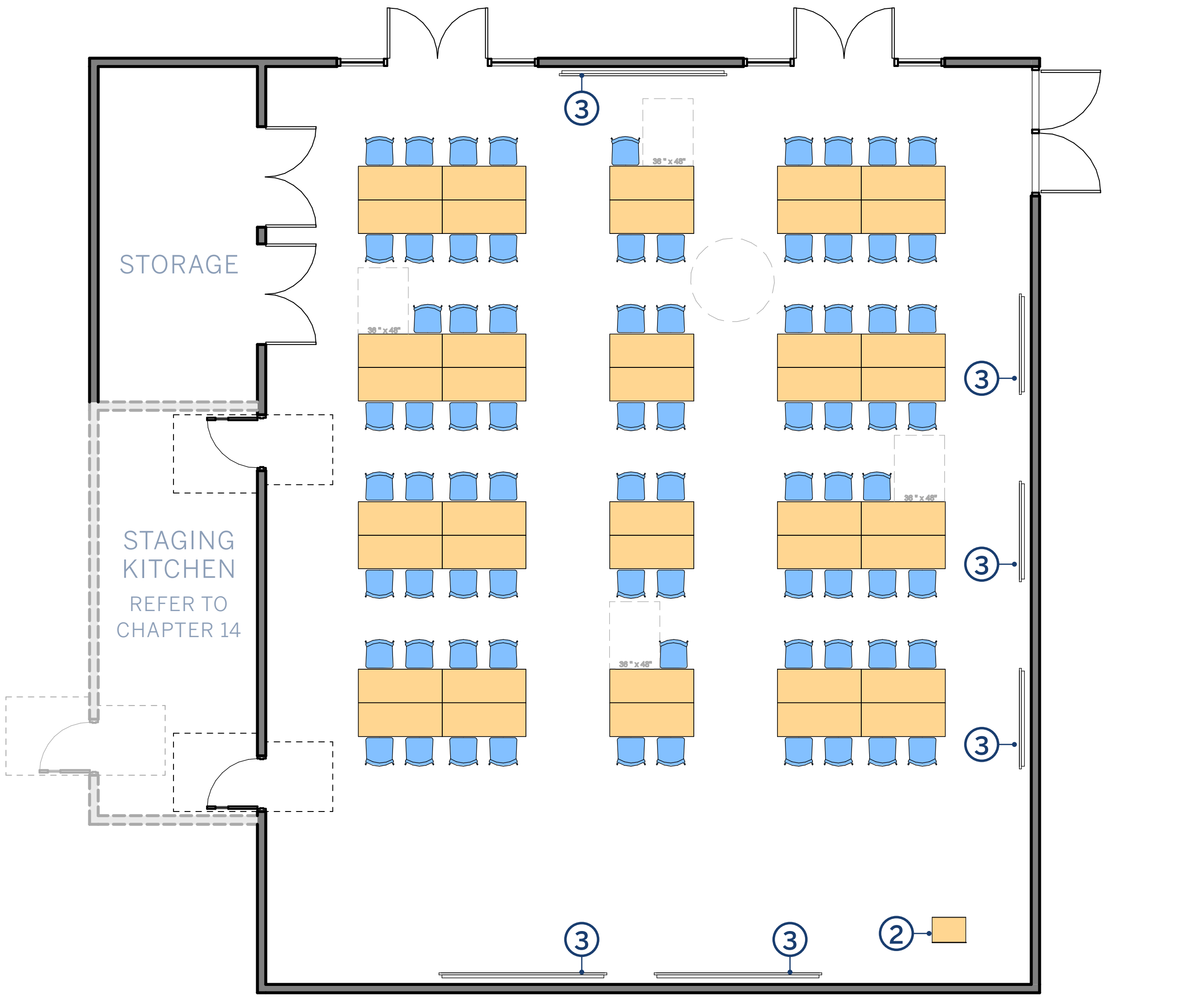
SPACE ADJACENCY

The Multi-Use Community Room shall be adjacent to the Welcome Center, Flexible Classroom, and Lobby. Proximity to the cafe is desired.

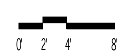
CHARACTERISTICS

Capacity:	40 tables; 80 lecture seating
Floor Finish:	Resilient Floor Tile
Wall Finish:	Painted gypsum board
Ceiling Treatment:	Acoustic ceiling tile
Ceiling Height:	10'-6" minimum
Natural Light:	Preferred
Window Treatment:	Black-out Shades required. Non-heat conductive shades preferred.
Door:	Vision panel in door to Staging Kitchen. STC 30 or higher, see *Chapter 11 Acoustical Design Criteria* for more information. Sidelight at entry doors.
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Accessories:	Analog smart-sync clock (hardwired)
Other:	For Staging Kitchen layout and equipment list refer to *Chapter 14 Food Service Design Criteria.*

MULTI-USE COMMUNITY ROOM



LEGEND



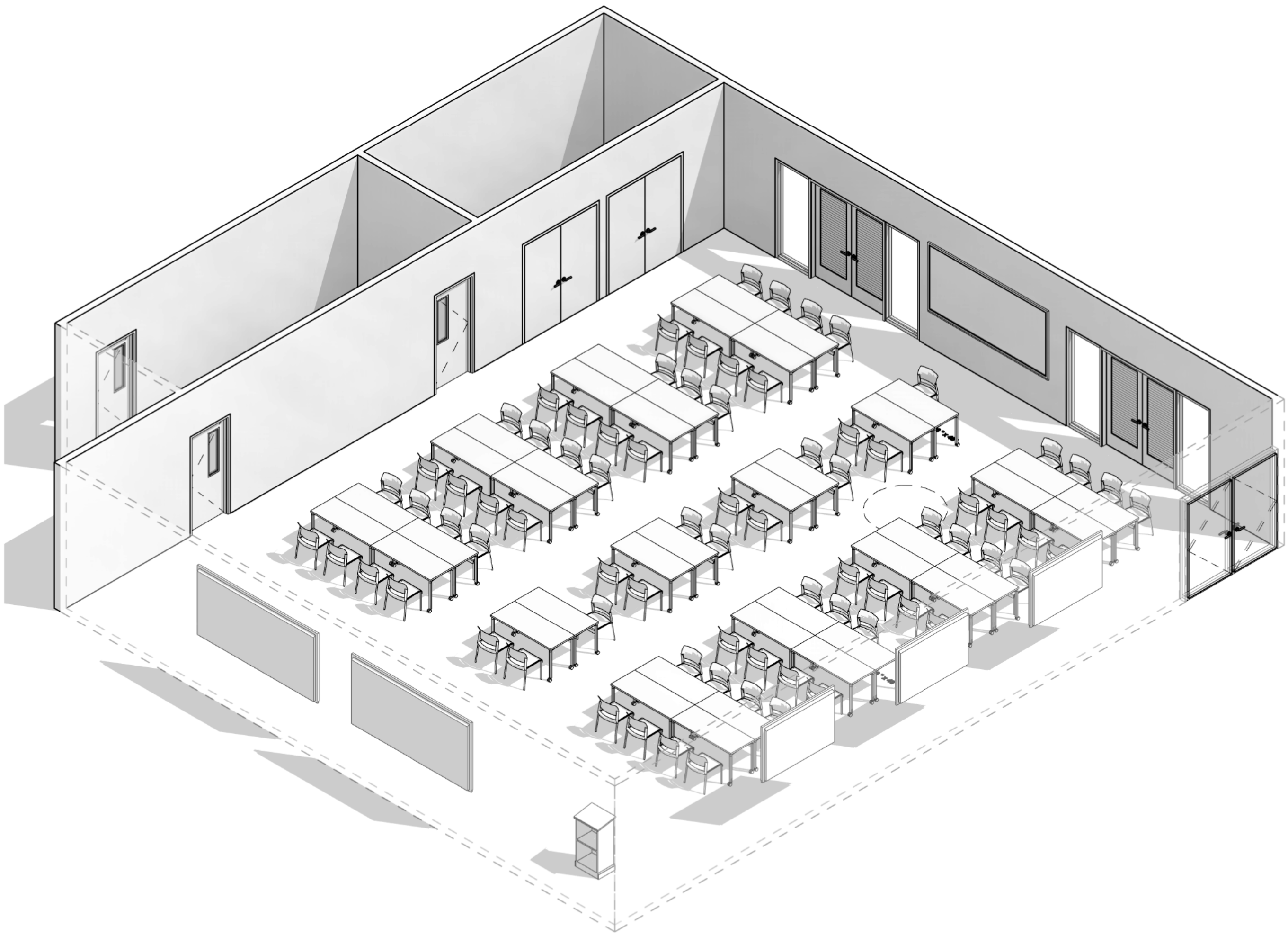
2 MOBILE INSTRUCTOR MULTIMEDIA PODIUM
3 FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION
MOVABLE FURNITURE
MOVABLE SEATING
30"X48" ACCESSIBILITY CLEARANCE
5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

MULTI-USE COMMUNITY ROOM CONT'D

TECHNOLOGY	Audio/Visual:	Six (6) Wall-mounted 45-55" flat panel display (native resolution, up to 4K). Two (2) projectors and projection screens. Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assistive Listening. Refer to *Chapter 12 Low-Volt Technology Design Criteria* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling. Ensure enough ventilation for physical activities.
	Electrical	Minimum (6) flush-mounted floor power boxes
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
	Plumbing:	At Staging Kitchen. Hot and cold water, floor drains(s), floor sink(s) Refer to Chapter 14 pg. 14.7.
EQUIPMENT & FURNISHINGS		Mobile chairs, nesting tables with locking casters, minimum (1) mobile chair for sign language interpreter. When possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.
REMARKS		The space shall have privacy through etched banding at 36 inches to 72 inches on any interior glazing.

MULTI-USE COMMUNITY ROOM



ROOM CRITERIA CONT'D

STUDENTS OF SAN BENITO ACTIVITIES OFFICE

DESIGN INTENT

This room shall accommodate 30 seats for general activities and Student Government use. These uses are anticipated throughout the day and week, inclusive of evening hours.

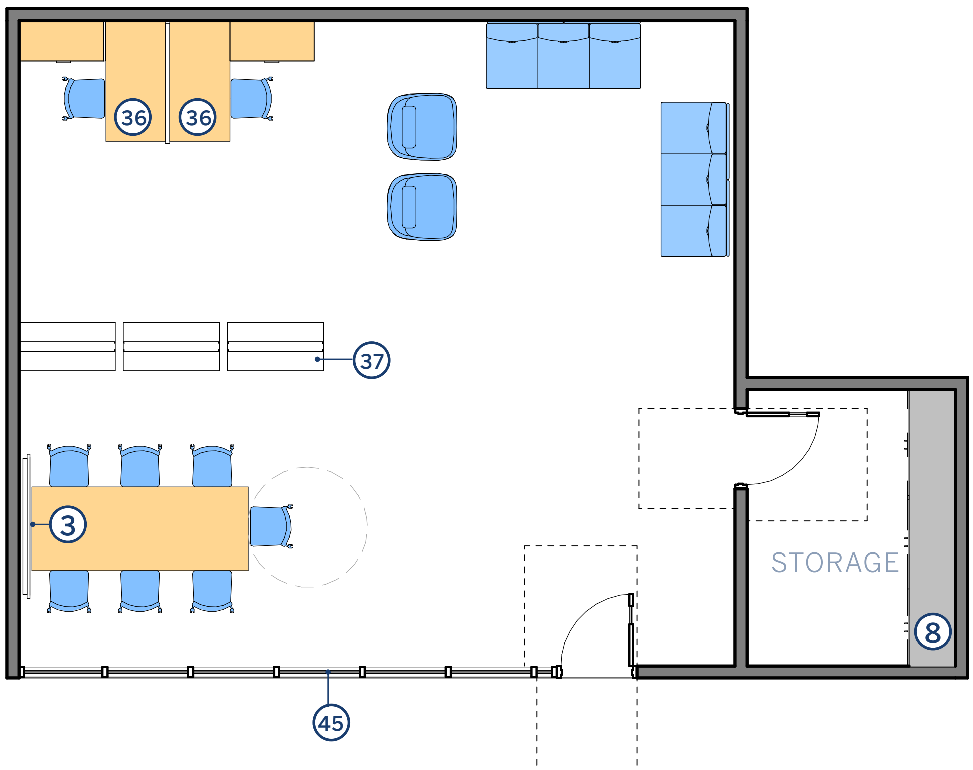
SPACE ADJACENCY

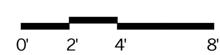
The Students of San Benito Activities Office shall be adjacent to the Welcome Center and Lobby, the Cafe, and the LRC.

CHARACTERISTICS

Capacity:	30
Floor Finish:	LVT
Wall Finish:	Painted gypsum board.
Ceiling Treatment:	Acoustic ceiling tile
Ceiling Height:	10'-6" minimum
Natural Light:	Preferred
Window Treatment:	Light filtering roller shades required. Non-heat conductive shades preferred. Refer to *Chapter 11 Acoustical Criteria* for Sound Transmission Class Rating.
Door:	Sidelight or vision panel in door. STC 30 or higher, see *Chapter 11 Acoustical Design Criteria* for more information
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Casework:	Tall cabinets in storage room.
Accessories:	Movable Whiteboard and analog smart-sync clock (hardwired)
Other:	Extent of folding glass panel to be designed by DBE and approved by College.

STUDENTS OF SAN BENITO ACTIVITIES OFFICE





LEGEND

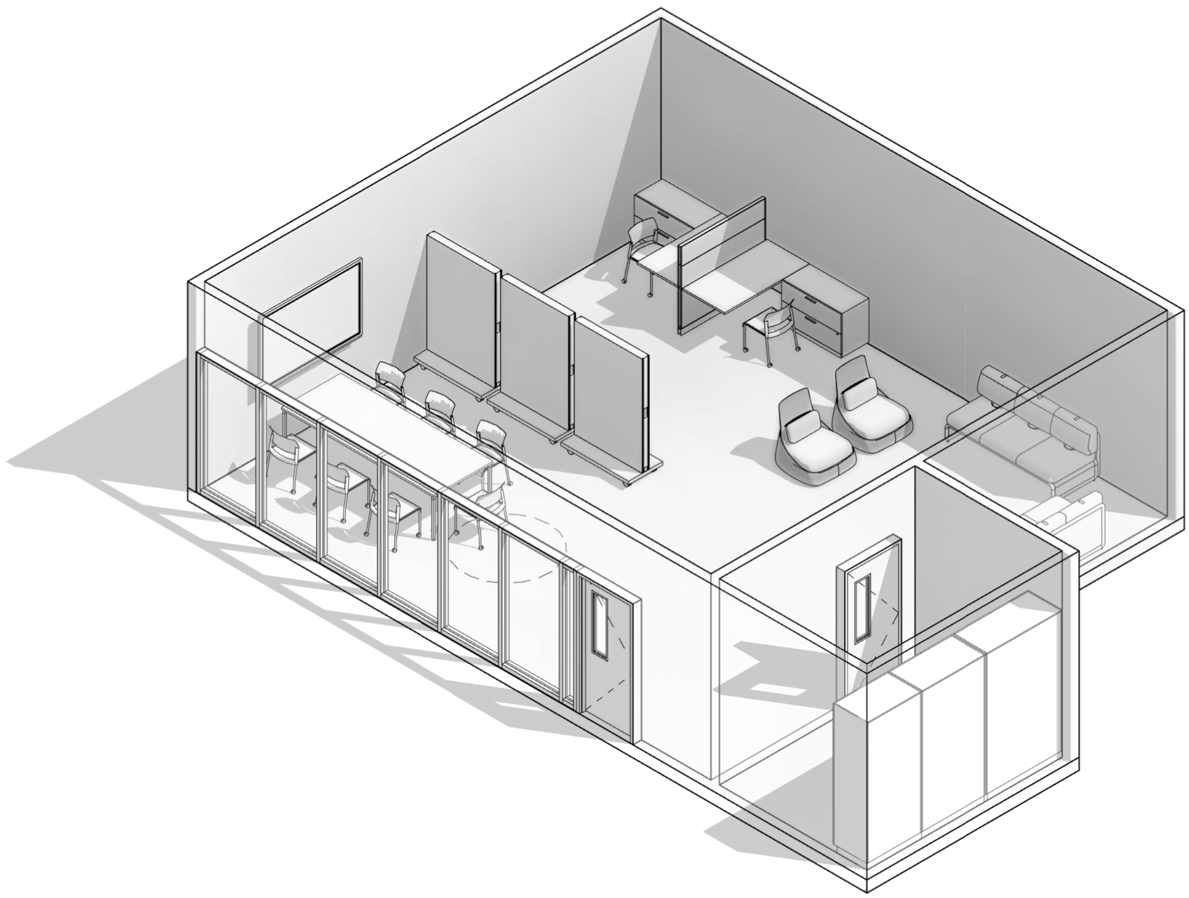
- 3 FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION
- 8 TALL CABINET
- 36 STUDENT GOVERNANCE STATION
- 37 MOBILE WHITE BOARD PARTITION
- 45 FOLDING GLASS WALL PANEL
- MOVABLE FURNITURE
- MOVABLE SEATING
- FIXED FURNITURE
- 30"X48" ACCESSIBILITY CLEARANCE
- 5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

STUDENTS OF SAN BENITO ACTIVITIES OFFICE CONT'D

TECHNOLOGY	Audio/Visual:	One (1) Wall-mounted 45-55" flat panel display (native resolution, up to 4K). Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/ power for media/tech.
	Network & Communications:	Flush floor mounted network power, wall phone outlet.
	Additional Information:	Refer to *Chapter 12 Low-Voltage Design Criteria* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (8) flush-mounted wall power boxes
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
EQUIPMENT & FURNISHINGS	Mobile chairs, Flex Conference Table, Mobile Table with locks. Lounge Sofas and Armchairs. Acoustic Paneled partition, Mobile Whiteboards partitions OF/OI. When possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.	
REMARKS	The space shall have privacy through etched banding at 36 inches to 72 inches on any interior glazing.	

STUDENTS OF SAN BENITO ACTIVITIES OFFICE



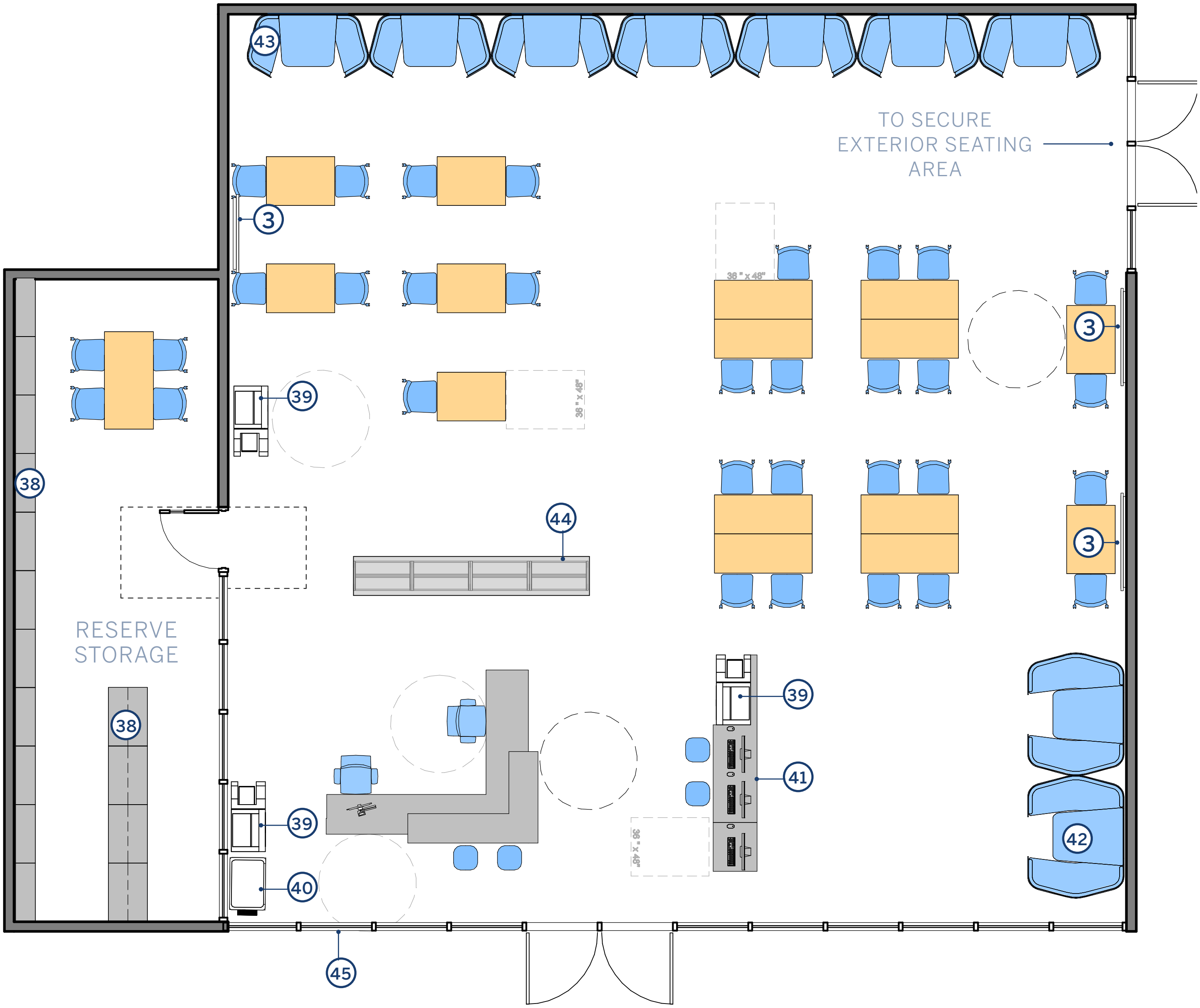
ROOM CRITERIA CONT'D

LEARNING RESOURCE CENTER

DESIGN INTENT	This shall be a flexible space for study and collaboration, while also occasionally serve for tutoring. Laptop checkout and printing stations shall be provided throughout the space. These uses are anticipated throughout the day and week, inclusive of evening hours.
SPACE ADJACENCY	The Learning Resource Center shall be adjacent to the Welcome Center and Lobby and to one of the two computer labs.

CHARACTERISTICS		
	Capacity:	83
	Floor Finish:	Resilient Floor Tile
	Wall Finish:	Painted gypsum board;
	Ceiling Treatment:	Acoustic ceiling tile
	Ceiling Height:	10'-6" minimum
	Natural Light:	Required
	Window Treatment:	Black-out Shades required. Non-heat conductive shades preferred.
	Door:	Sidelight or vision panel in door to Reserve Storage. STC 30 or higher, see *Chapter 11 Acoustical Design Criteria* for more information
	Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
	Casework:	Help Desk, Storage cabinets, Periodical Display Areas
	Accessories:	Printers, laptop cart, computers
	Other:	Provide views out of room into Main Lobby and Adjacent Seating Areas Access to secure exterior seating area.

LEARNING RESOURCE CENTER



LEGEND

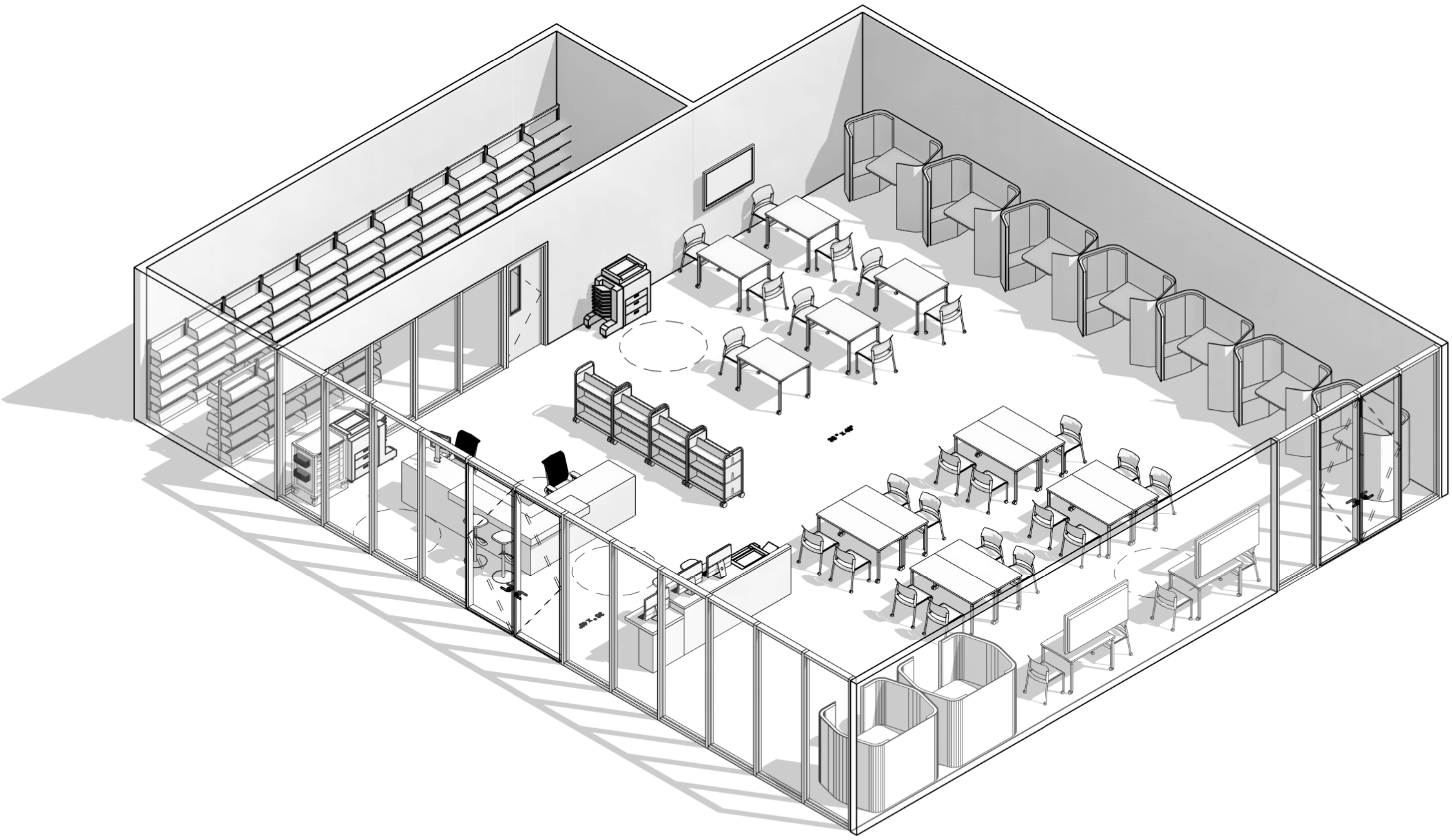
3	FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION	45	FOLDING GLASS WALL PANEL
38	RESERVE STORAGE CABINET		MOVABLE FURNITURE
39	GO-PRINT STATION		MOVABLE SEATING
40	LAPTOP CART		FIXED FURNITURE
41	INFORMATION KIOSK		30"X48" ACCESSIBILITY CLEARANCE
42	4-PERSON BOOTH		5' ACCESSIBILITY TURNAROUND
43	2-PERSON BOOTH		
44	PERIODICAL DISPLAY		

ROOM CRITERIA CONT'D

LEARNING RESOURCE CENTER CONT'D

TECHNOLOGY	Audio/Visual:	Three (3) 45-55" monitors. Network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assistive Listening. Refer to *Chapter 12 Low-Voltage Design Criteria* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated
	Electrical	Minimum (8) flush-mounted floor power boxes and power at study desks.
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
	Plumbing:	None
EQUIPMENT & FURNISHINGS	Mobile chairs, Circulation desk, fixed cabinet for AV station, (2) 4-Person booth, Laptop lounge chairs with power, study tables with privacy partitions OF/OI. When possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.	
REMARKS	Specify sound absorptive treatments to reduce reverberation time (RT60 at 500Hz) to 0.6 seconds or less. The space shall have privacy through etched banding at 36 inches to 72 inches on any interior glazing.	

LEARNING RESOURCE CENTER



COLLABORATION AND STUDY SPACES CONT'D

DESIGN INTENT

Collaboration and Study Spaces are intended for 4 students maximum at a time and shall provide space for interaction and collaboration among students. These uses are anticipated throughout the day and week, inclusive of evening hours.

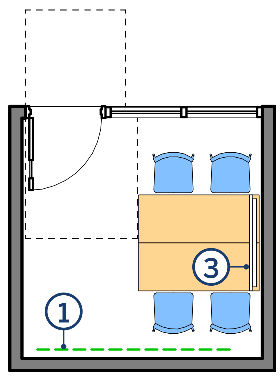
SPACE ADJACENCY

The Collaboration and Study Spaces shall be adjacent to to the Learning Resource Center and the Computer Labs.

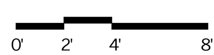
CHARACTERISTICS

Capacity:	4
Floor Finish:	Resilient Floor Tile
Wall Finish:	Painted gypsum board. Writable surface
Wall Protection:	Chair rail at back and side walls
Ceiling Treatment:	Acoustic ceiling tile
Ceiling Height:	10'-6" minimum
Natural Light:	Preferred
Window Treatment:	Manual Light filtering roller shades required. Non-heat conductive shades preferred.
Door:	Sidelight or vision panel in door. STC 45 or higher, see *Chapter 11 Acoustical Design Criteria* for more information
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Casework:	None
Accessories:	Whiteboard and analog smart-sync clock (hardwired)
Other:	Provide views out of room from at least one wall.

COLLABORATION AND STUDY SPACES



LEGEND



1 WRITABLE SURFACE

3 FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION

MOVABLE FURNITURE

MOVABLE SEATING

30"X48" ACCESSIBILITY CLEARANCE

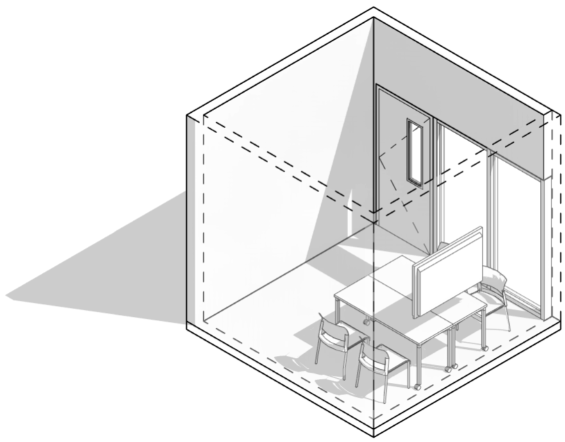
5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

COLLABORATION AND STUDY SPACES CONT'D

TECHNOLOGY	Audio/Visual:	Wall-mounted 45-55" flat panel display (native resolution, up to 4K). Network/power for media/tech. Flush wall mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (2) flush-mounted floor power boxes per Study Space.
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
EQUIPMENT & FURNISHINGS	Mobile chairs, nesting tables with locking casters, fixed cabinet for AV station OF/OI. When possible, furniture to accommodate technology for increased flexibility.	
REMARKS	Specify sound absorptive treatments to reduce reverberation time (RT60 at 500Hz) to 0.6 seconds or less. The space shall have privacy through etched banding at 36 inches to 72 inches on any interior glazing.	

COLLABORATION AND STUDY SPACES



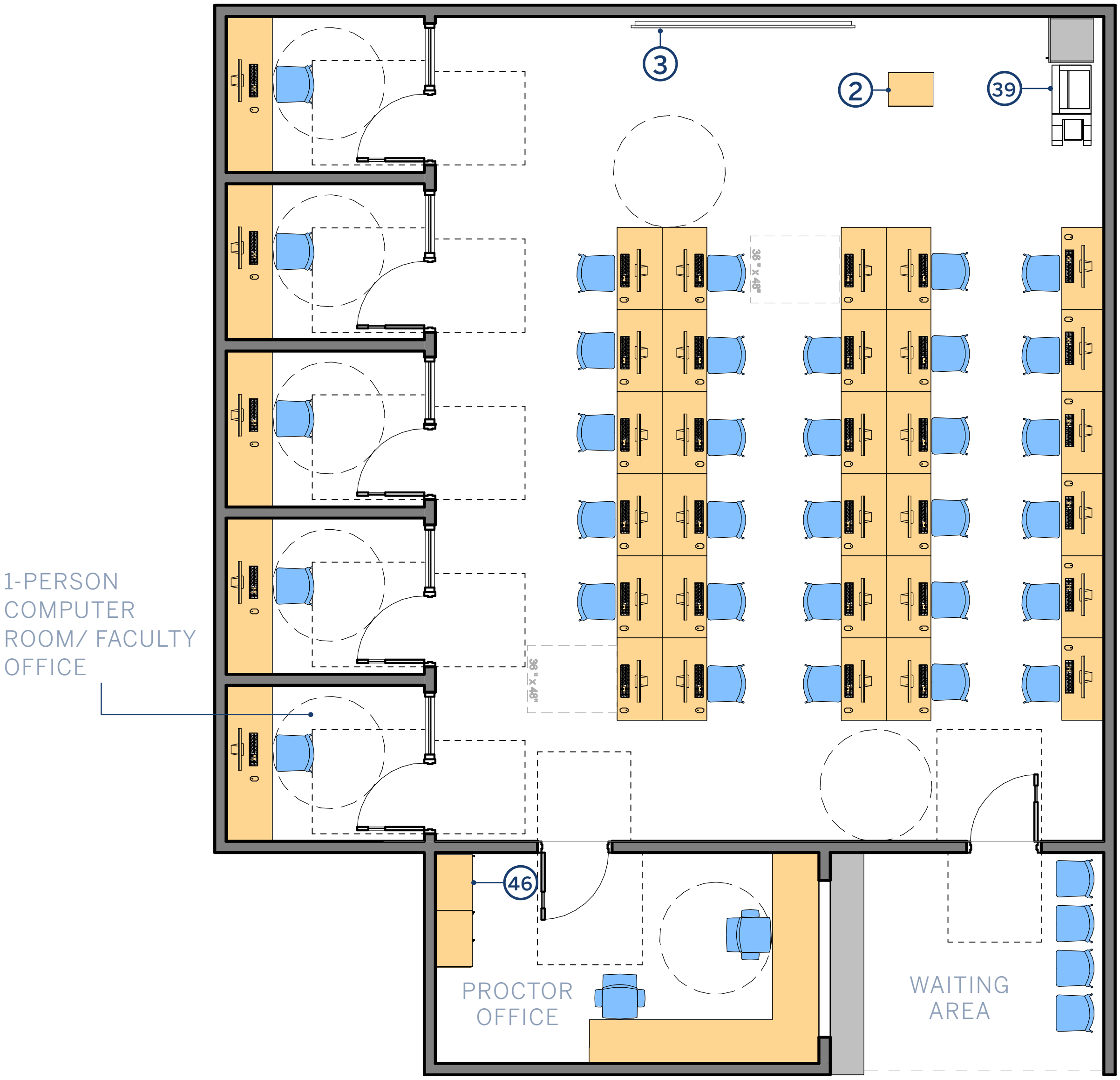
COMPUTER LAB

DESIGN INTENT	Scheduled general instruction is projected throughout the week with unscheduled uses use during off hours. Room can be used as proctoring center. These uses are anticipated throughout the day and week.
SPACE ADJACENCY	Multi-Use Computer labs shall be adjacent to the Learning Resource Center.

CHARACTERISTICS

Capacity:	40
Floor Finish:	Resilient Floor Tile
Wall Finish:	Painted gypsum board. Writable surface
Ceiling Treatment:	Acoustic ceiling tile
Ceiling Height:	10'-6" minimum
Natural Light:	Preferred
Window Treatment:	Manual Block-out Shades required. Non-heat conductive shades preferred.
Door:	Sidelight or vision panel in door. STC 45 or higher, see *Chapter 11 Acoustical Design Criteria* for more information
Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
Casework:	Check-in counter
Accessories:	Analog smart-sync clock (hardwired), computers, printers, lockers.
Other:	None

COMPUTER LAB



LEGEND

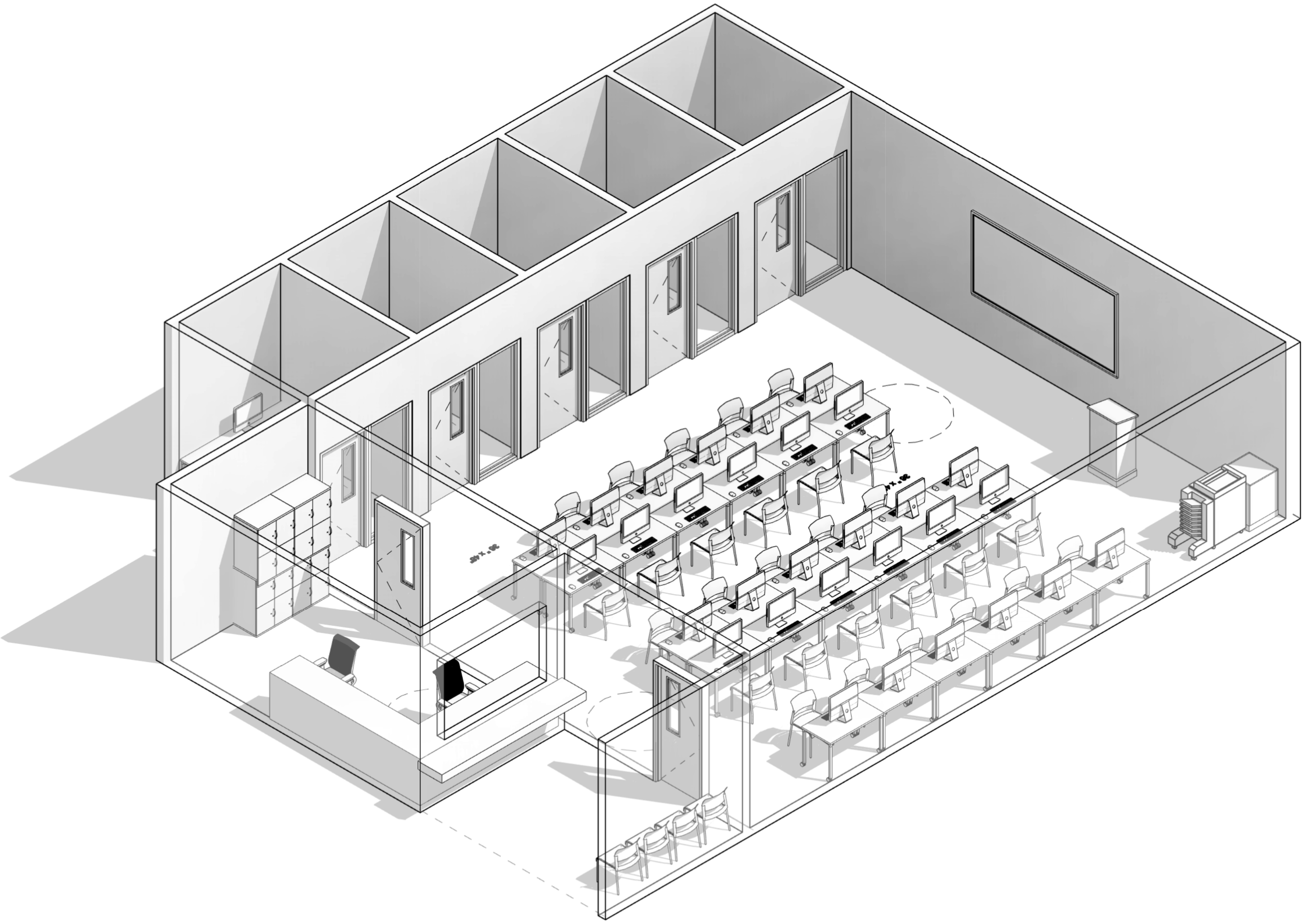
- (2) MOBILE INSTRUCTOR MULTIMEDIA PODIUM
- (3) FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION
- (39) GO-PRINT STATION
- (46) LOCKERS
- MOVABLE FURNITURE
- MOVABLE SEATING
- 30"X48" ACCESSIBILITY CLEARANCE
- 5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

COMPUTER LAB CONT'D

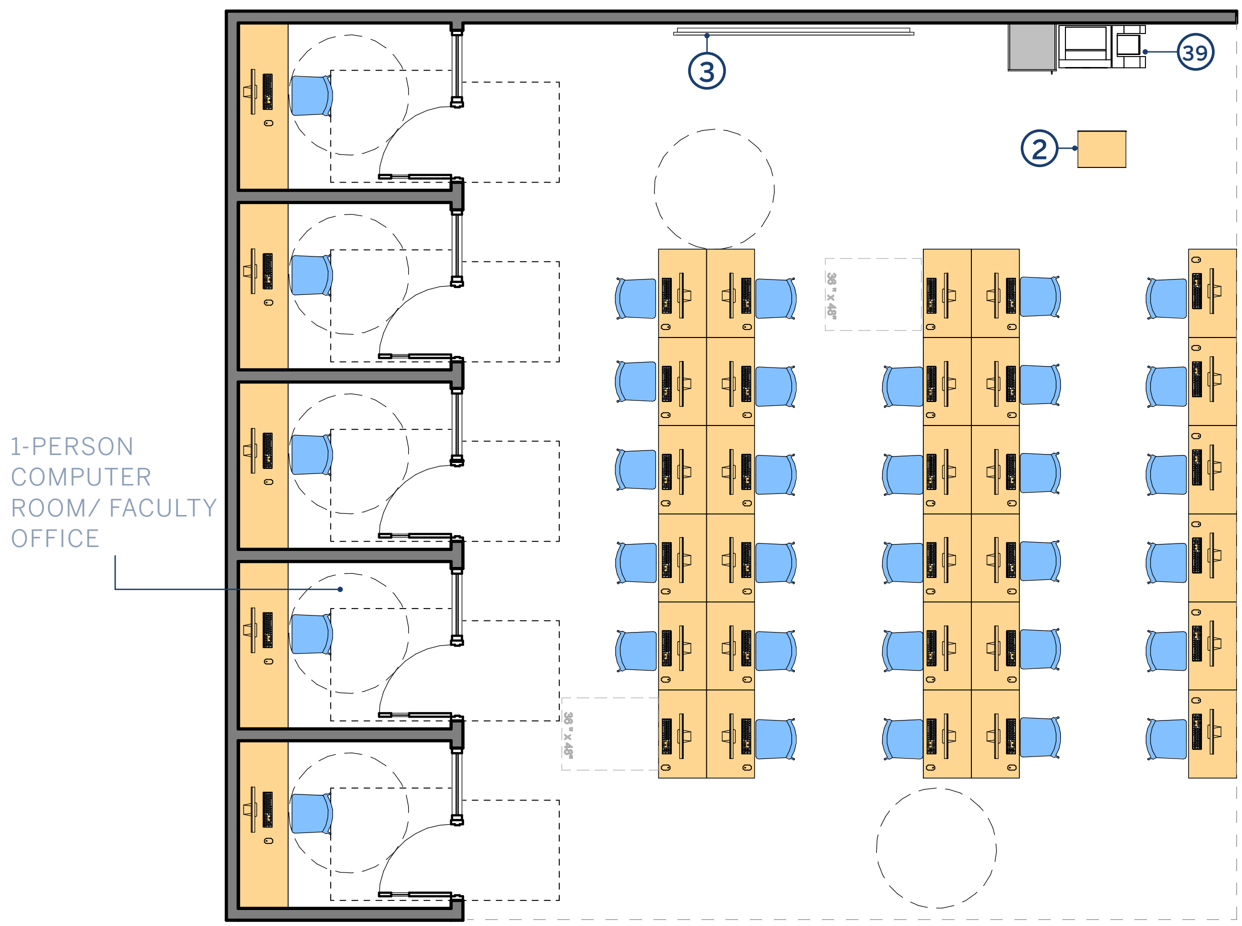
TECHNOLOGY	Audio/Visual:	One (1) 98" flat panel display (native resolution, up to 4K). Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assisted Listening. Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (18) flush-mounted floor power boxes
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
EQUIPMENT & FURNISHINGS	Mobile chairs, nesting tables with locking casters, Check-in desk, lockers OF/OI. When possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.	
REMARKS	The space shall have privacy through etched banding at 36 inches to 72 inches on any interior glazing.	

COMPUTER LAB



ROOM CRITERIA CONT'D

COMPUTER LAB ALTERNATE CONT'D

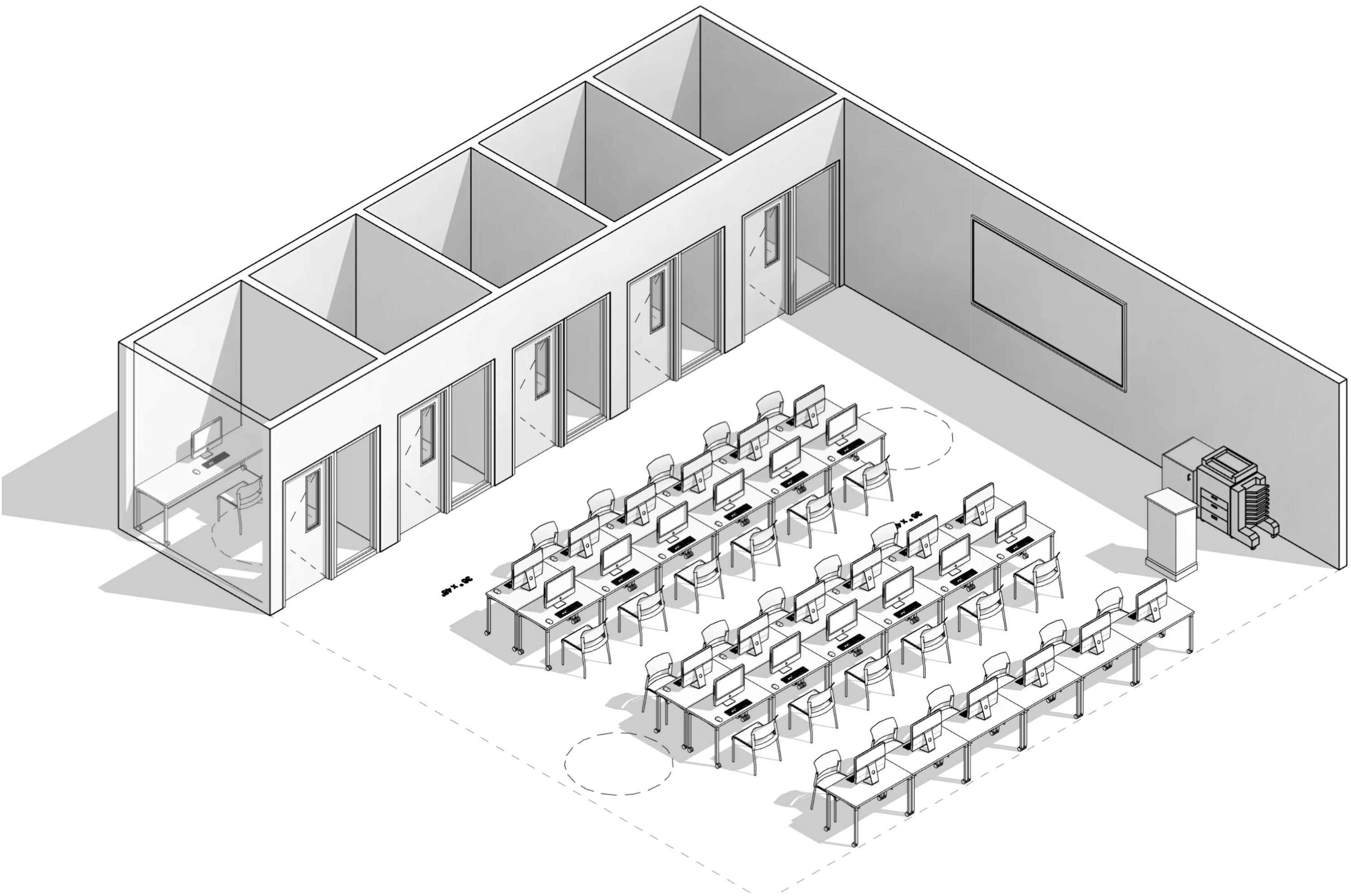


LEGEND

0' 2' 4' 8'

(2) MOBILE INSTRUCTOR MULTIMEDIA PODIUM
(3) FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION
(39) GO-PRINT STATION
MOVABLE FURNITURE
MOVABLE SEATING
30"X48" ACCESSIBILITY CLEARANCE
5' ACCESSIBILITY TURNAROUND

COMPUTER LAB ALTERNATE



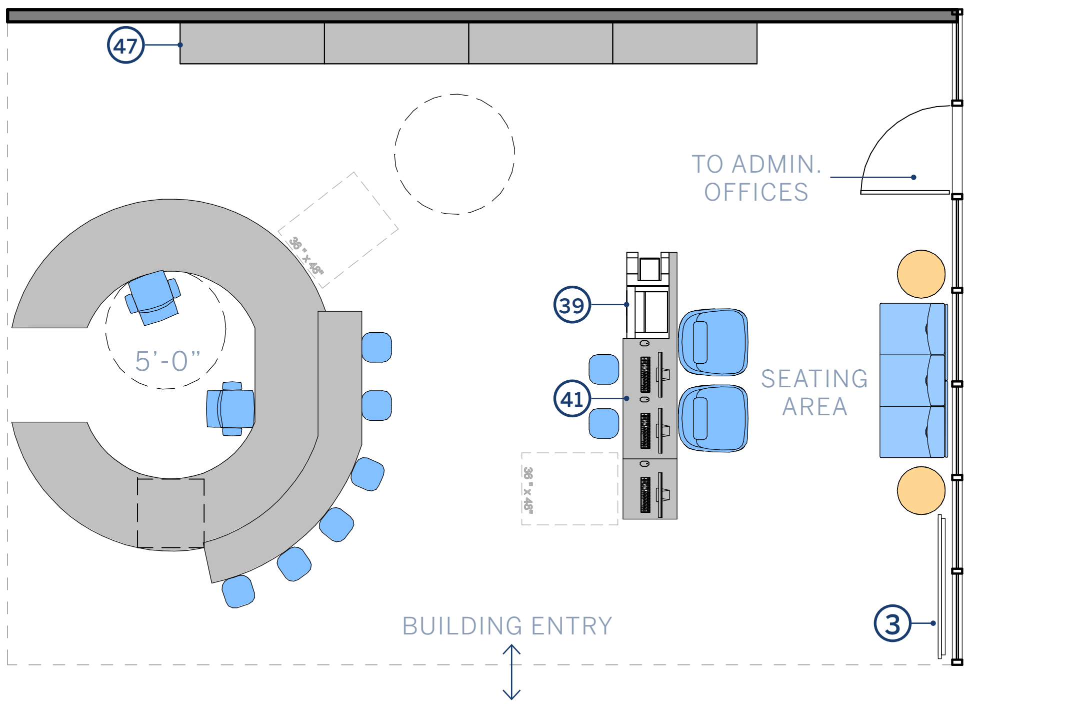
ROOM CRITERIA CONT'D

LOBBY AND WELCOME CENTER

DESIGN INTENT	The Lobby and Welcome Center is intended to serve as a first contact point for all students and visitors. The Welcome Area serves as the central node to the building/complex. This space is anticipated to be used throughout the day and week, inclusive of evening hours.
SPACE ADJACENCY	The Lobby and Welcome Center Area shall have direct access to the Main Entry to the building(s) and immediate access to offices, Learning Resource Center, the San Benito County Museum, and the Cafe.

CHARACTERISTICS		
	Capacity:	as noted
	Floor Finish:	Polished Concrete or Terrazzo
	Wall Finish:	Painted gypsum board;
	Ceiling Treatment:	Acoustic ceiling tile
	Ceiling Height:	10'-6" minimum
	Natural Light:	Preferred
	Window Treatment:	Manual Light filtering roller shades required. Non-heat conductive shades preferred.
	Door:	Front door
	Security	Access control lock, IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
	Casework:	Storage and cabinetry in Welcome Center
	Accessories:	Smart-sync clock (hardwired)
	Other:	Provide views into Adjacent Admin Offices. Incorporate a Building Directory and Artwork. Recessed walk-off mat building entry.

LOBBY & WELCOME CENTER



LEGEND

(3) FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION

(39) GO-PRINT STATION

(41) INFORMATION/ CHECK-IN KIOSK

(47) GALLERY DISPLAY CASE - LOCATION TO COORDINATE W/ MUSEUM

MOVABLE FURNITURE

MOVABLE SEATING

30"X48" ACCESSIBILITY CLEARANCE

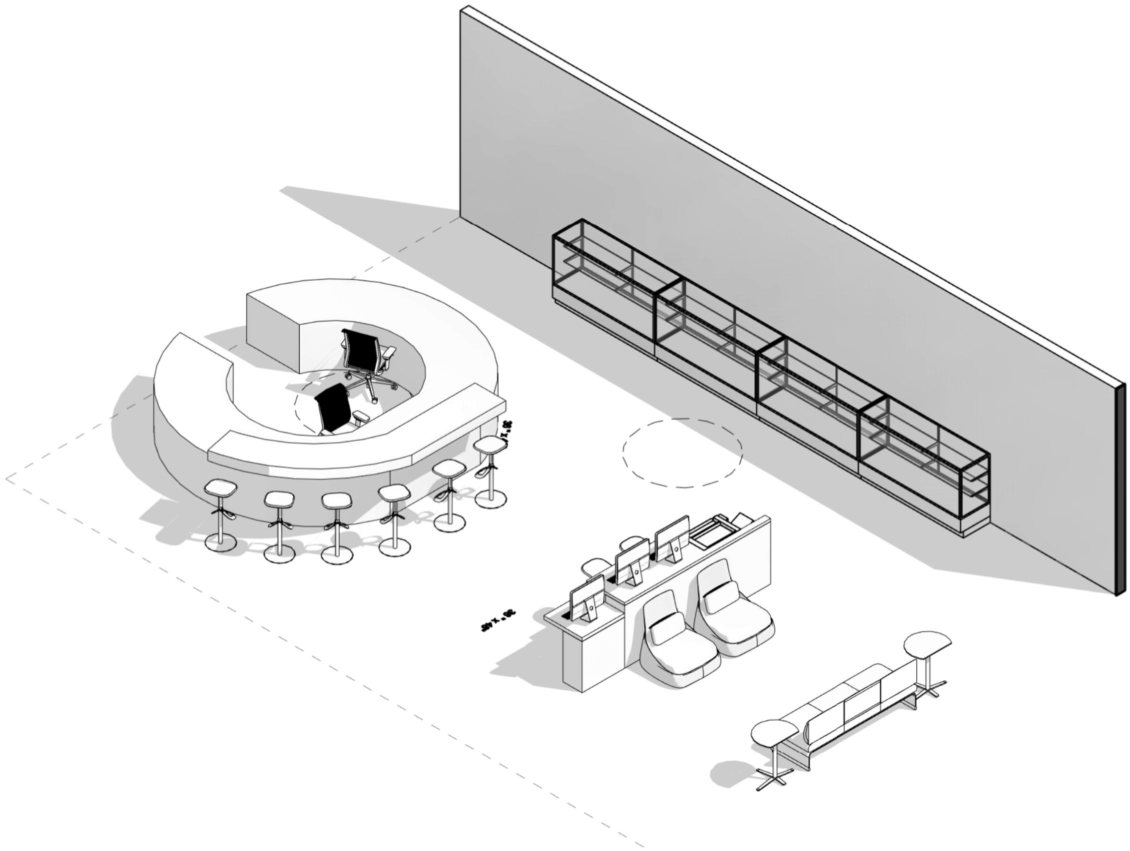
5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

LOBBY AND WELCOME CENTER CONT'D

TECHNOLOGY	Audio/Visual:	One (1) 98" flat panel display (native resolution, up to 4K). Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech.
	Network & Communications:	Flush floor mounted network power. Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Induction Loop for Assisted Listening. Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (6) flush-mounted floor power boxes
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
	Plumbing:	None
EQUIPMENT & FURNISHINGS	Bar stools at Welcome Desk and Kiosk, Lounge soft seating in Waiting Area/ Lobby OF/OI. When possible, furniture to accommodate technology for increased flexibility.	
REMARKS	Accommodate accessible stations, including height-adjustable tables at all accessible stations. Proper lighting designating a place for permanent or rotating exhibits should be incorporated.	

LOBBY & WELCOME CENTER

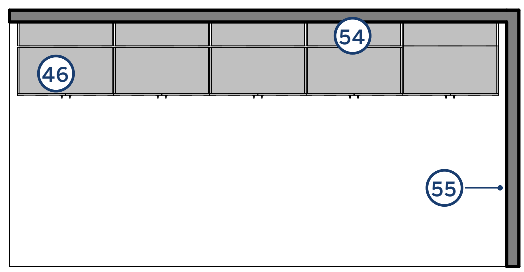


ROOM CRITERIA CONT'D

SAN BENITO COUNTY MUSEUM

DESIGN INTENT	San Benito County Museum shall accommodate historic artifacts and other county memorabilia displayed for students and visitors. This space is anticipated to be open during building hours.	
SPACE ADJACENCY	The San Benito County Museum shall be part of the Lobby and Welcome Center. The Museum shall also be adjacent to the Cafe.	
CHARACTERISTICS	Capacity:	as noted
	Floor Finish:	Polished Concrete or Terrazzo
	Wall Finish:	Painted gypsum board; glass w/frosted band
	Ceiling Treatment:	Acoustic ceiling tile
	Ceiling Height:	10'-6" minimum
	Natural Light:	Required. Protect artifact from UV
	Door:	
	Security	
	Casework:	Museum Display cases
	Accessories:	
TECHNOLOGY	Audio/Visual:	
	Network & Communications:	
	Additional Information:	Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (3) flush-mounted floor power boxes; Wall power behind casing for lighting.
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
	Plumbing:	None
EQUIPMENT & FURNISHINGS	Display cases OF/OI	
REMARKS	Accommodate accessible stations, including height-adjustable tables at all accessible stations. Wall hung art and artifacts throughout Museum, Lobby, and adjacent areas. Proper lighting designating a place for permanent or rotating exhibits should be incorporated.	

SAN BENITO COUNTY MUSEUM



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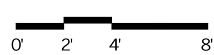


47 GALLERY DISPLAY CASE

55 GALLERY DISPLAY TALL CASE

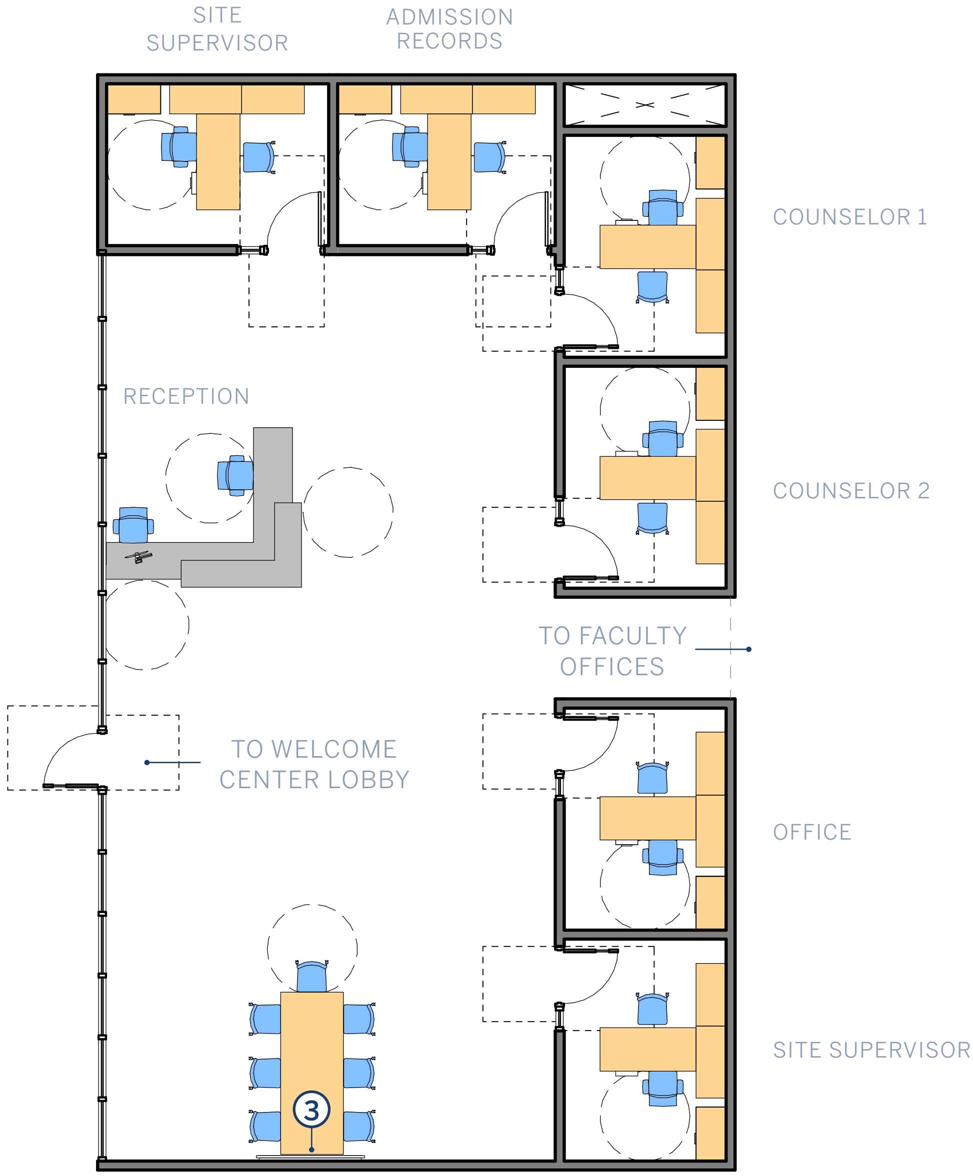
56 WALL HUNG ARTIFACTS

FIXED FURNITURE

OFFICES

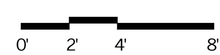
DESIGN INTENT	The Administrative Offices will be used in conjunction with counseling, financial aid, and admissions & records services. These offices are anticipated to be used throughout the day and week, inclusive of evening hours. A similar layout shall be applied to Faculty office suite.	
SPACE ADJACENCY	Office suites shall be adjacent to the main Lobby and Welcome Center.	
CHARACTERISTICS	Capacity:	as noted
	Floor Finish:	LVT
	Wall Finish:	Painted gypsum board;
	Wall Protection:	N/A
	Ceiling Treatment:	Acoustic ceiling tile
	Ceiling Height:	10'-6" minimum
	Natural Light:	Preferred
	Window Treatment:	Light filtering roller shades required. Non-heat conductive shades preferred.
	Door:	Office doors with sidelight or vision panel. STC 50, see *Chapter 11 Acoustical Design Criteria* for more information
	Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
	Casework:	as noted
	Accessories:	Smart-sync clock (hardwired)
	Other:	Provide views into Adjacent Lobby Area. Faculty Office to have similar layout

OFFICES



See following pages for office layouts

LEGEND



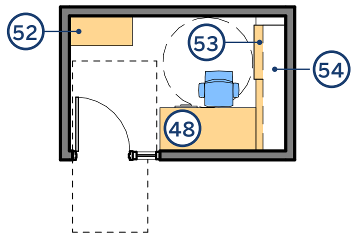
- (3) FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION
- MOVABLE FURNITURE
- MOVABLE SEATING
- FIXED FURNITURE
- 30"X48" ACCESSIBILITY CLEARANCE
- 5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

OFFICES CONT'D

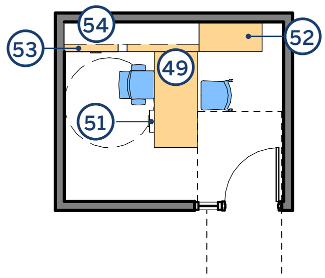
DESIGN INTENT	The Administrative Offices will be used in conjunction with counseling services. These offices are anticipated to be used throughout the day and week, inclusive of evening hours.	
SPACE ADJACENCY	The Administrative Offices shall be adjacent to the Welcome Center, Lobby, and the Open Offices.	
CHARACTERISTICS	Capacity:	as noted
	Floor Finish:	LVT
	Wall Finish:	Painted gypsum board. Writable surface
	Ceiling Treatment:	Acoustic ceiling tile
	Ceiling Height:	10'-6" minimum
	Natural Light:	Preferred
	Window Treatment:	Manual Light filtering roller shades required. Non-heat conductive shades preferred.
	Door:	Sidelight or vision panel in door, STC 50, see *Chapter 11 Acoustical Design Criteria* for more information.
	Security	Access control lock (Columbine Locks), IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
	Casework:	As noted
	Accessories:	Whiteboard
TECHNOLOGY	Audio/Visual:	
	Network & Communications:	Wireless access point, wall phone outlet
	Additional Information:	Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Manually operated thermostat
	Electrical	as noted
	Artificial Lighting:	LED lighting, dimmable
REMARKS	Each office to include a minimum of (2) power/data locations per office to allow for user reconfiguration. FF&E is OF/OI. When possible, furniture to accommodate technology for increased flexibility.	

OFFICES



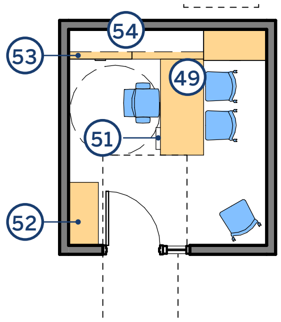
DISTRICT OFFICE
TYPE B

- 90 SF



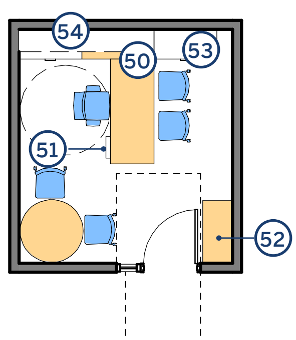
DISTRICT OFFICE
TYPE C

- 120 SF



DISTRICT OFFICE
TYPE D

- 130 SF



DISTRICT OFFICE
TYPE E

- 150 SF

LEGEND

- (48) 30x66" - SIT TO STAND DESK (NO DESK RETURN)
- (49) 30X66" - SIT TO STAND DESK
- (50) 30X72" - SIT TO STAND DESK
- (51) MOBILE PEDESTAL (PENCIL DRAWER + 1 FILE DRAWER)
- (52) 42" WIDE BOOKSHELF
- (53) 42" WIDE LATERAL FILE CABINET
- (54) WALL MOUNTED OVERHEAD STORAGE UNIT
- MOVABLE FURNITURE
- MOVABLE SEATING
- 30"X48" ACCESSIBILITY CLEARANCE
- 5' ACCESSIBILITY TURNAROUND

OPEN COLLABORATION SPACE

DESIGN INTENT

These flexible spaces should foster collaboration and social interaction as wellas provide opportunities for individual focus and reflection. These spaces are intended to be used throughout the day.

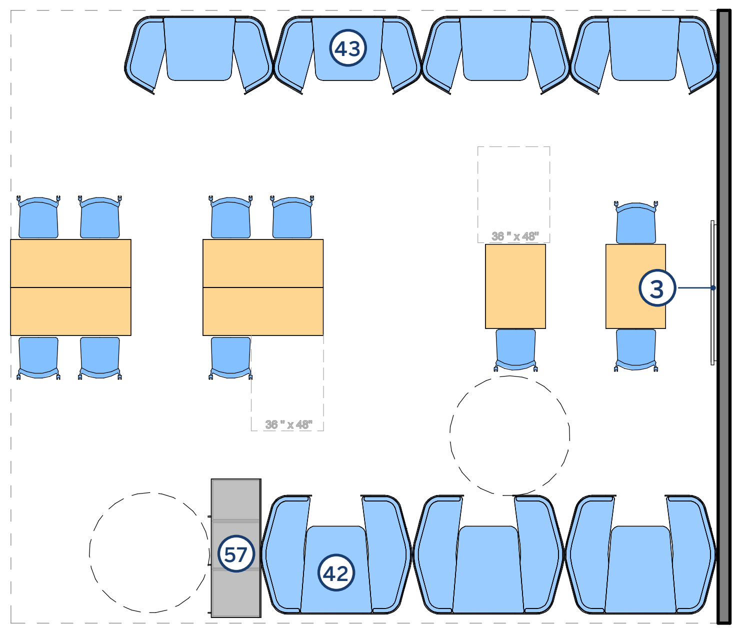
SPACE ADJACENCY

The Open Collaboration space shall have access to the Lobby and Welcome Area as well as the Multi-Use Classroom. This open collaboration space (or similar collaboration seating) may be combined with corridor and grossing spaces throughout the building.

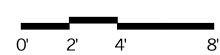
CHARACTERISTICS

Capacity:	as noted
Floor Finish:	Polished concrete, Terrazzo, or LVT. Similar to adjacent spaces.
Wall Finish:	Painted gypsum board. Writable surface
Ceiling Treatment:	Acoustic ceiling tile
Ceiling Height:	10'-6" minimum
Natural Light:	Preferred
Window Treatment:	N/A
Door:	N/A
Casework:	None
Other:	None

OPEN COLLABORATION SPACE



LEGEND



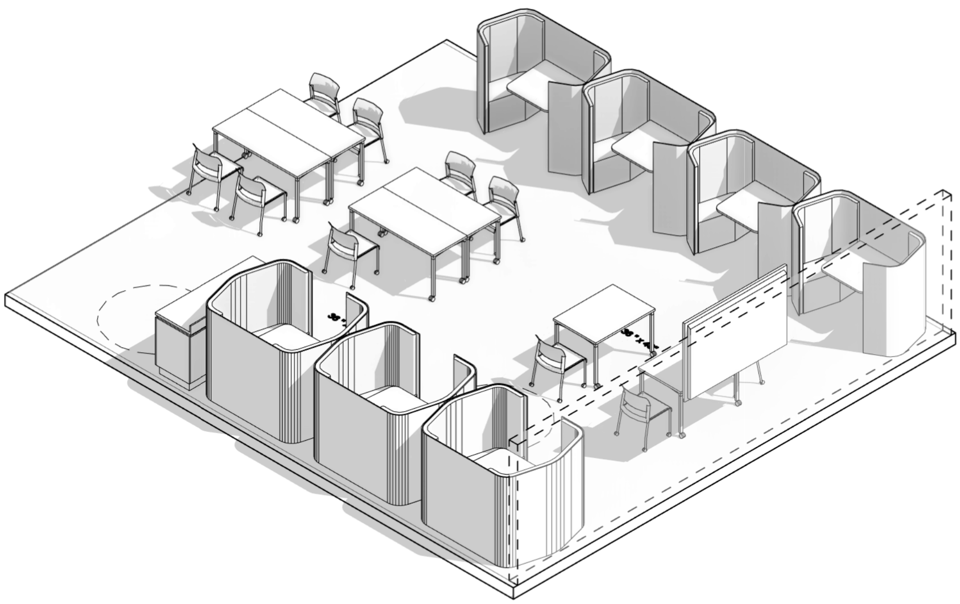
- (3) FLAT-PANEL DISPLAY W/QUADRUPLEX CONNECTION
- (42) 4-PERSON BOOTH
- (43) 2-PERSON BOOTH
- (57) TRASH/RECYCLE CENTER
- MOVABLE FURNITURE
- MOVABLE SEATING
- 30"X48" ACCESSIBILITY CLEARANCE
- 5' ACCESSIBILITY TURNAROUND

ROOM CRITERIA CONT'D

OPEN COLLABORATION SPACE CONT'D

TECHNOLOGY	Audio/Visual:	Wall-mounted 98" flat panel display (native resolution, up to 4K).
	Network & Communications:	Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power. Wireless access point, wired data ports at AV station, AV rack, wall phone outlet.
	Additional Information:	Refer to *Chapter 12* for additional information and requirements.
MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (6) flush-mounted floor power boxes, power in booths
	Artificial Lighting:	LED lighting, dimmable
	Plumbing:	None
EQUIPMENT & FURNISHINGS	Mobile chairs, flexible lounge OF/OI. when possible, furniture to accommodate technology for increased flexibility. Accommodate accessible stations, including height-adjustable tables at all accessible stations.	
REMARKS		

OPEN COLLABORATION SPACE



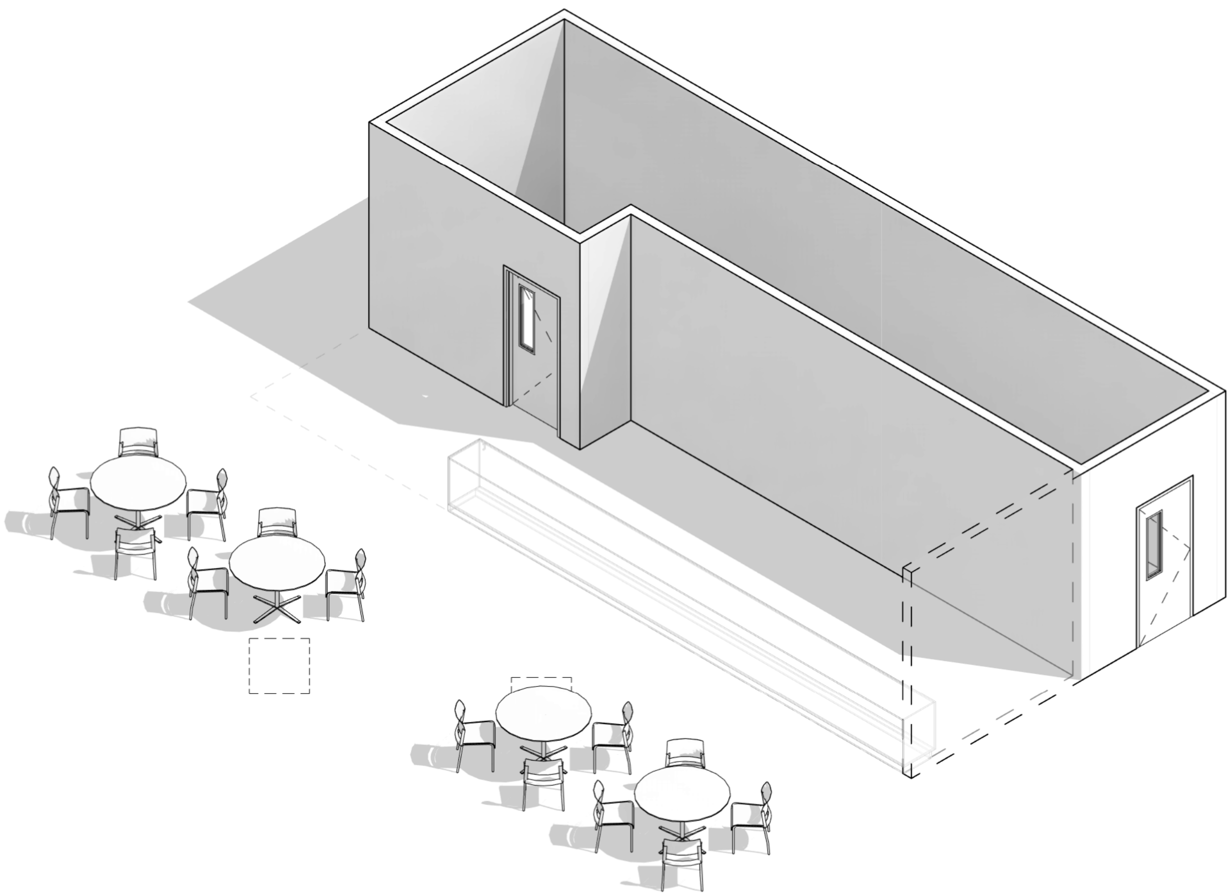
ROOM CRITERIA CONT'D

CAFÉ

DESIGN INTENT	The Café will provide coffee, grab n' go, and small bites but will not contain any onsite cooking. Refer to *Chapter 14 Food Service Design Criteria* for sample layout and for additional information.	
SPACE ADJACENCY	The cafe shall be adjacent to the Lobby and the Welcome Center and have access to outdoor space. It is also highly desired to have visibility from Airline and Fairview to attract students and community.	
CHARACTERISTICS	Capacity:	N/A
	Floor Finish:	Resilient Floor Tile/Ceramic Tile
	Wall Finish:	Painted gypsum board
	Ceiling Treatment:	Acoustical ceiling tile with gypsum soffit
	Ceiling Height:	10'-6" minimum
	Natural Light:	Preferred
	Window Treatment:	Light filtering roller shades required. Non-heat conductive shades preferred.
	Door:	Sidelight or vision panel in door
	Security	Access control lock, IDS. See *Chapter 12 Low Voltage Technology Criteria* for more information
	Accessories:	Analog smart-sync clock (hardwired), Grab-n-go chilled foods, Espresso Machine, Brewers, etc. Floor coolers for drinks. Microwave & more
	Other:	For Staging Kitchen layout and equipment list refer to *Chapter 14 Food Service Design Criteria.*
TECHNOLOGY	Audio/Visual:	Two (2) Wall-mounted 45-55" flat panel display (native resolution, up to 4K), Ceiling mounted cameras and microphones, ceiling or wall mounted speakers, network/power for media/tech. Flush floor mounted network power.
	Network & Communications:	Wireless access point, wall phone outlet
	Additional Information:	Refer to *Chapter 12* for additional information and requirements.

CAFÉ

MECHANICAL, ELECTRICAL & PLUMBING	Ventilation:	Heating/cooling - Non manually operated thermostat
	Electrical	Minimum (8) flush-mounted power boxes in common area. Minimum (4) power boxes in the cafe work area.
	Artificial Lighting:	LED lighting, dimmable, zoned with multi-scene controls
	Plumbing:	Hot and cold water three compartment sinks, floor drain, floor sink. hand washing sink.
EQUIPMENT & FURNISHINGS	Booth high-back bench, mobile tables and chairs in the cafe area. All furniture OF/OI. When possible, furniture to accommodate technology for increased flexibility.	



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03

CONCEPTUAL DESIGN

03

CONCEPTUAL DESIGN

INTRODUCTION

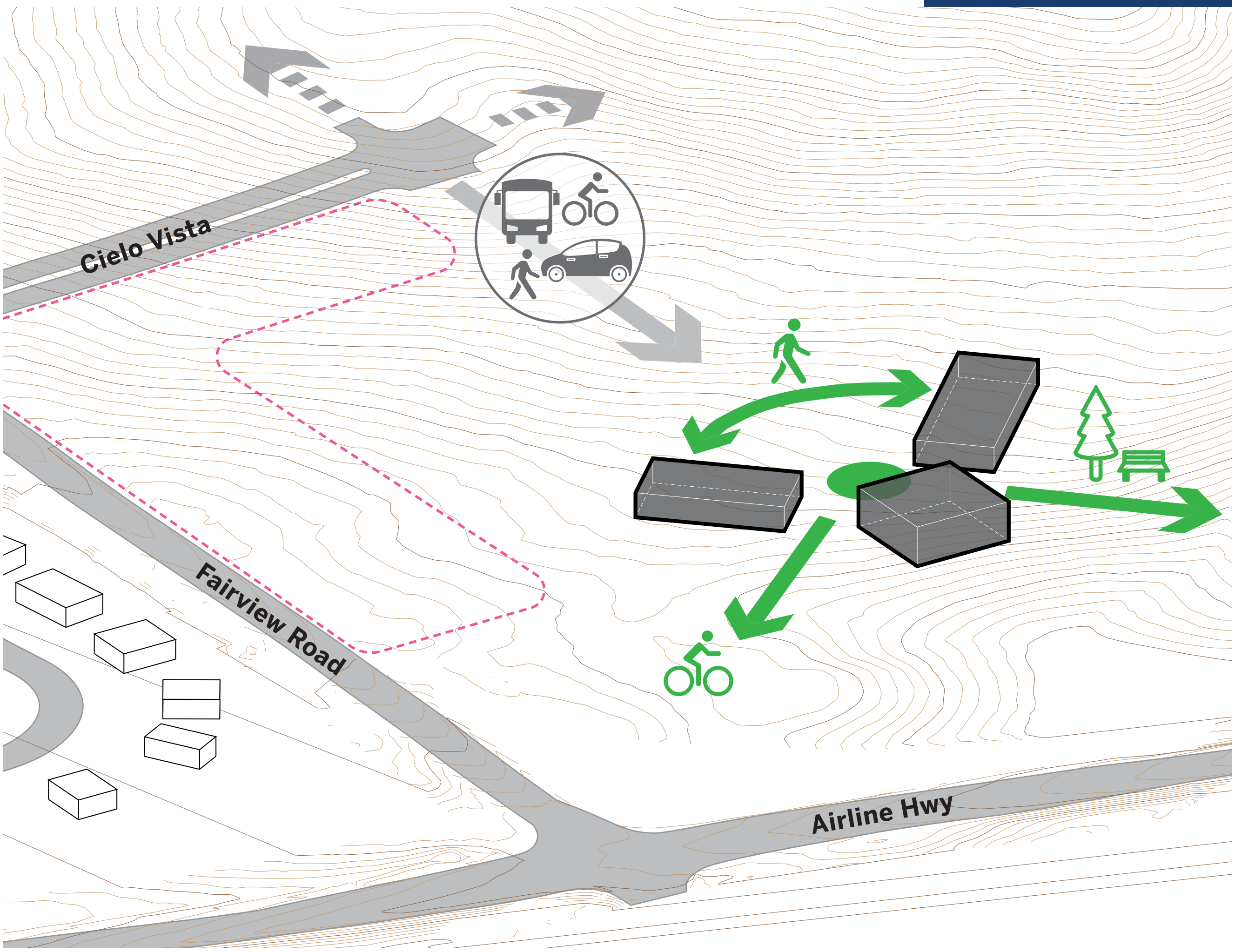
Key drivers for building placement and orientation are identified in this chapter. The design for the San Benito County Campus (SBCC) shall be integrated into the community and adjacent public realm, as well as create iconic and outstanding experiences for students and community users.

The SBCC task force provided feedback on various aspects of the Building and Site design content, which will guide the Design Build Entity (DBE) for providing design solutions.

The diagrams illustrated on the following pages have the only purpose of conveying design intent.

CONCEPTUAL BUILDING LOCATION

FIGURE 3.1



The new SBCC is proposed to be located at the terminus of a new Campus Road. A welcoming plaza will invite students into the complex and provide an introduction to the academic zones withing the building.

The SBCC will accommodate the growth of programs currently housed on the Girloy Campus, enhance student engagement and provide spaces for students to study, interact and collaborate.

The geometry of this study is angled and has the entry plaza as its hinge point. The plaza is located at the northern portion of the Site and is nestled between the building masses. The SBCC Center will be well visible to students and the community approaching the campus.

LEGEND

- Conceptual Building Massing
- Topography
- Future Retail
- Campus Road

CONCEPTUAL SITE PLAN

FIGURE 3.2

The courtyards, on the southern side of site, open toward Airline Hwy acting as gateway into campus, receiving students and faculty moving across the site.

A pedestrian walk starting at the corner of Airline and Fairview, intersects the building and ends in the entry plaza, as shown above.

Based on the approved program, conceptual massing were developed to identify advantages and disadvantages of various strategies.

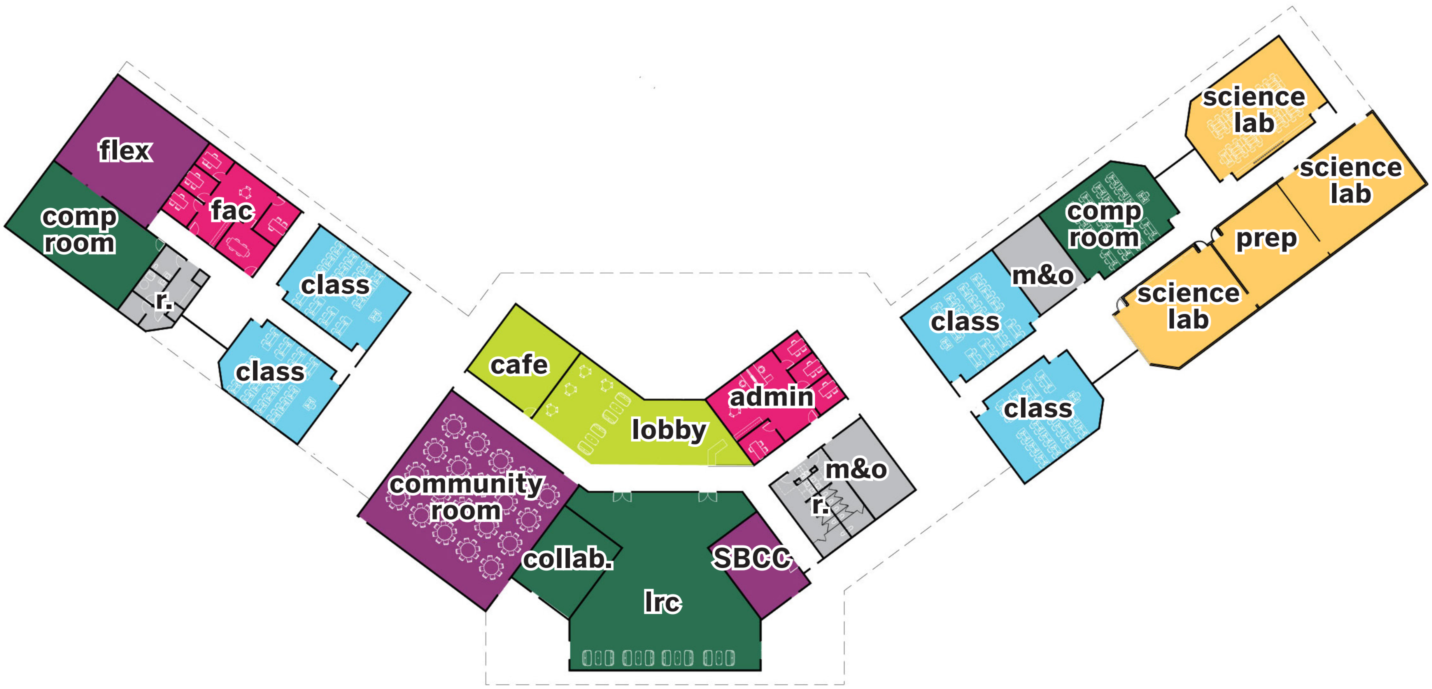
Special attention was devoted to:

- Lobby & Plaza Location
- Open Space Network
- Site Integration
- Campus/Building Circulation (See *Chapter 5* for circulation diagrams)

The diagrams on the following pages are for reference only, to provoke initial design considerations and convey some of the thinking of the Task force.

BUILDING TEST FITS STUDY 01

FIGURE 3.3



Study 01 investigates a one-story massing. This scheme's characteristics are summarized here:

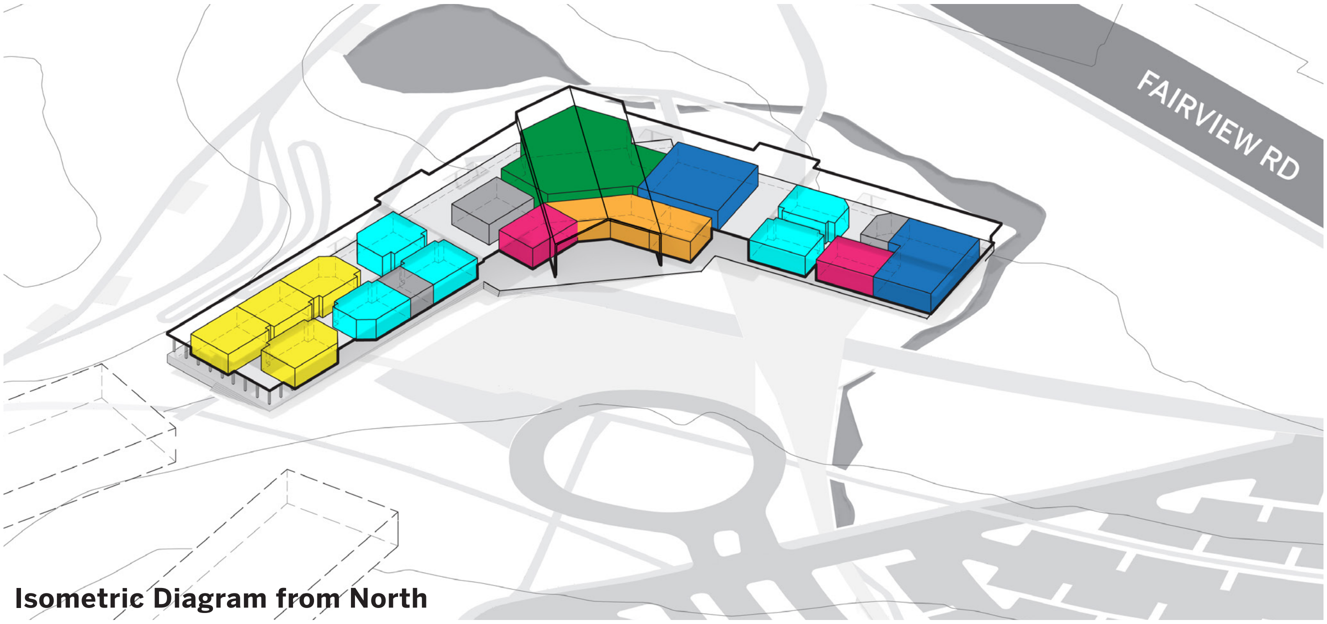
- Centrally located LRC and public spaces
- Insures movement through campus
- Promotes indoor/outdoor circulation
- Enables good natural light
- Masses are broken up and work with the existing topography
- The scheme frames the arrival plaza
- Visual connection to Fairview and Airline
- The conceptual mass shades the arrival plaza
- Allows to utilize spaces separately for special events
- Opportunities for lookout and collaboration spaces

LEGEND

- LRC
- Lobby + Others
- Science Lab
- Classroom
- Multi-Use
- Office
- Computer Room
- Corridor Circulation
- Building Support

BUILDING TEST FITS STUDY 01 - VIEWS

FIGURE 3.4



Isometric Diagram from North

FIGURE 3.5

Birds-eye Perspective from South

BUILDING TEST FITS STUDY 01 - VIEWS CONT'D

MASSING AND VIEWS

A conceptual massing was developed for the building test fit study as an initial bridge between the location of individual programs within the new building and the architectural aesthetic preferences expressed during engagement with the Task Force.

For the building test fit study, the primary architectural element - a gabled roof structure - reflects some local architectural examples as well as the interior program. The form differs from the two classroom wings of the building, and the higher volume increases the presence of the lobby and library.

In contrast, the rest of the building mostly uses flat roofs and lower building height. Clerestory windows provide additional architectural interest while also increasing daylight. A roof overhang on the south side of the building supported by a colonnade/arcade promotes environmental design practices, gives uniformity to the south facade, and provides outdoor corridor and courtyard spaces for users.

FIGURE 3.6

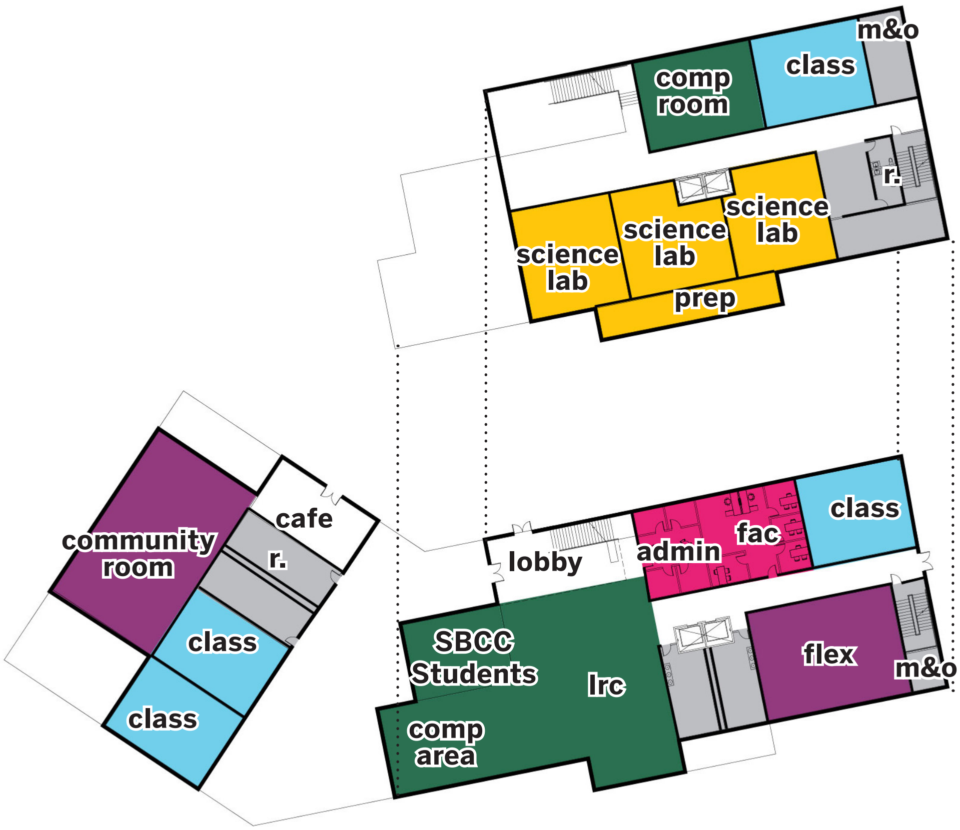
View from Northeast

FIGURE 3.7

View from Northwest

BUILDING TEST FITS STUDY 02

FIGURE 3.8



level 2 floor plan

ground floor plan

Study 02 investigates a two-story massing with a smaller footprint. This scheme's characteristics are summarized here:

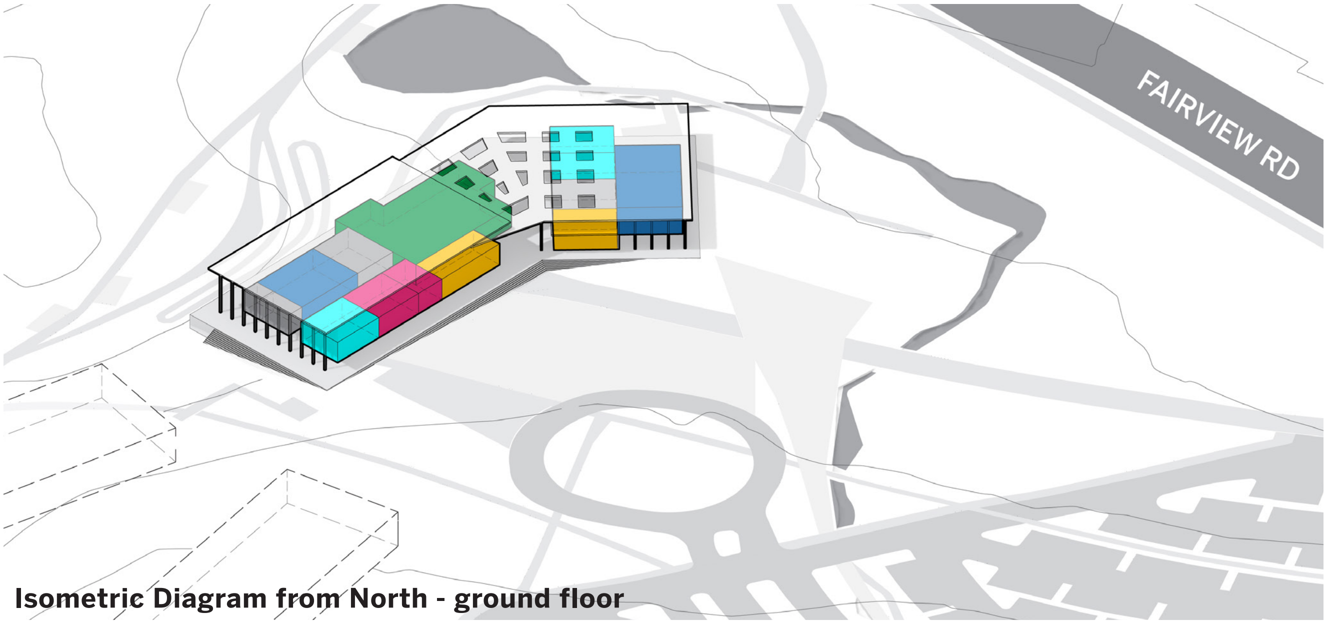
- Lobby oriented towards the plaza
- Compact design
- Potential for roof terraces
- Scheme produces some inefficient spaces
- Higher number of restrooms on first floor
- All offices are co-located
- STEM center located on second floor

LEGEND

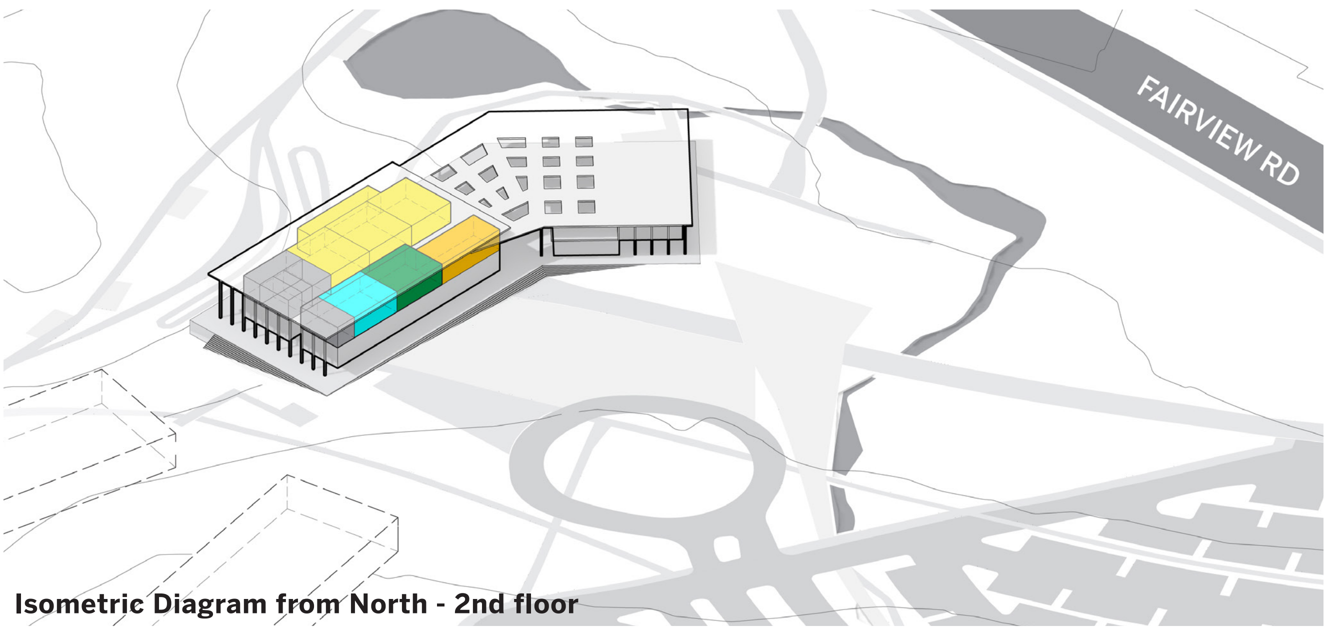
- LRC
- Lobby + Others
- Science Lab
- Classroom
- Multi-Use
- Office
- Computer Room
- Corridor Circulation
- Building Support

BUILDING TEST FITS STUDY 02 - VIEWS

FIGURE 3.9



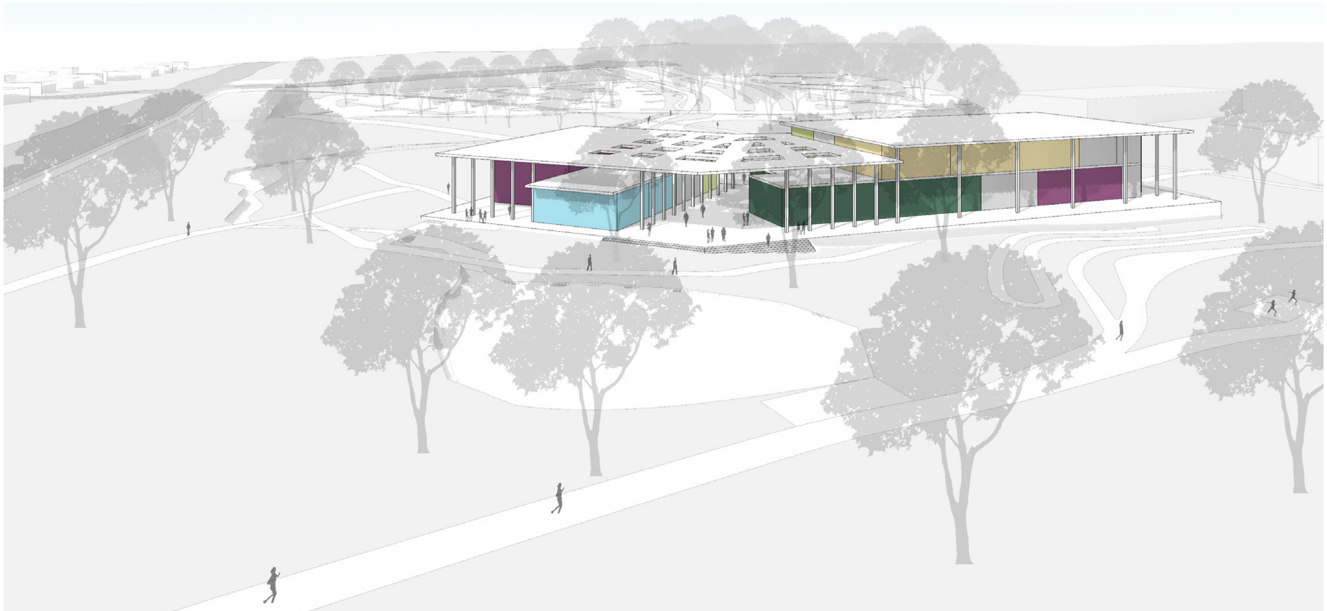
Isometric Diagram from North - ground floor



Isometric Diagram from North - 2nd floor

BUILDING TEST FITS STUDY 02 - VIEWS CONT'D

FIGURE 3.10



Birds-eye Perspective from South

MASSING AND VIEWS

A conceptual massing was also developed for the two-story building test fit study, again to suggest how to link individual program locations the architectural aesthetic preferences expressed during engagement with the Task Force.

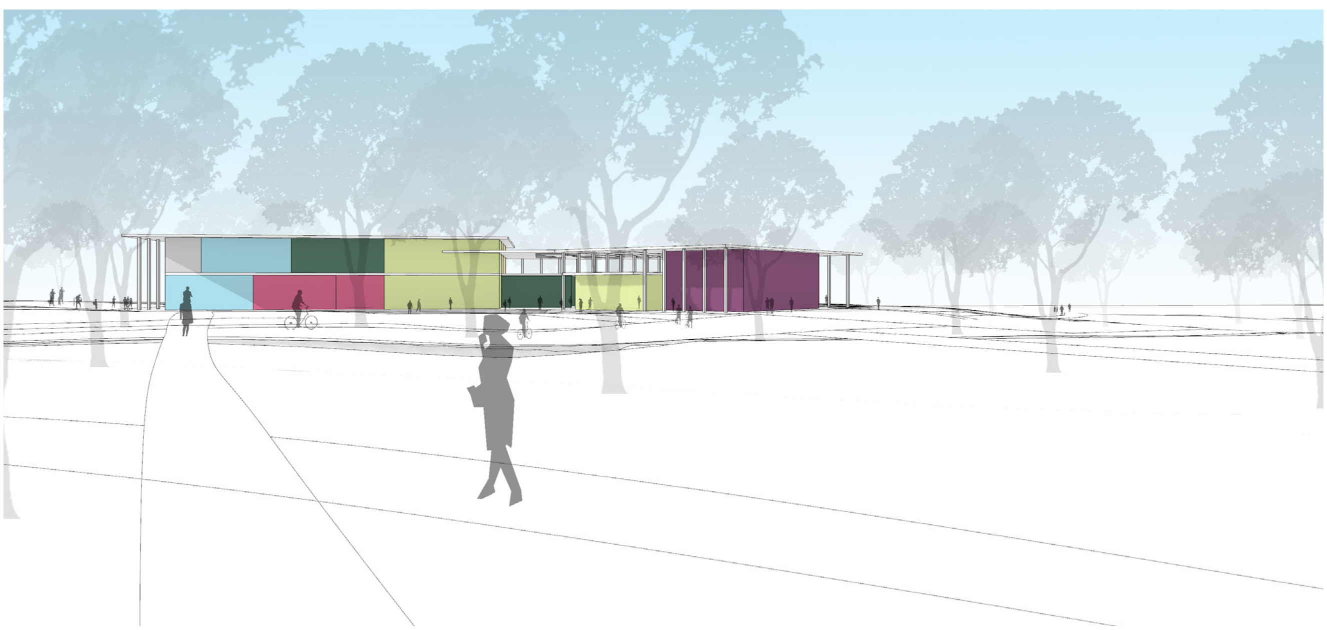
This building test fit includes two wings that create two building masses that are more individually recognizable than the first test fit study. This is a result of one wing with two levels of program while the other wing is made of only one level of program, but also includes a multi-purpose space that would benefit from increased height. From this starting point, a flat roofs were used to create visual unity between the individual masses, which also creates an outdoor room in the space between the two masses.

In addition to the horizontal connections created by the roofs, the columns shown in Figures 3.10-3.12 represent columns (or other screening strategies) to connect the massing vertically, and support roof overhangs that promote environmental design strategies and creating outdoor courtyard and corridor spaces.

FIGURE 3.11

View from Northeast

FIGURE 3.12



View from Northwest

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04

CIVIL
DESIGN CRITERIA

04

CIVIL DESIGN CRITERIA

INTRODUCTION

The San Benito campus is a 78 acre undeveloped site located on Fairview road in San Benito County. The site is mostly grassland with no trees. The site generally slopes from northeast to southwest with an approximate grade of 5 percent. There is a gentle swale in the middle of the site sloping form northeast to southwest. The swale conveys runoff to a depression near the southwest corner of the site. The runoff is then conveyed south to the Golf course on the south side of Airline highway. The site also has an overhead telephone line and electric line within a 25' easement owned by Pacific Telegraph & Telephone that runs east west across the site. The District will be responsible for constructing the Entry road (Cielo Vista ct.) roadway and utility improvements on the north edge of the site.

The proposed site civil design guidelines below include project descriptions and Design Criteria for Grading, pavements, stormwater management, and wet utilities.

GRADING AND DRAINAGE

The finished grading should be designed to balance the cuts and fills on-site. This may be achieved by lowing the grades on the eastern portion of the site to use as fill for the western portion of the site where the first phase if the campus will be built. The grading should also be designed to direct stormwater runoff away from proposed buildings and towards stormwater treatment and storage facilities. Hardscape areas should be graded and coordinated with the building improvements, to meet ADA requirements and provide proper drainage. Softscape areas will be graded, as coordinated with the landscape architect, to utilize infiltration opportunities in order to reduce the amount of storm water runoff into the piping system. The onsite Storm drain system shall be designed to have a 25-yr storm event capacity.

DESIGN CRITERIA

- Grading requirements shall be consistent with the project Geotechnical report
- Cut and fill slopes should be 2:1 (horizontal to vertical) or flatter
- ADA path of travel improvements shall meet the most current version of the California Building Code (CBC), Part 2, Volume 1, Chapter 11B accessibility requirements

PAVEMENTS

All pavements shall be designed to meet the requirements of the project Geotechnical Report, which provides pavement sections for asphalt and concrete for both pedestrian use and vehicular use. The roadways and parking lots shall be Asphalt over Class II aggregate base. The walkways and EVA routes shall be reinforced concrete over Class II aggregate base. DG is acceptable for secondary paths and plaza areas. The parking lot shall be located within close proximity of the new building. The number of Accessible stalls shall meet the requirements of the CBC. The number of Electric Vehicle stalls shall meet the requirements of the California Green Building Standards Code. Accessible path of travel shall be provided from all accessible parking stalls and drop off zones to the new building entryways and public areas.

DESIGN CRITERIA

- Pedestrian walkways and service vehicle pathways shall be 8’ wide minimum.
- EVA access shall be 20’ wide minimum.
- Standard Parking stalls shall be 9’ wide by 18’ long minimum
- Compact stalls shall be 8’ wide by 16’ long minimum
- ADA stall dimensions and striping shall be per CBC requirements
- Parking lot drive aisles shall be 24’ wide minimum for 90 degree stalls
- Curb and gutters for roadways and parking lot shall be Portland Cement Concrete

STORMWATER

The project will be required to provide post construction stormwater treatment and storage facilities. The storage facilities shall be sized for the 100-yr storm event and to be of adequate size to retain and infiltrate stormwater on the site to pre-developed levels as required by applicable County standards (San Benito County Code, title 23, chap. 23.17, section 23.17.003(B) and chap. 23.31, article III, section 23.31.040 et seq). All Storm water runoff from impervious surfaces shall be directed to the stormwater treatment and storage facilities. Utilize Best Management Practices (BMP's) and Low Impact Development (LID principles when designing the storm water runoff facilities.

DESIGN CRITERIA

- Develop a Stormwater Control Plan per County requirements.
- Use LID practices such as BioRetention ponds, Vegetated swales, and planter boxes

SANITARY SEWER

There is no existing sanitary sewer along Fairview road. However, there is an existing 8" sewer within the Cielo Vista residential subdivision on the west side of Fairview road. The District will extend the sewer main across Fairview Road, to the east and along Cielo Vista Ct. The DBE team can connect to the sewer at the west end of Cielo Vista Court. The existing system runs west through the Cielo Vista subdivision and beyond to Enterprise road which is then conveyed to the City of Hollister's Domestic wastewater Treatment plant (DWTP) for treatment.

DESIGN CRITERIA

- Sewer pipes shall be PVC SDR 26 material
- Minimum slopes shall be 2% for 4", 0.7% for 6", and 0.4% for 8"
- Sewer mains shall have 10' minimum horizontal separation from domestic water lines
- Sewer laterals shall have 5' minimum horizontal separation from domestic water lines

STORM DRAINAGE

The existing drainage for the site is overland runoff within the site which flows south and west to existing drainage ditches along Fairview road and Airline Hwy. The Project Storm drain inlets shall be placed at all low points within roadways, parking lots, pathways, and landscape areas. Drains within landscape areas to be coordinated with the landscape architect. Drains within pedestrian hardscape areas to be heel proof catch basins or area drains. Drains within drive areas to be bicycle proof and traffic rated. Manholes will be provided as required. Drainage from impervious areas shall be conveyed to the stormwater treatment facilities.

DESIGN CRITERIA

- Storm drain pipes shall be sized to accommodate a 25-yr storm event
- Minimum pipe size shall b 6”
- Storm drain pipe slopes shall be designed to maintain a minimum velocity of 2 ft/sec
- Storm drain lines 6” and smaller shall be SDR 35 PVC
- Storm drain lines 8” and larger shall be HDPE or RCP

WATER

The project site is located within the existing service area boundary of the Sunnyslope County Water District, which would provide potable water service to the project. There is an existing 12” water line along Fairview road. The district will connect to the existing water main with a separate domestic line and fire line and extend them to the east along Cielo Vista court to the campus entry. The DBE team can then connect at that location. The sizes of domestic water and irrigation services will be based on demands determined by the project MEP and Landscape architect. The sizes of the fire water system will be based on the California fire code requirements.

DESIGN CRITERIA

- Backflow devises shall be provided for each system (domestic, fire, and Irrigation)
- Waterlines shall have 3’ minimum cover
- Water lines 4” and larger shall be PVC C900 material
- Irrigations lines shall be PVC schedule 40
- Fire Hydrants shall be placed at 300’ maximum spacing and approved by the local fire authority

RECLAIMED WATER

There is no existing reclaimed water available for the site at this time. Based on the Hollister Urban Area Water and Wastewater Service Master Plan, it is anticipated that recycled water will be available in the future from the planned recycled water system.

DESIGN CRITERIA

- PVC purple pipe

NATURAL GAS

The Project would be served with natural gas by PG&E. All new lines will be underground within the site.

DESIGN CRITERIA

- Yellow Polyethylene pipe

POWER AND COMMUNICATION

The Project would be served with power by PG&E and communication by AT&T. All new lines will be underground within the site.

DESIGN CRITERIA

- To be provided by dry utility consultant

GRADING PLAN

Figure: 4.1 GRADING PLAN

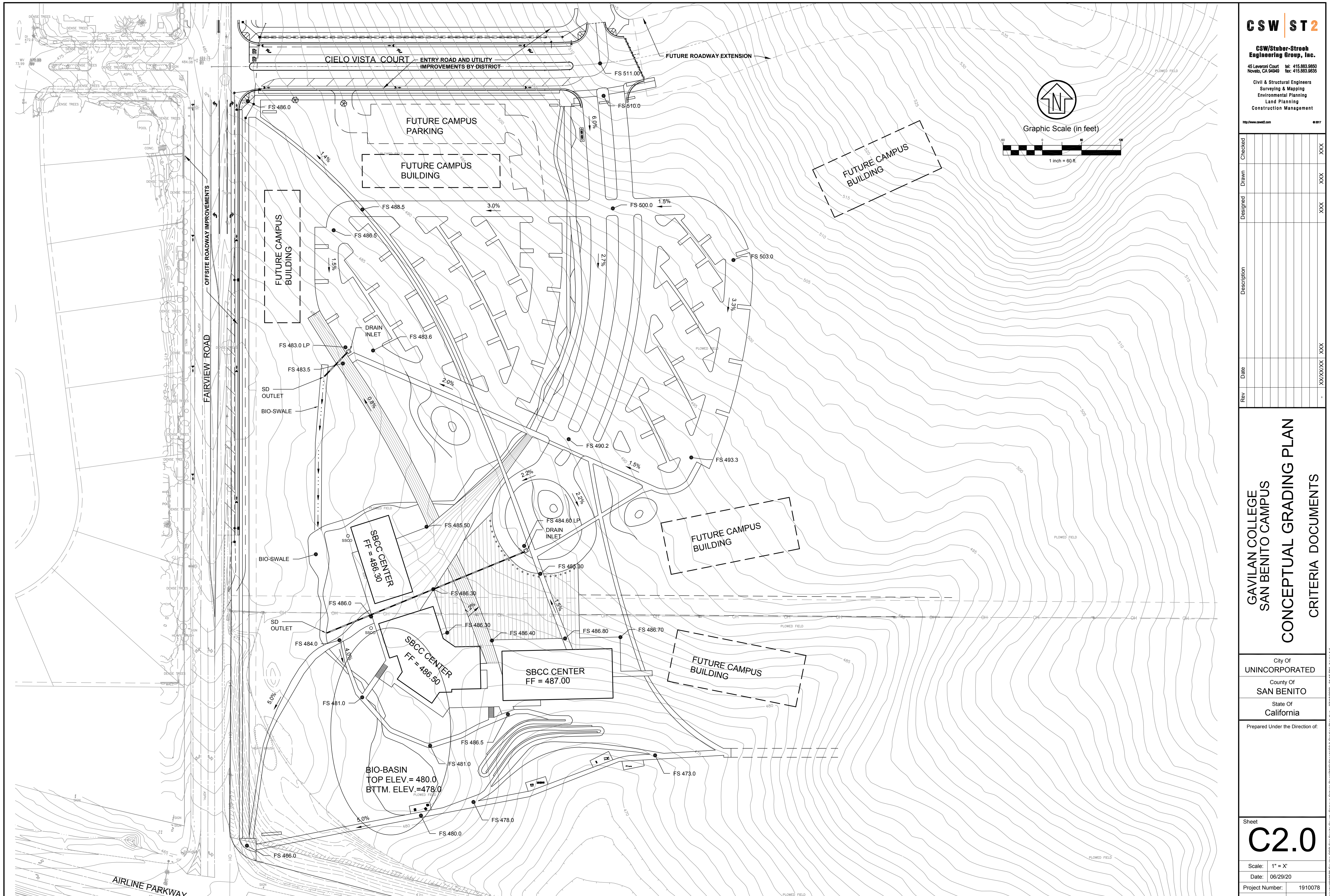
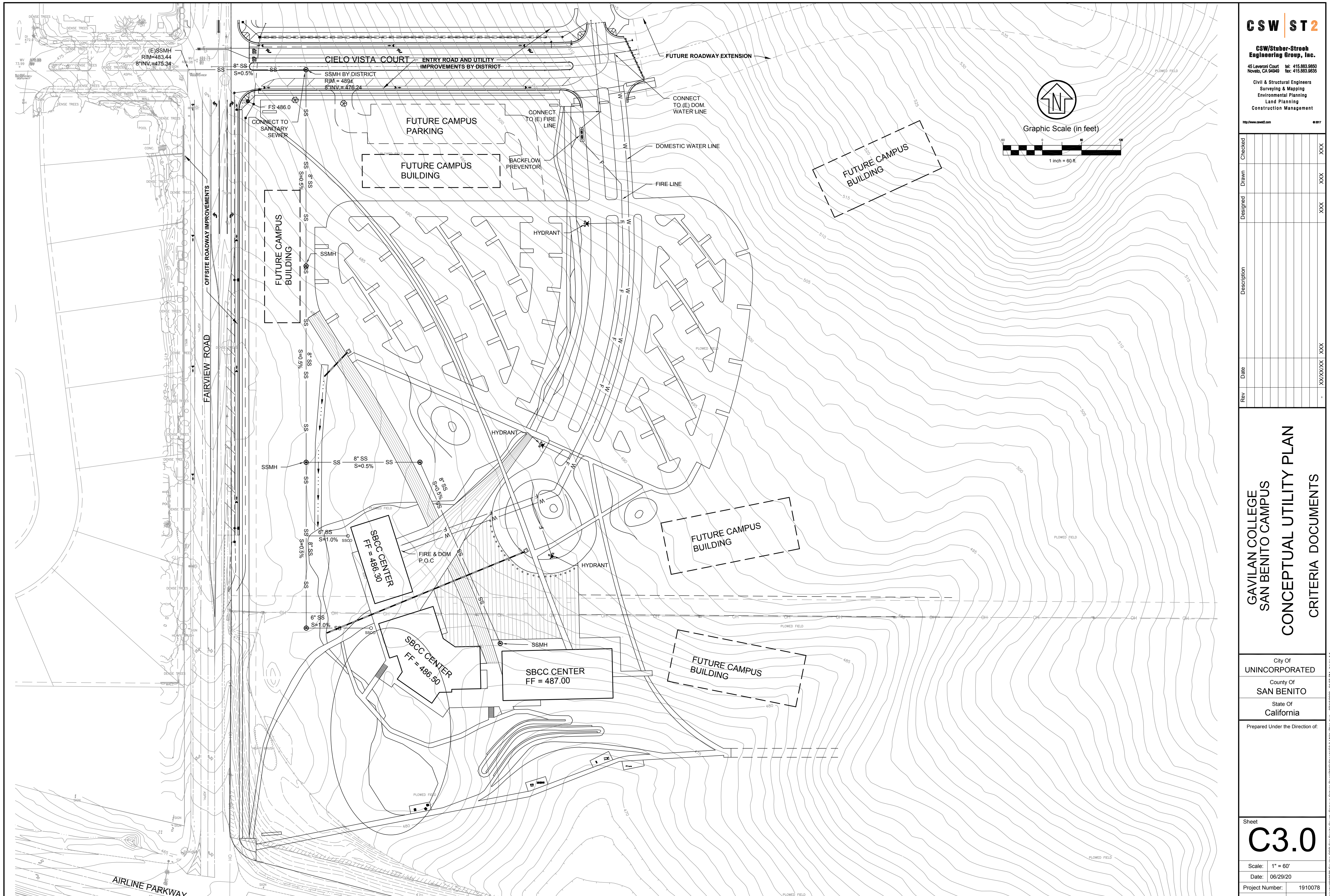


Figure: 4.2 UTILITY PLAN



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05

LANDSCAPE DESIGN CRITERIA

05

LANDSCAPE DESIGN CRITERIA

INTRODUCTION

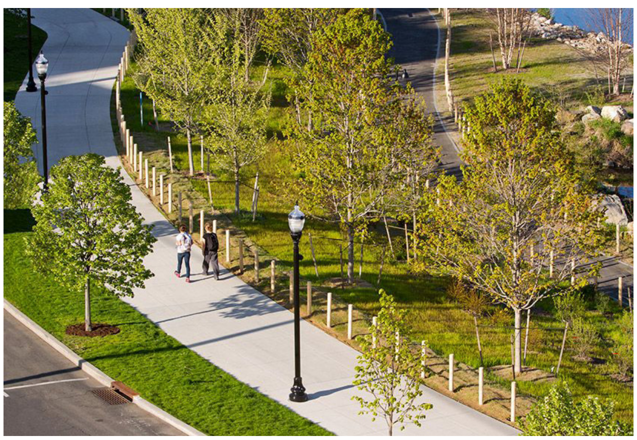
The Landscape Design Criteria establish a landscape framework and are intended to provide general direction to design professionals for the future San Benito County Campus (SBCC) projects. These criteria address the following areas:

- Landscape Design Principles
- Site Context
- Landscape Master Plan
- Focus Areas
- Landscape Guidelines
- Plant Palette

Refer to *Design Guidelines and Standards* for more information.

LANDSCAPE DESIGN PRINCIPLES


Native Landscape


Campus as a Connector

The creation of a educational campus is a rare place-making opportunity. Gavilan College's SBCC, located on a hillside at an important crossroads, presents great promise for a new community hub and gateway that will grow and evolve for years to come. The landscape design criteria in this document are built off the following principles:

CREATE A STRONG SENSE OF IDENTITY

- Use native and vernacular landscape forms and materials to connect to and celebrate the surrounding context.

LEVERAGE SIMPLE MATERIALS TO BIG EFFECT

- Build a strong framework of well-proportioned spaces using materials that are functionally and aesthetically long-lasting.

DEVELOP STRONG COMMUNITY CONNECTIONS

- Create edges, gateways and linkages that invite the community in.

BUILD IN FLEXIBILITY FOR FUTURE GROWTH

- Create spaces that can support a wide range of activities .

- Consider future growth and linkages when siting structures and circulation.

MAKE LANDSCAPES HEALTHY AND SUSTAINABLE

- Use landscape materials that will thrive in their setting and provide shade and comfort that encourages outdoor activity.


Native Planting and Materiality


Community Activities

SITE CONTEXT

Savannah Landscape

The campus is located at the very eastern edge of burgeoning suburban development; The site itself is composed of rolling hills and swales, with a 55 foot grade change from northeast to southwest and continuous but gentle slopes to grade at the surrounding roads. This austere but sumptuous Savannah landscape extends nearly uninterrupted for miles to the east, punctuated by small stands of canopy trees or masses of shrubs in draws and on north and east facing slopes.

SITE APPROACH

View from Airline and Fairview Intersection

View from Airline Hwy

It’s anticipated most students and visitors will approach the San Benito campus from the westbound Airline Highway, affording important views of the southwest corner of the campus.

Vehicular access to the campus will be from a signalized intersection on Fairview Road, with vehicles approaching on the planned Cielo Vista Court. A turn to the south leads to the dedicated campus entry drive, with adjacent surface parking and an entry/passenger drop off plaza at the entry drive’s terminus, the heart of the campus.

Pedestrian and bicycle access to the campus will be facilitated by the addition of sidewalks along Fairview Road, improved pedestrian crosswalks at the intersection of Fairview and Airline Highway and the creation of one more accessible paths that ascend the slope on the west side of the campus leading visitors to the campus entry plaza and future retail development.

RESIDENTIAL/ EDUCATIONAL/ RETAIL INTERFACE


Promenade as a Connector

Existing and planned residential developments flank the campus to the west, across Fairview Road, and to the north across the planned Cielo Vista Court. Additionally, the northwest corner of the campus site is being considered for the a future retail development. New and future intersections should be designed to align with existing roads to form a strong circulation network. Perimeter planting and well-lit pedestrian sidewalks should reinforce the circulation network. Plazas, open spaces, signs and landscape features at campus edges should be designed with consider of adjacent neighbors. For example, parking lots at street edge should provide a planted screen to shield headlights from neighbors. Plazas adjacent to retail should be designed to accommodate casual dining or other supporting uses.


Edge Condition


Outdoor Seating for College and Retail

LANDSCAPE MASTER PLAN

FIGURE 5.1

1 Entry Drive

2 Parking Orchard

3 Parking Grove

4 Promenades

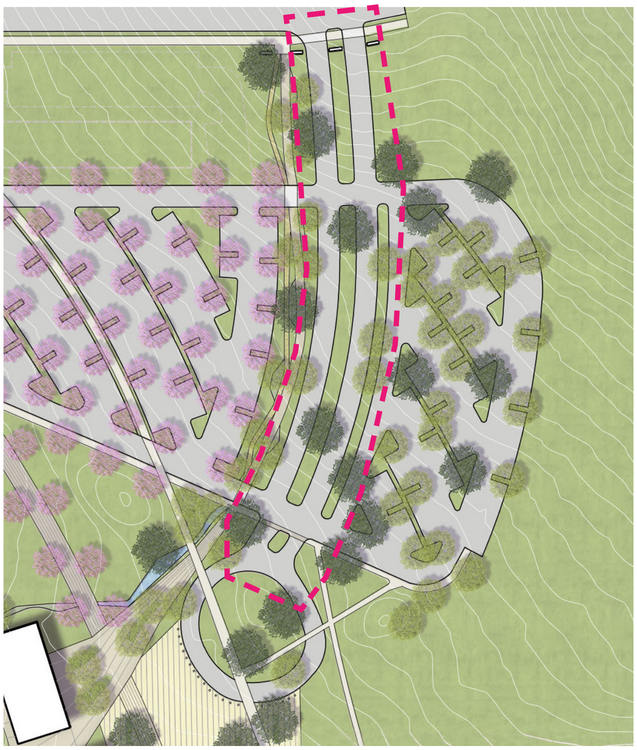
5 Entry/Event Plaza

6 Courtyards

7 Trails and Open Space

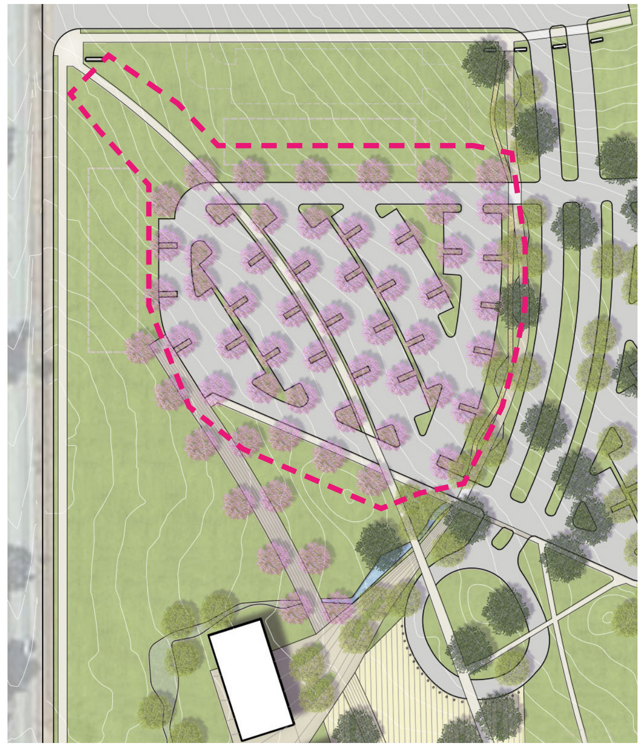
FOCUS AREAS

ENTRY DRIVE 1

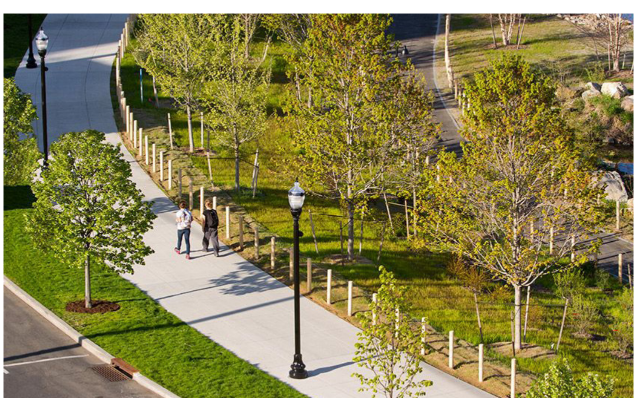


With dedicated circulation for pedestrians, bikes and cars, the entry drive creates a strong and iconic sense of arrival. Gently curving with the existing terrain, the drive is punctuated by a mix of large canopy trees that frame views to the campus complex beyond.

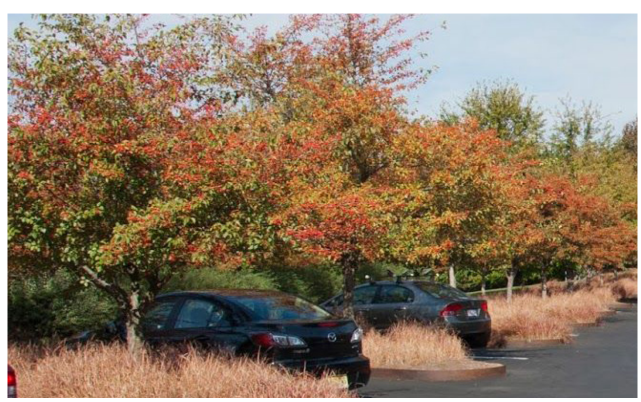
PARKING ORCHARD 2



Located to the west of the entry drive and with the potential to serve future retail or educational office developments, the parking orchard marries the iconic form of the agricultural orchard with the inherent geometry of parking lots to create a beautiful gateway space that reflects local character.



Pedestrian Path Along the Entry Drive

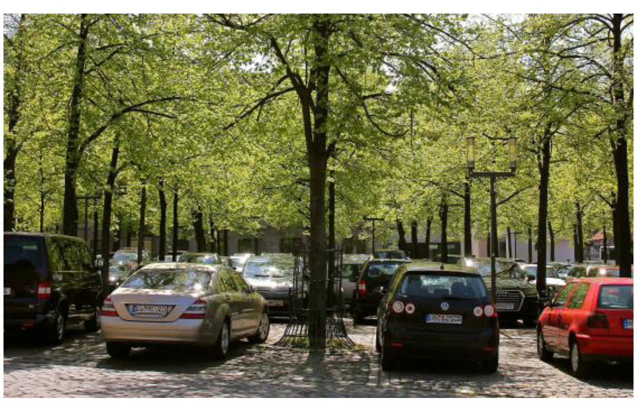


Seasonal Trees at Parking Orchard

PARKING GROVE 3

To the east of the entry drive is the parking grove, punctuated by loose drifts of canopy trees, suggesting the form and character of the native Oak Savannah and creating a transition to the rolling hills and future campus extending to the east.

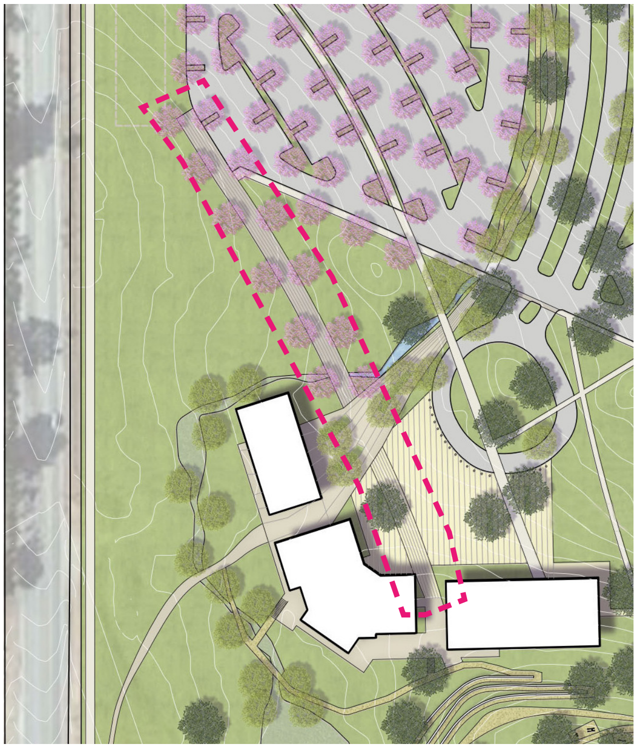
Parking areas shall be planned and graded to incorporate integrated stormwater treatment and storage. This may be achieved through a combination of permeable paving to reduce run-off, and vegetated swales for treatment and storage, pending geotechnical assessment of site permeability. Permeable paving such as open joint pavers or porous concrete or asphalt can be used throughout or in select areas such as drop off-zones, parking stalls and pedestrian crosswalks to accentuate circulation and reinforce wayfinding as well as mitigate the scale of the paved vehicular surfaces. Layout of porous paving must be planned in collaboration with grading design to ensure it captures run-off. Grading parking to drain into vegetated swales between drive aisles provides an integrated, lush landscape buffer that also treats contaminants in surface run-off. Parking lot design must incorporate adequate depth and width for swales, including curbs with inlets and/or sufficient level shoulder at top of swale to provide safe pedestrian movement around cars and across aisles. Parking stalls shall be designed with wheel stops or curbs and sufficient overhang to ensure cars do not encroach on vegetation. In addition, parking lots shall be planned to provide dedicated tree planting areas outside of vegetated swales to meet shade requirements.



Grove at Parking lot

Bioswale at Parking lot

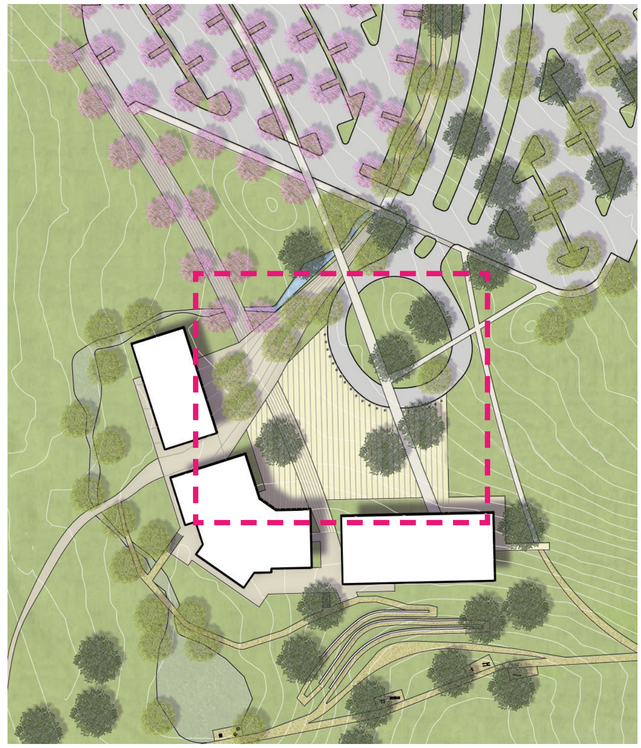
PROMENADES 4



The west promenade is a wide and shaded pedestrian spine that connects the campus core to parking and future development and also forms the southeastern boundary to the campus core plaza and multi-purpose lawn. A second promenade is envisioned to extend east from the campus core, creating a circulation edge that orients views to the north and east.

Promenade

ENTRY/EVENT PLAZA 5

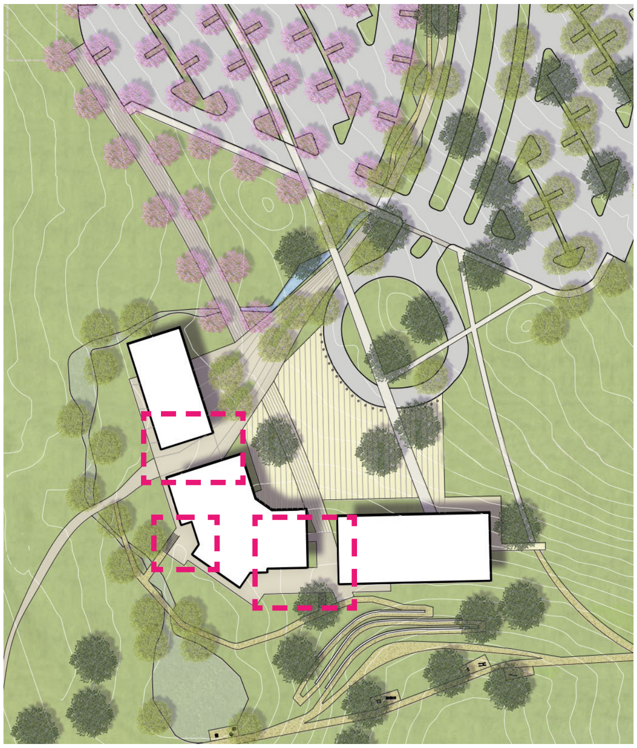


The campus core entry area includes a generous drop off zone, with iconic landscaped berm, a multi-purpose lawn and event plazas. Large canopy trees set in raised planters with seat walls provide shade and informal gathering and waiting areas.

Plaza, Canopy and Building Entry

FOCUS AREAS CONT'D

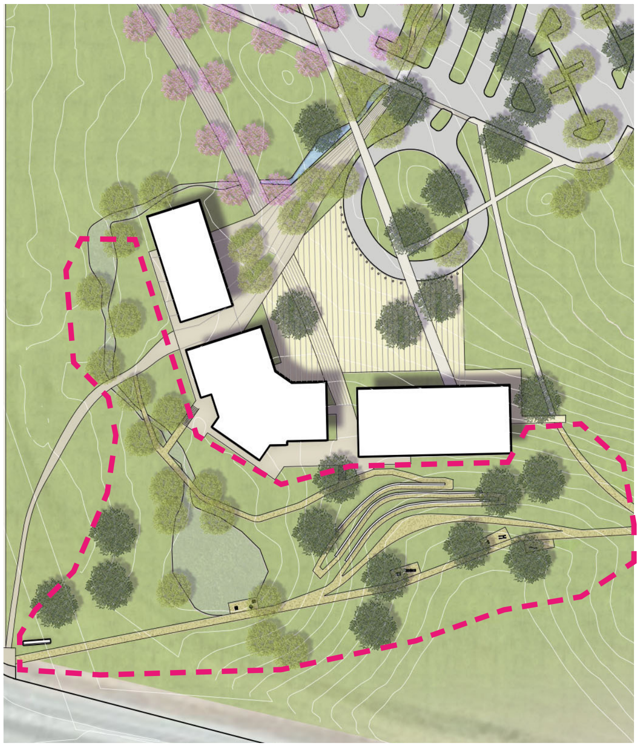
COURTYARDS 6



Shaded learning courtyards are located between and around the buildings. These can function both as extensions of classroom space or as places for informal gathering and study sessions. The character and features of this courtyards can vary based on adjacent building uses.

Courtyard between Buildings

TRAILS AND OPEN SPACE 7



The south end of the campus is dedicated to open space, recreation, and demonstrations of sustainable stormwater treatment measures. It represents an important first impression of the campus for visitors approaching from the south. The natural topography is left largely intact, with trails, an amphitheater and stormwater treatment basin set variously in, on and along the knolls, ridge lines, and valleys.

Walking Trail and Fitness Program

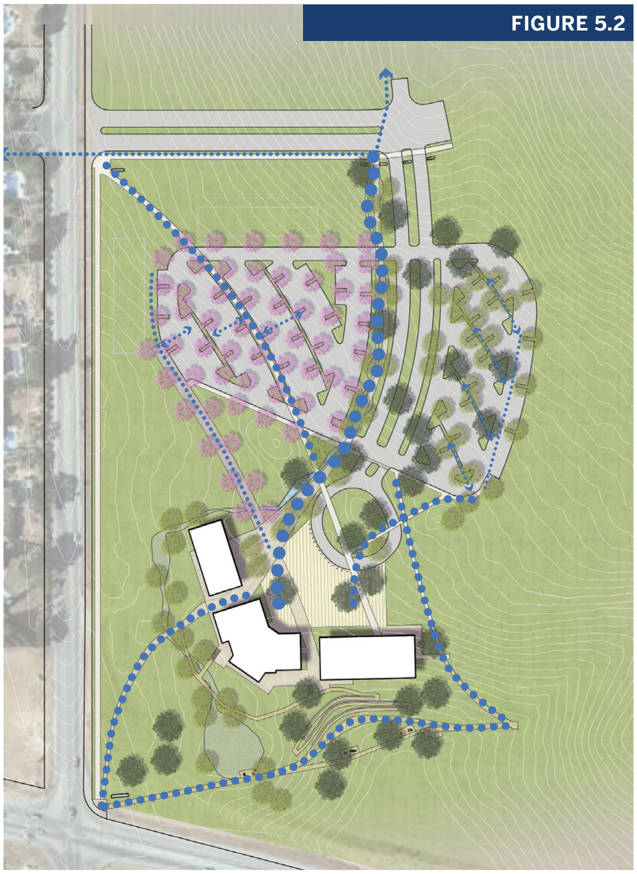
Walking Trail

Amphitheater

LANDSCAPE GUIDELINES

PEDESTRIAN CIRCULATION SYSTEM

FIGURE 5.2



Pedestrian Circulation Diagram

Primary Circulation
Secondary Circulation
Tertiary Circulation

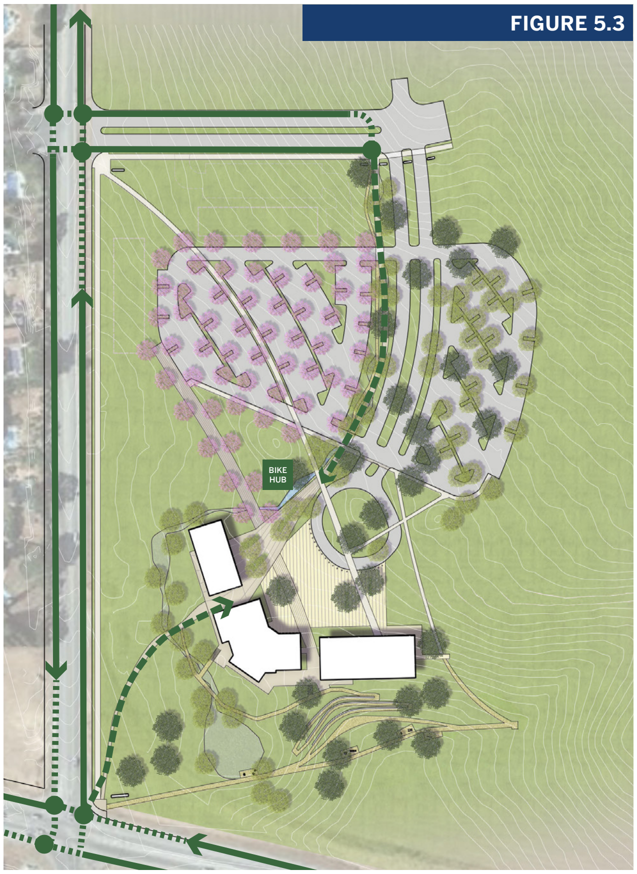
Pedestrian circulation systems shall be designed to ensure a well-connected campus that prioritizes pedestrians safety and comfort and achieves a fully accessible site by adhering to universal design principles. In addition, it shall provide safe and accessible pedestrian connections to off-site facilities including side walks and transit stops. To support intuitive wayfinding, establish a clear hierarchy of paving materials and site furnishings that work in concert with gateways and signage systems to the greatest extend possible,

Circulation shall utilize sloped walks with a maximum grade of 4.9% in lieu of ramps and handrails with the goal of creating an open, fluid circulation system. Provide shade through trees and architectural shade structures at walkways, seating areas and gathering spaces to reduce heat island effect.

Pedestrian Circulation

Gateway and Wayfinding Signage

BIKE CIRCULATION



Bike Circulation Diagram

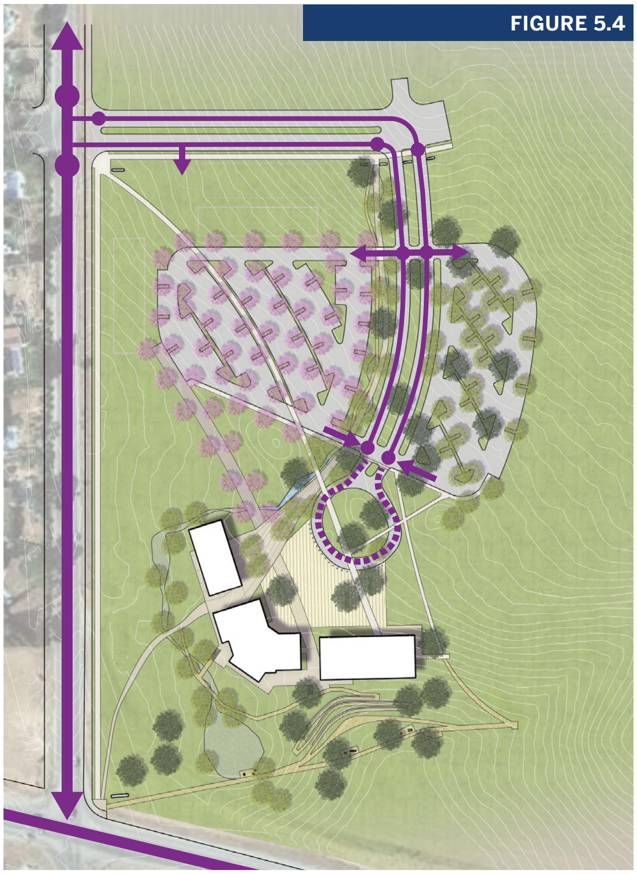
Bike Lane / Path
Bike / Pedestrian
Bike / Vehicular
Bike Hub
Crosswalk

With dedicated bicycle lanes planned for Airline Highway and Fairview Road, the campus shall provide a dedicated bike lane along its north entry drive and a shared lane at the south entry to encourage students, staff and visitors to bicycle to campus. Bicycle facilities including secured lockers, corrals, racks and fix-it stations shall be centrally located for convenience and safety. Pedestrian gathering areas such as plazas and courtyards shall be clearly signed as bicycle "dismount zones."

Designated Bike Lane

Shared Bike Lane

VEHICULAR CIRCULATION



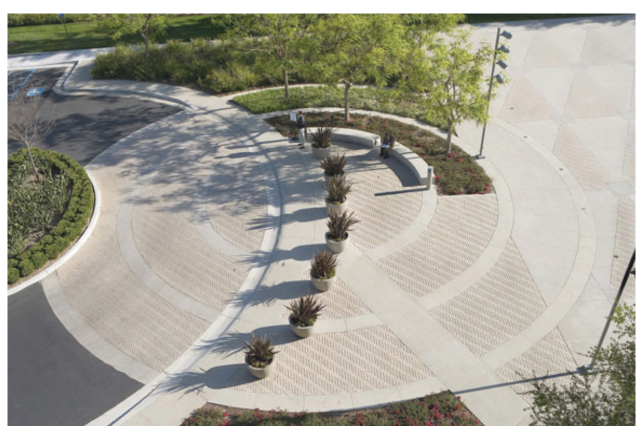
Vehicular Circulation Diagram

Primary Circulation
Campus Circulation
Drop Off

Vehicles will approach the campus from the north. Visitors who arrive by car can pick-up or drop-off passengers at the southern plaza or park in surface lots located to the east and west of the entry drive. Drop-off area shall be thoughtfully designed to ensure a fluid circulation of pedestrians to and from Campus.

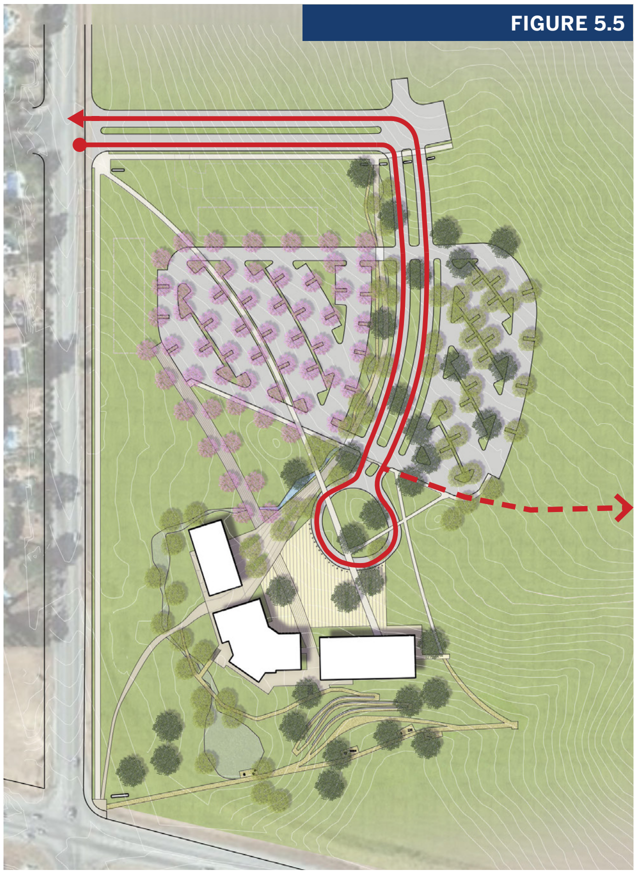
Porous Paving at Parking Lot

Example of Campus Entry Drive



Drop Off Area

SERVICE/FIRE ACCESS



Service and Fire Access Diagram

Service/Fire Access
Emergency Egress

Decomposed Granite Fire Lane

Fire Lane Integrated with Pedestrian Path

Fire and Service access shall reinforce campus pedestrian safety and efficiency by thoughtfully integrating fire lanes and service access into the overall campus site design. To minimize vehicular use zones in the campus interior, service areas shall be aggregated wherever possible to serve multiple facilities The design shall encourage shared use by pedestrians by using finishes and treatments that integrate into the overall hardscape design palette.

Grasscrete Fire Lane

LANDSCAPE GUIDELINES CONT'D

SITE SUSTAINABILITY

Stormwater Treatment

Swales and Basin

Materiality

STORMWATER TREATMENT

Stormwater treatment measures including treatment and storage facilities are integrated into the overall landscape framework for the campus. Stormwater run-off shall be directed to planting areas wherever possible to allow recharge of the water table. Design of treatment and storage facilities shall consider aesthetics as well as function. Plant materials shall be low maintenance, native and locally adapted drought-tolerant species that also tolerate periodic inundation. Swales and basins shall be designed to create opportunities for adjacent seating and demonstration of LID principles.

LOCALLY SOURCED MATERIALS

Natural materials such as hardscape aggregates, stone pavers and veneers, decomposed granite, cobbles and boulders shall be locally sourced to match site context.

WATER MANAGEMENT

Plant materials shall be native and locally adapted drought-tolerant species, selected with consideration of appropriate sun exposure and arranged in groups with similar water requirements. Irrigation systems shall be high efficiency with plants with different water requirements on separate valves. Irrigation controller shall be equipped with a weather sensor.

The design of plumbing and mechanical systems shall consider treatment and reuse of water for irrigation. Examples include gray water, condensate and backwash from osmosis filters.


Planting Area with Mulch


Seating along Pedestrian Paths

PESTICIDE AND HERBICIDE-FREE CAMPUS

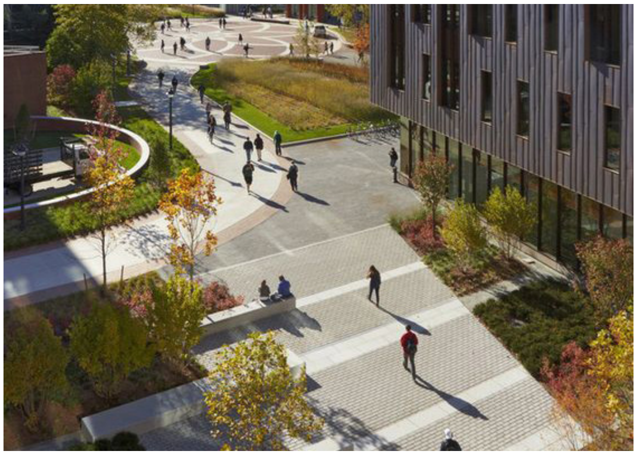
Planting should be designed to facilitate hand-weeding and other non-chemical weed treatments. It is strongly recommended that all planting areas have a minimum of (2) grow-kill cycles after clearing and grubbing to ensure their grow-kill cycles maintenance and prior to planting to minimize weeds. Additionally all planting areas shall have 3" of organic or mineral mulch. Weed barrier shall be used at all decomposed granite and cobble or mineral mulch areas. Plants species shall have no known pests or diseases that require regular treatment. Principles of Integrated Pest Management shall be applied when considering planting design.

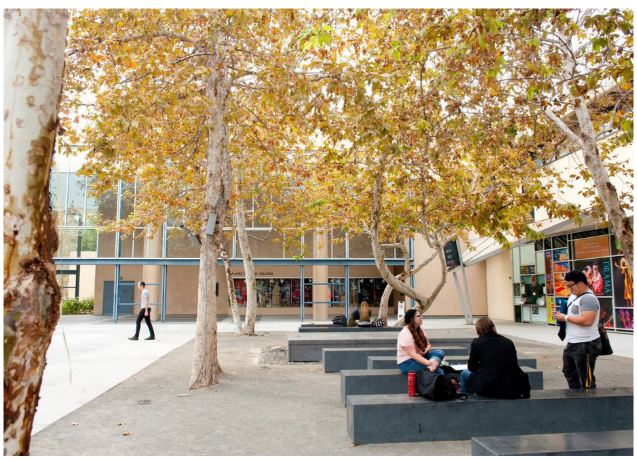
WALKABILITY

To create a healthy campus, circulation systems shall be designed to prioritize pedestrian movement including traffic calming devices such as raised tables at crosswalks and drop-off areas, speed bumps and minimum required street sections. Pedestrian paths shall be shaded with benches provided at frequent intervals for resting and gathering.

LANDSCAPE GUIDELINES CONT'D

HARDSCAPE MATERIALS


Hardscape as Wayfinding


Use of Different Materials


Enhance Natural Landscape

Hardscape paving shall be easily maintained and of high albedo materials that mitigate conduction of heat. Walkways, driveways, plazas and gathering spaces shall be smooth and level to create a safe and pleasant pedestrian environment. Paving materials should be simple, long-lasting and durable.

Hardscape finishes and colors shall reinforce the campus' connection to the surrounding landscape. Paving materials shall be durable and low maintenance,

Reinforced cast in place concrete shall be used for the majority of pedestrian areas. Cast in place concrete shall use locally sourced sand and aggregate and warm, neutral integral colors that are high-albedo to reduce the Urban Heat Island effect. Concrete finishes and shall be retarder or other long-lived, long-wearing integral treatment. No surface applied stains nor stamped concrete finishes shall be used

Accent hardscape materials shall be used at plazas, courtyards, promenades and other focal areas through a combination of pavers, integral color concrete, score joint patterns and contrasting finishes.

Stabilized decomposed granite paving shall be used at tertiary pathways and small courtyards and gathering spaces that are located away from building entries.

Walls and stairs shall be cast in place concrete in colors and finishes to match paving and/or architecture.

CIP Concrete Paving with Sand Finish

CIP Concrete Paving with Exposed Aggregate Finish

Integral Color CIP Concrete Paving

Concrete Precast Pavers

Seatwall with Sand Finish

Decomposed Granite

SITE FURNISHING


Built-in Site Furnishing


Precast Concrete Bench


Receptacles

Well placed site furnishings greatly enhance the campus experience and contribute to the development of the campus community by creating inviting spaces for students, faculty and visitors. Site furnishings should include a combination of fixed and movable seating in a variety of sizes and configurations to appeal to a wide range of users. Benches should line promenades to encourage people watching and spontaneous interactions. Tables, chairs, trash and recycle receptacles and built-in seating areas should be concentrated in plazas and courtyards to provide a variety of options for outdoor eating, studying or gathering.

Campus light fixtures, benches, shelters, trash receptacles and bicycle racks should be uniform in nature with a complimentary palette of form and color to reinforce the overall campus identity.

All site features and furniture, including trash and recycling receptacles, bollards, and other site furnishings shall match or better the quality of District standards. Site furnishings shall be of durable, materials such as pre-cast concrete, recycled plastic lumber, integrally finished metal such as cast aluminum or stainless steel. Wood should be avoided due to high maintenance requirements.

Powder-coated finishes should be avoided in site furnishings that are subject to heavy use due to difficulty refinishing. Provide anti-graffiti coating as well as integrated or securely applied skateboard deterrents for furnishings and site features such as walls and raised planters.

BICYCLE FACILITIES


Bike Repair Station

Promote bike traffic to campus by providing secure bicycle racks, shaded corrals and other facilities such as bike repair stations at convenient locations close to building entries and circulation nodes. Bicycle facilities location and amount shall be confirmed with District.


Bike Shelter


Bike Racks


Bike Lockers

SITE LIGHTING

Pedestrian Light Pole

Bollard

Seating with Solar Charging Station

Site lighting shall meet District design standards and guidelines for pedestrian walkways, fire lanes and roads. 24 hour site lighting should be integrated to provide safe levels of illumination for pedestrians, bicyclists and motorists. Lighting locations are also to be coordinated with all proposed trees, considering trees' mature height and canopy. Locations are to also be coordinated with other site elements such as furnishings and overhead building canopies. Pedestrian scale lighting should be provided at all courtyard and seating areas.

Lighting shall employ a variety of fixture types to illuminate pathways and gathering spaces to minimum code standards while minimizing visual clutter. All light fixtures shall be Dark Skies compliant and shielded to prevent glare for pedestrians.

Fixture styles shall be modern but complementary to the rural context. Lamps shall be LED at a color temperature/ light value that maximizes visibility, minimizes color distortion and glare and deters crickets and other nuisance insects. Provide exterior power, charging ports and WiFi connectivity at exterior classroom, study and gathering spaces.

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PLANTING PALETTE


Local Landscape


Oak Savannah


Agricultural Planting

Planting is central to reinforcing the SBCC sense of place and is an essential component of creating inviting and functional outdoor spaces that both mitigate the climate and highlight what makes SBCC unique. The master plan provides "framework" planting zones and suggested species to guide the creation of outdoor spaces that provide shade, visual delight, privacy and varied character that helps with intuitive wayfinding. See detailed discussion of landscape zones and suggested plant materials on the following pages.

Plant materials shall reinforce local vernacular character including the native Oak Savannah, Rancho, Agricultural and and Mission styles. All plant materials shall be low water and low maintenance native or non-invasive, locally-adapted species with no known pests or diseases. For example coniferous evergreens should be avoided to minimize habitat for bark beetles. In addition, in recognition of seasonal fire hazards, plant materials shall be fire resistant.

Plant materials shall be selected to provide year round interest including a combination of evergreen and plants with seasonal accents. Succulents can be used to provide accent and structure; they shall be located to minimize pedestrian contact. Trees shall be generally evergreen canopy to provide year-round shade and minimize seasonal maintenance and clean-up.

Use of turf grass shall be limited to event and recreational areas; due to heat gain and long term maintenance issues, artificial turf shall not be used on campus.

PLANTING PALETTE ZONES

FIGURE 5.7

Five distinct planting palette zones are identified. Each zone is defined based on analysis and consideration of the site's context, topography, drainage patterns, existing vegetation, and materials and the proposed building program and use areas.

PLANTING PALETTE CONT'D

ORCHARD


Grid Pattern of Tree Planting

The inherent gridded geometry of a parking lot provides a unique opportunity to emphasize the agricultural character of the region. Tree palette shall consist of medium size canopy trees with orchard character. The deciduous flowering trees will provide color, annual interest, and shade in summer months, and winter sunlight.

The understory planting will create a harmonious mix of native and ornamental, easy to maintained planting.


Example of Seasonal Trees at Orchard Zone


Example of Trees at Orchard Zone

Table 5.8 Orchard Plant Palette

ORCHARD

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Canopy Trees					
Prunus persica	Flowering Peach	36"box, 48" box	25' x 25'	Deciduous; Fruit - Spring	L
Malus 'Profusion'	Profusion Crabapple	36"box, 48" box	25' x 30'	Deciduous; Fragrant; Fruit; Pink Flower - Spring	M
Amelanchier laevis 'Allegheny'	Allegheny Serviceberry	36"box, 48" box	35'x35'	Deciduous; Fragrant; Fruit; White Flower - Spring/Summer	M
Cercis canadensis	Eastern redbud	36"box, 48" box	20' x 25'	Deciduous; Rose Pink Flower - Spring	M
Pistacia chinensis	Chinese Pistache	36"box, 48" box	30' x 30'	Deciduous; Fruit - Spring	L
Understory					
Carex sp.	Sedges	1gal	2'x2'	Grass	M, L
Carrissa 'Green Carpet'	Green Carpet Natal Plum	5 gal		Groundcover shrub	L
Callistemon 'Little John'	Dwarf Callistemon	5 gal	4'x6'	Shrub; Red Flower - Year-round	L
Dianella tasmanica	Tasman Flax Lily	1gal	1-2' Tall	Grass; Blue Flower - Spring	M
Dianella caerulea Cassa Blue	Blue Flax Lily	1gal	2-3' Tall	Grass; Dark Blue Flower - Spring	M
Festuca mairei	Atlas Fescue	1gal	3' x 3'	Grass	L
Muhlenbergia lindheimeri	Lindheimer's Muhly	5 gal	5' x 4'	Grass	L
Rosmarinus officinalis 'Tuscan Blue'	Upright Rosemary	15 gal	6' x 4'	Shrub; Blue Flower - Spring/Summer	L
Rhaphiolepis umbellata 'Minor'	Dwarf Yeddo Hawthorn	15 gal	6' x 3'	Shrub; White Flower - Spring	L
Salvia gregii	Magenta Red Texas Sage	5 gal	4' x 3'	Shrub; Magenta Flower - Spring/Fall	L
Westringia fruticose 'Morning Light'	Coast Rosemary	15 gal	4' x 4'	Shrub; White Flower - Year-round	L

PLANTING PALETTE CONT'D

GROVE

Framing the Entry View Corridor

Tree recommendations are based on form to frame the entry view corridor to the campus. Tree planting should allow open views to the sky as well as the campus core. Trees should be evergreen, shade trees with a strong trunk and branching structure, native or adopted.

The understory/ shrub layer planting shall be predominantly evergreen but include flowering plants that offer contrasting color and texture.

Seating Area under Tree Canopy

Trees and Planting at Parking Grove

Tree Example at Grove Zone

Seating Area under Tree Canopy

Table 5.9 Grove Plant Palette

GROVE

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Large Specimen Trees					
Quercus agrifolia	Coast Live Oak	48"box, 60"box	50' x 70'	Evergreen	VL
Quercus lobata	Valley Oak	48"box, 60"box	60' x 40'	Deciduous	L
Juglans nigra	Eastern Black Walnut	48"box, 60"box	70' x 60'	Deciduous	M
Aesculus x carnea	Red Horse Chestnut	48"box, 60"box	40' x 40'	Deciduous; Red Flower - Spring	M
Medium Canopy Trees					
Cinnamomum camphora	Camphor Tree	48" box	60' x 60'	Evergreen	M
Tipuana tipu	Tipu Tree	48" box	30' x 50'	Deciduou; Yellow flower - Summer	M
Ulmus parviflora ‘ Drake’	Chinese Elm	48" box	50'x 60'	Evergreen	L
Schinus molle	California Pepper	48" box	40' x 35'	Evergreen	VL
Arbutus ‘Marina’	Strawberry Tree	48" box	35' x 35'	Evergreen, Pink Flower - Summer	L
Geijera parviflora	Australian Willow	48" box	35' x 25'	Evergreen	M
Understory					
Agave americana	Century Plant	15 gal	5' x 10	Succulent	VL
Carissa grandiflora ‘Green Carpet'	Green Carpet Natal Plum	5 gal		Shrub	L
Dianella tasmanica	Tasman Flax Lily	5 gal	1-2' Tall	Grass; Blue Flower - Spring	M
Dianella caerulea Cassa Blue	Blue Flax Lily	5 gal	2-3' Tall	Grass; Dark Blue Flower - Spring	M
Dietes bicolor	Yellow Wild Iris	5 gal	3' x 3'	Grass; Yellow Flower - Spring/Fall	L
Pittosporum crassifloium ‘Nana’	Compact Pittosporum	15 gal	3' x 3'	Shrub;	M
Rhaphiolepis umbellata ‘Minor'	Dwarf Yeddo Hawthorn	15 gal	6' x 3'	Shrub;	L
Rosmarinus officinalis ‘Tuscan Blue'	Upright Rosemary	15 gal	6' x 4'	Shrub; Blue Flower - Spring/Summer	L
Scaevola albida ‘Mauve Clusters’	Fairy Fan Flower	5 gal	1' x 4'	Groundcover; Lavender Blue Flower - Spring Summer	L
Verbena lilacina ‘De La Mina’	Cedros Island Verbena	5 gal	2' x 4'	Perennial; Purple Flower - Spring/Summer	L
Salvia leucantha ‘Santa Barbara’	Santa Barbara Sage	5 gal	3' x 4'	Shrub; Violet Flower	L
Salvia clevelandii 'Winnifred Gilman'	Blue Sage	5 gal	5'x5'	Shrub; Violet Flower - Spring/Summer	L

PLANTING PALETTE CONT'D

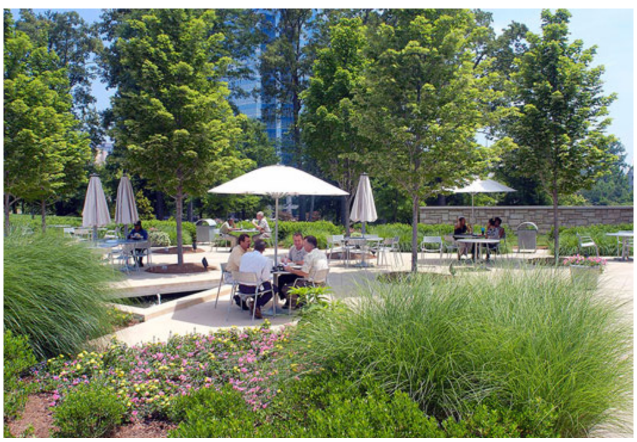
TERRACE

Building Entry and Plaza

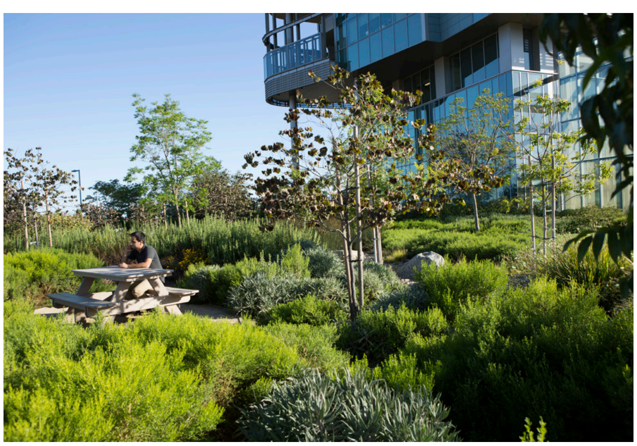
The tree palette includes evergreen canopy trees for shading, and mid-story trees for diversity and scale to define a pedestrian-scaled and distinctive environment.

The Terrace is the campus core and includes the front door to the Campus academic buildings as well as a variety of smaller outdoor learning courtyards. In this zone, planting and hardscape work in concert with one another, providing shade, screening and framing views.

Terrace planting consists of a mix of native and water-wise adapted plants converge with a garden of ornamental blooms and textures. The mid-story planting shall provide a sense of airy enclosure and intimacy for the outdoor courtyard spaces. Screening plants shall be strategically placed to provide spatial backdrops and definition.



Seating Area with Shade



Planting Example at Terrace Zone

Ornamental Trees

Table 5.10 Terrace Plant Palette

TERRACE

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Large Specimen Trees					
Quercus agrifolia	Coast Live Oak	48"box, 60"box	50' x 70'	Evergreen	VL
Quercus kelloggii	Black Oak	48"box, 60"box	60' x 40'	Deciduous	L
Quercus lobata	Valley Oak	48"box, 60"box	60' x 40'	Deciduous	L
Juglans nigra	Eastern Black Walnut	48"box, 60"box	70' x 60'	Deciduous	M
Aesculus x carnea	Red Horse Chestnut	48"box, 60"box	40' x 40'	Deciduous; Red Flower - Spring	M
Medium Canopy Trees					
Tipuana tipu	Tipu Tree	48" box	30' x 50'	Deciduou; Yellow flower - Summer	M
Ulmus parviflora ‘ Drake’	Chinese Elm	48" box	50'x 60'	Evergreen	L
Schinus molle	California Pepper	48" box	40' x 35'	Evergreen	VL
Arbutus ‘Marina’	Strawberry Tree	48" box	35' x 35'	Evergreen, Pink Flower - Summer	L
Geijera parviflora	Australian Willow	48" box	35' x 25'	Evergreen	M
Cercis occidentalis	Western Redbud	48" box	20' x 25'	Deciduous; Purple Flower - Spring	VL
Myrica californica	Pacific Wax Myrtle	15 gal	25' x 20'	Evergreen Shrub	M
Understory					
Agave attenuate	Fox Tail Agave	15 gal	5' x 8'	Succulent	L
Aloe striata	Coral Aloe	5 gal	3' x 2'	Succulent	L
Baccharis pilularis ‘Pigeon Point’	Dwarf Coyote Brush	5 gal	7' x 12'	Shrub; Yellow Flower	L
Ceanothus sp.	California Lilac	5 gal	8'x8'	Shrub; Blue or Purple Flower	M, L ,VL
Carex sp.	Sedges	1 gal	2'x2'	Grass	M, L
Festuca mairei	Atlas Fescue	1 gal	3' x 3'	Grass	L
Gaura lindheimeri	Gaura	5 gal	4' x 2'	Perennial; White Flower	M
Lavatera maritima	Tree Mallow	15 gal	8' x 12'	Shrub; Lavender Flower	L
Muhlenbergia lindheimeri	Lindheimer’s Muhly	5 gal	5' x 4'	Grass	L
Rhamnus californica ‘Eve Case’	Coffeeberry	15 gal	8' x 8'	Evergreen Shrub	L
Rosmarinus officinalis ‘Tuscan Blue’	Upright Rosemary	15 gal	6' x 4'	Evergreen Shrub; Blue Flower - Spring/Summer	L
Salvia gregii	Magenta Red Texas Sage	5 gal	4'x 3'	Shrub; Magenta Flower - Spring/Fall	L
Salvia clevelandii ‘Winnifred Gilman’	Blue Sage	5 gal	5' x 5'	Shrub; Blue Violet Flower - Summer	L
Salvia leucantha ‘Santa Barbara’	Santa Barbara Sage	5 gal	3' x 4'	Shrub; Violet Flower - Year-round	L

PLANTING PALETTE CONT'D

SWALE


Planting at Swale Zone

The Swale is a linking landscape element, pulling through the campus starting at the north along the entry walk and drive, across the terrace and, following the natural slope of the site, terminating in stormwater retention at the south end.

Organized around functioning vegetated bio filtration swales and basins, its plant palette includes a mix of grasses, perennials, shrubs and trees that offer shade, seasonal variation and additional resources for wildlife.


Swale Adjacent to Walkway


Planting at Swale Zone


Planting at Swale Zone

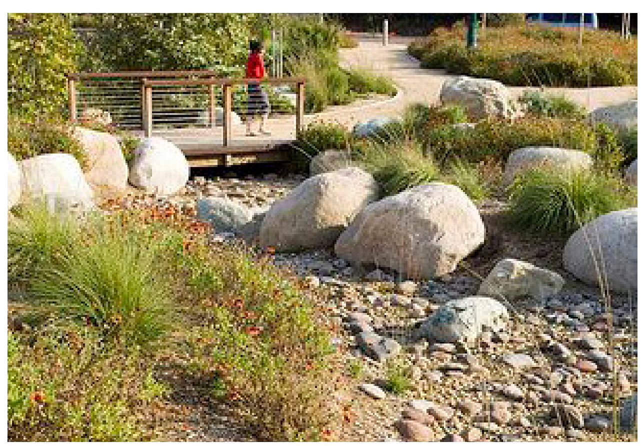

Planting at Swale Zone

Table 5.11 Swale Palette

SWALE

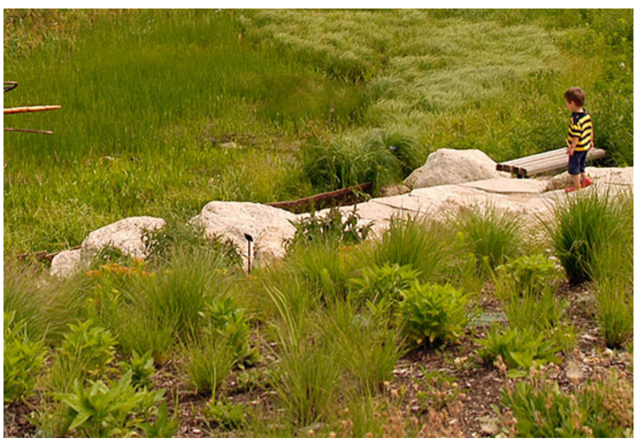
SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Trees					
Quercus agrifolia	Coast Live Oak	36" box	50' x 70'	Evergreen	VL
Quercus dumosa	Scrub Oak	36" box	12' x 8'	Evergreen	VL
Sambucus nigra	Blue Elderberry	24" box	15' x 20'	Deciduous; Fragrant; White Flower - Spring/Summer	L
Salix lasiolepis	Arroyo Willow	24" box	30' x 15'	Deciduous	H
Cercis occidentalis	Western Redbud	36" box	20' x 25'	Deciduous; Purple Flower - Spring	VL
Understory					
Baccharis pilularis ‘Pigeon Point’	Dwarf Coyote Brush	5 gal	7' x 12'	Shrub	L
Epilobium canum	California Fuchsia	1 gal	4' x 5'	Shrub; Red Flower - Summer/Fall	L
Festuca idahoensis	Idaho Fescue	1 gal	3' Tall	Grass; Yellow and Cream Flower	VL
Iris douglasiana	Douglas Iris	1 gal	2' x 3'	Perennial; Lavender Flower - Spring	L
Juncus patens	California Gray Rush	1 gal	2' x 2'	Grass	L
Leymus condensatus ‘Canyon Prince’	Canyon Prince Wild Rye	1 gal	3' Tall	Grass	L
Muhlenbergia rigens	Deer Grass	1 gal	5' x 5'	Grass	L
Salvia mellifera	Black Sage	1 gal	5' x 5'	Shrub; Fragrant; Var. Color Flower - Winter/Spring	L
Sisyrinchium bellum	Blue-eyed Grass	1 gal	1' x 1'	Grass, Purple Flower - Spring	L
Verbena lilacina ‘De La Mina’	Cedros Island Verbena	5 gal	2' x 4'	Perennial; Purple Flower - Spring/Summer	L
Carex sp.	Sedges	1 gal	2'x2'	Grass	M, L

PLANTING PALETTE CONT'D

MEADOW

Native Trees and Grass

The Meadow includes Planting within the Natural South Edge shall consist of trees and shrubs native to the area and be planted in a similar naturalized design. Plant species shall provide shelter, nesting, food, and nectar for local wildlife.



Naturalized Design

Native Planting and Walking Trail

Native Planting

Native Shrubs

Table 5.12 Meadow Plant Palette

MEADOW

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Trees					
Quercus agrifolia	Coast Live Oak	36" box	50' x 70'	Evergreen	VL
Quercus dumosa	Scrub Oak	36" box	12' x 8'	Evergreen; Fruit - Spring	VL
Sambucus nigra	Blue Elderberry	24" box	15' x 20'	Deciduous; Fragrant; White Flower - Spring/Summer	L
Understory					
Artemisia califonica	California Sagebrush	1 gal	4' x 4'	Shrub	L
Arctostaphylos glauca	Big Berry Manzanita	15 gal	15' x 15'	Shrub	VL
Baccharis pilularis	Coyote Brush	5 gal	10' x 12'	Shrub	L
Baccharis pilularis 'Pigeon Point'	Dwarf Coyote Brush	5 gal	7' x 12'	Shrub	L
Eriogonum fasciculatum	California Buckwheat	1 gal	5' x 3'	Perennia; Yellow and Pink Flower - Spring/Summer	VL
Epilobium canum	California Fuchsia	1 gal	4' x 5'	Perennia; Red Flower - Summer/Fall	L
Festuca idahoensis	Idaho Fescue	1 gal	3' Tall	Grass	VL
Isocoma menziesii	Menzies' Goldenbush	1 gal	3' x 5'	Shrub; Yellow Flower - Spring/Summer	?
Malosma laurina	Laurel Sumac	15 gal	15' x 15'	Shrub; Fragrant; White Flower - Winter/Spring	VL
Muhlenbergia rigens	Deer Grass	1 gal	5' x 5'	Grass	L
Rhus integrifolia	Lemonade berry	15 gal	15' x 10'	Shrub; Light Pink Flower - Spring	L
Ribes sanguineum	Red Flowering Currant	5 gal	10'x 8'	Shrub; Fragrant; Var. Color Flower - Winter/Spring	L
Rosa californica	California Wild Rose	5 gal	3' x 3'	Shrub; Fragrant; Var. Color Flower - Spring/Summer	L
Salvia mellifera	Black Sage	5 gal	5' x 5'	Shrub; Fragrant; Var. Color Flower - Winter/Spring	L

GENERAL PLANTING REQUIREMENTS

The following notes are general requirements to assist in preparation of project specifications and construction documents.

Prior to the start work, the contractor shall familiarize himself with plant material identified by the District to be preserved, relocated, and removed. All planting to remain shall be protected from damage by staff and equipment and will be irrigated as necessary during the entire construction contract. All minor damage by contractor to existing trees and shrubs shall be repaired at the contractor's expense by a licensed tree surgeon or other approved personnel. Damage to a tree or shrub which results in death or permanent disfiguration shall result in removal and replacement of the tree or shrub with one of equal value at contractor's expense.

SOILS TESTING

Soils percolation tests shall be performed prior to planting. If soil fails percolation tests, provide remedial measures for drainage of planting areas. Soils tests to determine texture, nutrients and required amendments shall be conducted prior to planting. Soils with high sodium content may require deep water leaching. Fill in all depressions, voids, erosion scars, or settled trenches generated by the deep leaching with conditioned soil, leaving a final finish grade smooth and even.

FINE GRADING & DRAINAGE

Coordinate all drainage work with all other trades. Established site drainage shall be maintained by contractor during all phases of landscape construction. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls and toward drains and catch basins.

Minor modifications to grade may be required to establish the final grades. Clean all planting areas to a depth of twelve (12) inches, removing all weeds, debris, rocks, or other deleterious matter 1 inch diameter or larger from the site. All undulations and irregularities in the planting surfaces resulting from tillage, rootilling, and all other operations shall be leveled and floated out before planting. Final grades shall be approved by the District before planting operations will be allowed to begin.

SOIL PREPARATION

If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels and the desired results are likely to be obtained.

Gavilan College District uses non-chemical weed control methods. Prior to planting, eradicate weeds within the limits of work using a minimum of two grow-kill cycles. Irrigate twice each day for approximately 5 to 10 minutes each watering time (as appropriate to site conditions) for a period of 30 calendar days. Apply compliant post emergent herbicide according to manufacturer's recommendations and/or physically remove weeds dead or alive within the limits. Take care to protect existing plant material which is to remain as shown on the plans. Existing native vegetation shall not be irrigated and irrigation run-off shall not spread to areas with existing native plants.

Grub / clean and rototill all planting areas to a depth of twelve (12) inches, removing all weeds, debris, rocks, or other deleterious matter 1 inch diameter or larger from the site (unless specified otherwise). Then blend in conditioners per the specifications.

PLANTING

Planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice. Contractor shall only install as many plants per can be planted and watered on that same day.

Plant locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, notify the owner. Expenses for repair of damage to existing utilities shall be the responsibility of the contractor.

All excavated holes shall have vertical sides with roughened surfaces and shall be of the minimum sizes indicated on drawings. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.

Each tree and shrub shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped down around each rootball. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted. All plants shall be thoroughly watered into the full depth of each planting hole immediately after planting.

ROOT BARRIERS

Each tree and shrub shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped down around each rootball. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise noted.

All plants shall be thoroughly watered into the full depth of each planting hole immediately after planting.

Root control barriers shall be installed where tree trunk is within five feet of hardscape (or closer). Install root barriers adjacent, and parallel to, edge of hardscape (linear application) and not encircling rootball. Barriers shall be 10 - ft. Min. Length; center strip of root barrier on the tree trunk.

MAINTENANCE

Pruning shall not be done except by approval of the District. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris.

Plant materials shall be kept in a healthy, optimum growing condition and in a visually pleasing appearance by watering, pruning, mowing, fertilizing, restaking, Distirct-compliant pest and disease control strategies, weeding, clean-up and any maintenance operation necessary to insure a healthy, vigorous stand of plants at the time of final inspection.

IRRIGATION MATERIALS

Point-Irrigation

All irrigation to be AB1881 compliant including but not limited to drip irrigation, low-flow heads, high efficiency rotors. No schedule 125 pipes shall be used on site. Irrigation equipment shall be Hunter unless approved by the District.

Irrigation Water supply shall be reclaimed if available, or else piped for future connection to reclaimed water supply.

Point-Irrigation

Irrigation controllers shall include a weather based master irrigation controller that utilizes current weather data, rain shut-off device, and Ethernet connections for remote access, ensuring that the irrigation schedule is based upon actual "real time" plant needs allowing for greater system control and minimizes potential overwatering.

Point-Irrigation (drip) systems shall be used to allocate more efficient delivery of water to root systems and minimize run-off. The use of overhead spray heads shall be limited to turf grass application.

Irrigation Controller

All irrigation products specified shall achieve an operational uniformity of 80% in all landscape areas. Design of the irrigation system should be based upon solar exposure and plant groupings. Multiple valve boxes shall be provided for each of these variances. All trees shall have an additional support irrigation system providing water to each individual tree utilizing a bubbler system on a separate valve. Screening Hedges and vines shall each receive a dual point drip kit per plant. Point source/drip irrigation shall apply water to at least 60% of the root ball and shall be adjusted as the drip line or canopy edge of the plant matures.

06

ARCHITECTURAL DESIGN CRITERIA

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06

ARCHITECTURAL DESIGN CRITERIA

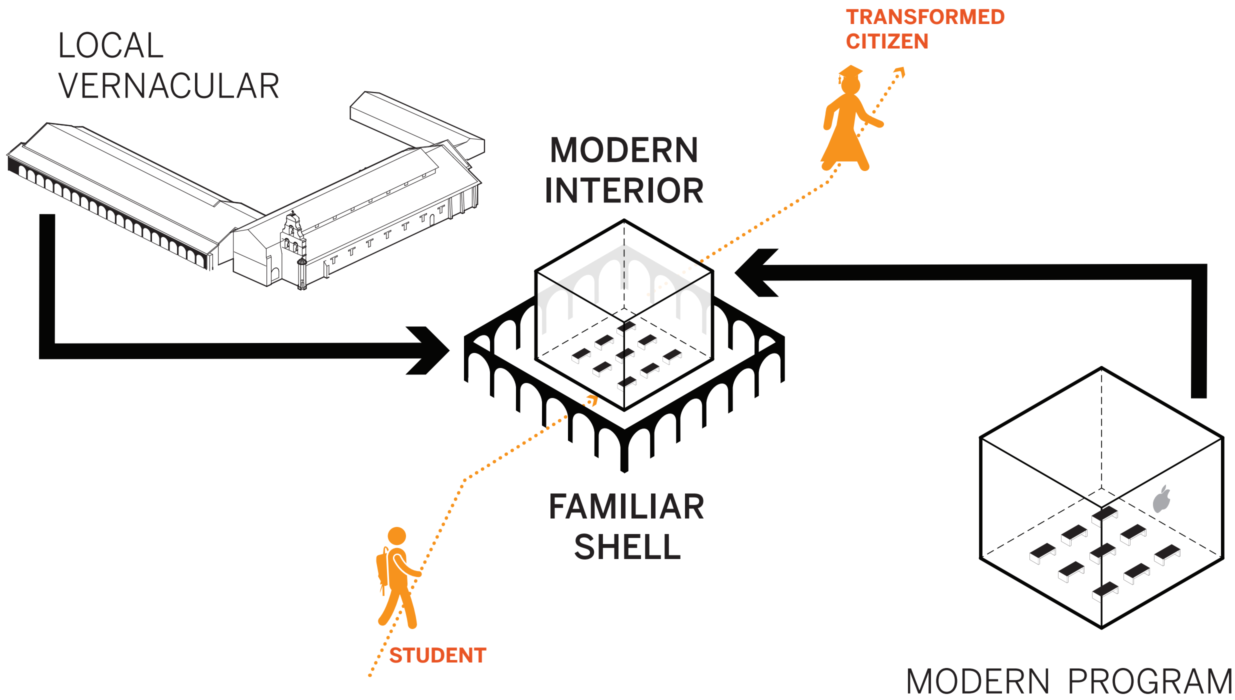
INTRODUCTION

The new San Benito County Campus (SBCC) will greatly expand the Gavilan Joint Community College District (GJCCD) and help it meet the needs of a growing student body and community. The initial building(s) will provide classrooms, labs, student support and administrative spaces. Design intent for the new building(s) is to create a refined signature from the adjacent Airline highway, appropriate to the environment and can be readily expanded. Facilities should contribute to quality of campus life and character.

The following criteria describe minimum conditions, indicate direction and convey ideal campus making. Quality of the finished work will depend on the judgment and consensus of the parties involved. It is the design-builder’s responsibility to provide design solutions that are consistent with the reference standards established by the College and District, as well as standards of care in good building design practices.

Design of this project needs to follow careful analysis of building program, design criteria, overall campus form making, relationships to exteriors, aesthetics, and sustainability goals. The criteria is the framework.

OVERALL DESIGN APPROACH



The goal of all improvements, whether landscape or building, is to support a range of social and educational experiences that allow the campus to emerge as a strong and vibrant community.

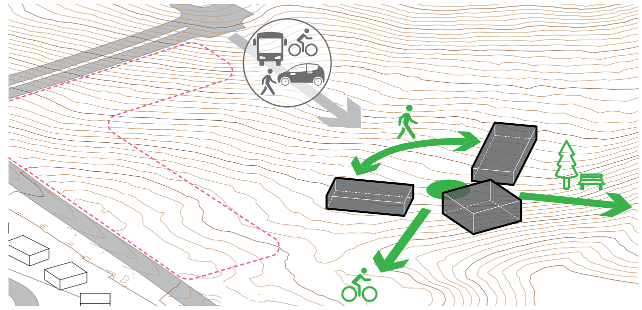
New construction should follow an established standard of durability and design quality applied to a contemporary setting. It shall add visual interest as the gateway into the campus, centerpiece of campus life, and landmarks to be seen from a distance.

The architecture of the new building(s) shall respect the current site conditions and provide connectivity to the community. Vegetation buffer space shall be seamlessly integrated around the building site and offer opportunities for outdoor learning environments conducive to collaboration and interaction.

VISUAL CONNECTIONS

Visual connections provide wayfinding cues. All new construction or landscaping shall create visual connections between disjointed areas of the campus.

Wherever possible the building(s) shall have strong visual connections between inside and outside.



A radial building organization provides axes towards Fairview/Airline intersection and campus road.

HEIGHT/SCALE/MASSING

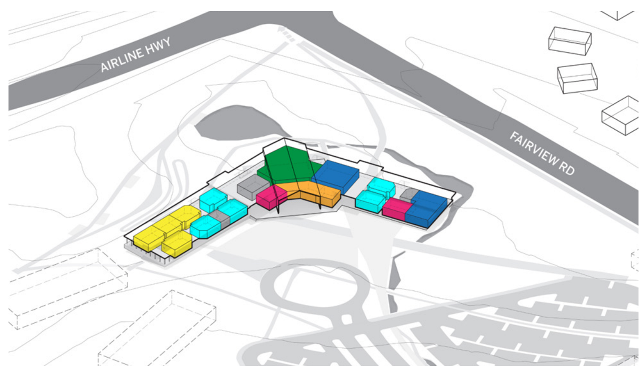
Design features shall allow a perception of scaled buildings in relation to landscape and material. Paying attention to the play of light and shadows on mass and facade elements because of the tole it can take of manipulation of geometry and proportion.

The building(s) shall be analyzed three dimensionally for evaluation of scale and height in relationship to the surrounding context.

Concept design option shows a variety of height and roof massing to reflect interior program, create visual hierarchy to provide way-finding cues, and create continuity between individual buildings.

BUILDING ORIENTATION

The new building shall consider orientation and design to take advantage of sunlight, wind direction, micro-climates and views from the highway. For more information on the environmental factors see *Chapter 13 Sustainability Design Criteria.*



Conceptual building design faces north towards campus entrance drop-off, sets campus edge facing outwards, and orients long building axis east-west for environmental design benefits.

OVERALL DESIGN APPROACH CONT'D

ENVIRONMENTAL COMFORT

Comfortable environments must be an important consideration for all indoor and outdoor spaces. Natural systems such as daylighting, ventilation and the hydrological cycle of rainfall, watershed and drainage shall be given high priority in any design solution. For maintenance and security, the District does not want operable windows and skylights. Every effort must be made to increase occupant comfort.

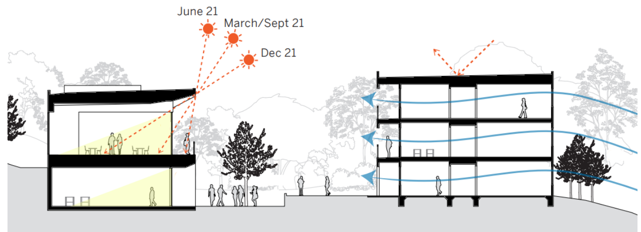


Figure: 6.1 Environmental design strategies for daylighting, wind, and ventilation

NATURAL DAYLIGHTING

Natural daylighting has a positive effect on learning and is credited for contributing to higher test scores, increased daily attendance, and higher teacher satisfaction and retention. Properly designed and implemented daylighting strategies can save energy. Good daylight penetration into the building combined with shading and reflected light options will facilitate user well-being. The DBE shall optimize opportunities to incorporate natural daylight into the majority (if not all) of the classrooms and student success spaces.

Natural daylight for interior corridor and rooms.

ADDITIONAL CONSIDERATIONS - BUILDING AS A LEARNING TOOL

The DBE shall look for opportunities to create dedicated features where building infrastructure can be used as a learning tool for students. Public areas shall provide opportunities for display panels. Display panels should showcase live data from the Building Management System.

Planet MTL Urban Ecosystems interactive exhibit.

SUSTAINABLE DESIGN

Sustainable design is required. The College and District acknowledge the strict requirements of the Green Building Code and wish the DBE to seek opportunities for bettering these requirements, as the building will live long beyond the current version of the regulatory codes. The project shall be LEED Gold equivalent and Net Zero ready, as a minimum. A good design will incorporate sustainable strategies early in the design process for the most significant impact. Where possible, these strategies shall provide opportunities for learning laboratories for learning, so the building and site can be used as a sustainable educational tool throughout their life.

Refer to *Chapter 13* Sustainability Design Criteria for a more information.

Use of roof overhang and placement of entry plaza/ shaded spaces towards the north to limit direct sun exposure.

UNIVERSAL DESIGN

The DBE shall utilize the "Principles of Universal Design" [North Carolina State University, The Center for Universal Design] to guide construction/development of all aspects of the campus environment.

IMPLEMENTATION

- Provide the same means of use for all users, whenever possible.
- Ensure that the number of accessible parking stalls and drop-offs meet parking ratios.
- Provide accessible routes of travel to/from parking and buildings.
- Cross slopes must be less than 2%. Directional slopes must be less than 5% to avoid the need for handrails. Final slopes shall adhere to the Americans with Disabilities Act (ADA) standards.
- Install adequate striping and signage to insure vehicle and pedestrian safety and conformance with ADA codes.

Universal design that combines ramp and stair elements can also contribute to unique placemaking and gathering spaces.

BUILDING EXTERIOR

ENTRIES

The new building(s) shall have welcoming entrances that create a sense of orientation, way-finding and connection to the campus. Visitors/users see the entry as memorable views into the campus and connect the campus as a single entity. Secondary building entrances shall not compete with main entrances. Material choices, such as making sure it stands out from adjacent materials, are crucial in making entrances feel welcoming and to draw people into the building.

Figure 6.2: Conceptual design option uses a local architecture element for the building entrance to give hierarchy and importance.

FAÇADES

The building(s) facade shall provide visual continuity between building(s) and campus allowing the two to read and work as one. Avoid the use of large or blank walls made of any material which will take away from the visual interest. Facades shall employ a unifying vocabulary of forms, details, and materials. The architectural design should express the programmatic uses within the buildings creating a more transparent interior that connects with the landscape design.

Mechanical equipment shall be screened from views to be consistent with the overall building appearance.

A clear architectural approach to the existing context and the subsequent reinterpretation of that context into new construction shall be clearly formulated during the design phase.

Figure 6.3: Conceptual design option uses columns along the south facade and for breezeway corridor to create a unifying facade aesthetic.

ROOFTOPS

All rooftops shall be designed to screen mechanical systems whenever possible. Special attention shall be paid to the placement of all rooftop equipment and the visual impact it has on views from other locations on and off campus. Placement must also consider noise, pollution, and equipment exhaust. Access to rooftop shall be provided by a stair as a minimum requirement.

Figure 6.4: Conceptual design option uses multiple roof heights to provide rooftop terraces and hide equipment.

EXTERIOR MATERIALS AND COLORS

The choice of color and materials is important to the perception of comfort and interest. The selection of color and materials can benefit the dialogue between the buildings and surrounding site and it can also provide continuity and connection with elements of future buildings.

Building materials shall be selected based on special consideration for their properties, qualities, maintainability, sustainability, and economic feasibility. They shall reflect a forward-looking aesthetic, express the latest building technology available, and consist of locally available materials with low embodied energy wherever possible.

Refer to *Design Standards and Guidelines* for more information.

Use local materials and color palette.

OUTDOOR SPACES

Outdoor spaces need to be flexible for the users and intertwine with circulation paths and open spaces. These spaces should be gathering spots for the users and a way of directing the flow of circulation throughout the campus. From convenient pedestrian connection to group gathering, the outdoor spaces should enhance the users experience and impression of the campus.

It's important that well shaded open spaces are located in the heart of the campus. This location allows the space to be flexible for any program.

Outdoor spaces promote healthy lifestyle and a connection to nature allowing the user to stay on Campus between and after classes.

Refer to *Chapter 5 Landscape Design Criteria* for more information.

Use of canopy and transparency elements to link indoor and outdoor spaces.

BUILDING INTERIOR

LOBBIES

The lobby and main entry spaces shall be designed as welcoming places for users' orientation and gathering. They shall be easily identifiable nodes between interior and exterior circulation since they will be one of the first spaces the users will experience. Information about the building shall be provided for the users in these spaces.

CORRIDORS

Corridors should act as the network of spatial movement and interaction. Interior circulation and transition spaces shall be used as social/ educational gatherings, and communication/ display areas. They shall create a visual and physical connection between the building and the campus.

Vertical circulation shall be designed to reinforce visual and functional connections between floors. If permitted by code, major stairs shall be open between levels and central to the circulation paths.

Connect circulation paths to interior and exterior views to help the user understand their position and whereabouts within the building. These visual connections also allow natural light to come into circulation paths. Long uninterrupted corridors shall be avoided. Sufficient acoustic treatment shall be provided in corridors.

The hours of each department shall be taken into consideration when organizing the building and spaces. Departments that are open late shall be clustered together for safety of users.

Building lobby uses transparency and height to create a welcoming and impressive first impression.

Use of architectural elements and massing to create corridors that link indoor and outdoor spaces.

INTERIOR ROOMS

Natural light and ventilation shall be provided in all interior spaces when design allows, the longest wall should receive the most favorable light, north- and east-light. Natural light shall be controlled with UV blocking glazing and window treatments to manage glare and enable presentations in class labs. For energy efficiency, all artificial lighting shall be LED and have occupancy sensors; to enhance presentations, lighting should also have zoning controls. Sidelights or glass doors shall be utilized to allow light to pass through the spaces.

Refer to *Chapter 2 Program + Room Data* for more information.

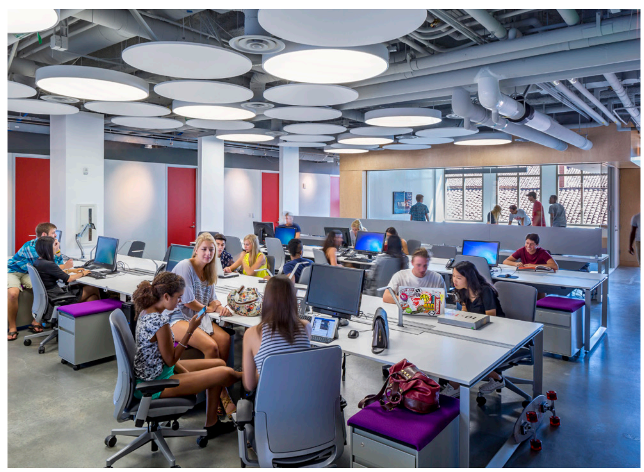
Use of transparency, exposed natural materials, and lighting/fan systems to create an inspiring and high-performing classroom space.

INTERIOR MATERIALS AND COLORS

Interior spaces can affect the performance and health of the students, faculty and administrators, which is why selection of color and materials are important. Interior finishes and furnishings shall be of natural, zero/low toxicity, zero/low VOC and allergy-free materials to maintain a healthy interior environment.

Durability, replacement availability, and maintenance shall be primary considerations in building exterior and interior design.

Refer to *Design Standards and Guidelines* for more information.



Interior room uses a variety of materials and colors to support student performance, safety, and maintenance.

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07

STRUCTURAL DESIGN CRITERIA

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07

STRUCTURAL DESIGN CRITERIA

INTRODUCTION

The new San Benito County Campus (SBCC) is envisioned as a one-or two-story building that will provide general classrooms, science labs, library and learning resources, administration and office space, student collaboration space, student support space, lobby and welcome center, a museum space, and a small serving kitchen. The total assigned square feet for the program is approximately 35,300 sf. The site is located north of Highway 25 at the intersection with Fairview Road in Hollister and slopes down to the south-west with over 20 ft in grade change.

The structural design shall be in accordance with Title 24 California Code of Regulations and the 2019 California Building Code (CBC). In addition, the design shall consider the Division of State Architect (DSA) Bulletins, Guidelines, Interpretations of Regulations, Policies and Procedures documents as applicable.

The CBC adopts provisions specifically applicable to California Community College Buildings (CCC) per Education Code section 81053 that allow for alternative structural building standards that may be utilized for the design in lieu of the Field Act provisions. These alternate provisions are comparable to those enforced at other colleges and universities in California. Should the college want to use the alternate provisions, they are required to submit a written letter to DSA confirming use and the design criteria (DSA -SS/CC) shall be clearly noted on the drawings.

STRUCTURAL SYSTEMS

Structural design considerations for the SBCC building include the architectural design aesthetic, open floor plans for labs and classrooms, MEP systems, acoustics, and vibrations. Market conditions, construction cost and construction schedule are also drivers in the selection of structural framing and lateral force resisting systems.

GRAVITY FRAMING SYSTEM

The gravity carrying system shall support the anticipated dead loads and minimum live loads and meet the minimum deflection code criteria specified within this document. Attention should be placed on vibration in the laboratories if any sensitive equipment will be used and in the office and classroom spaces to provide human comfort and limit vibration perceptibility.

LATERAL FORCE RESISTING SYSTEM

Importance should be placed on the lateral force resisting system due to the high seismicity. The lateral system selection shall consider the program and building use, flexibility for future uses, and seismic performance and system ductility. The appropriate bracing and anchorage of building contents and nonstructural systems shall also be considered in the design and selection of the lateral system.

GEOTECHNICAL + FOUNDATION

At the time of Criteria development, no geotechnical data or information was available. This District is in the process of finalizing this information and it will be provided to the DBE team(s) upon its completion.

BASIS OF DESIGN

LOADING CRITERIA

All construction shall comply with the following codes:

Title 24, Part 2, 2019 California Building Code, based on 2018 International Building Code with any City of Hollister Amendments.

ASCE 7-16, Minimum Design Loads for Buildings and Other Structures

ACI 318-14, Building Code Requirements for Structural Concrete

AISC 360-16, Specifications for Structural Steel Buildings

AISC 341-16, Seismic Provisions for Structural Steel Buildings

AWS D1.1-15, Structural Welding Code

AWS D1.8-16, Structural Welding Code, Seismic Supplement

AISI S100-16/S1-18, Design of Cold-Formed Steel Structural Members

DESIGN LOAD COMBINATIONS

Load Combinations for use with Allowable Stress Design is per CBC 2019, Section 1605.3.

Load Combinations using Strength Design or Load and Resistance Factor Design are per CBC 2019, Section 1605.2.

WIND LOADS

Per the 2019 CBC, Section 1609 and 1609.6 Alternate All-Heights Method, Design Factors:

Basic Wind Speed: TBD

Exposure Type: TBD

Risk Category: TBD

Importance Factor, Iw: TBD

SEISMIC LOADS

Seismic loads are per the 2019 CBC Section 1613 and ASCE 7-16 Chapters 12, 20 and 22. The seismic coefficients below, are per USGS values for ASCE 7-16.

SS = 2.189, MCER ground motion (0.2 sec period)

S1 = 0.815, MCER ground motion (1 sec period)

SDS = 1.751

SD1 = **

Site Class: Site Class D (default) assumed, update per geotechnical report

** For structures with Site Class D or E and S1 greater than 0.2 a site specific ground motion hazard analysis is required per ASCE 7-16.

Response Modification Factor, R: TBD, dependent lateral system selected

Displacement Amplification Factor, Cd: TBD, dependent lateral system selected

Overstrength Factor, Ωo: TBD, dependent lateral system selected

Seismic Response Coefficient, CS: TBD

Seismic Design Category: TBD

Risk Category: to be coordinated with architect based on occupancy and potential for hazardous materials

Importance Factor, Ie = TBD, likely 1.0

GRAVITY LOADS

Gravity dead loads will consist of the computed actual weights of materials of construction and fixed equipment/furniture.

Table 7.1 LIVE LOADS*:

Office & Classroom	50 PSF + 20 PSF partitions
Corridors & Exit ways	80 PSF + 20 PSF partitions
Mechanical/Electrical Rooms	125 PSF (or actual weight if heavier)
Stairs	100 PSF
Light Storage	125 PSF
Roofs	20 PSF

CONCENTRATED LOADS 2,000 pounds

*Live loads may be reduced where permissible by ASCE 7-16 and CBC 2019.

DEFLECTION CONTROL

Structural framing members are designed to limit deflections per ASCE 7-16 and CBC 2019with the following minimum criteria:

Table 7.2 DEFLECTION CONTROL CRITERIA

Roof LL (Plaster and Stucco ceiling)	L/360
Roof LL (Non-plaster ceiling)	L/240
Roof LL (No ceiling)	L/240
Floor LL	L/360

VIBRATION CONTROL

Floors are designed to meet recommended limits specified in AISC Design Guide 11 “Floor Vibration Due to Human Activity” for single walkers, multiple walkers, for fast, moderate, and slow walking pace. Design for vibration in the labs that may be located on elevated floors should consider the sensitivity of selected equipment.

Table 7.3 MATERIAL SPECIFICATIONS

CONCRETE	
All structural concrete to have a minimum compressive strength at 28 days as follows:	
Foundations (footing elements & grade beams)	4,000 PSI (Hardrock)
Slab-on-grade	4,000 PSI (Hardrock)
Fill on Metal Deck	4,000 PSI (Lightweight)
Miscellaneous (pads, curbs, etc.)	4,000 PSI (Hardrock)

REINFORCEMENT	
Typical Reinforcement	ASTM A615, Grade 60 (fy = 60 KSI)
Welded Rebar	ASTM A706, Grade 60 (fy = 60 KSI)
Welded Wire Fabric	ASTM A185 (fy = 65 KSI)

STRUCTURAL STEEL	
All Structural steel to conform to the following specifications (unless noted otherwise):	
Wide-flange Sections (Column and Beams)	ASTM A992, Grade 50 (fy = 50 KSI)
Channels, Plates, and Angles	ASTM A572 Grade 50 (fy = 50 KSI)
Miscellaneous Shapes	ASTM A36 (fy = 36 KSI)
Hollow Structural Shapes (HSS)	ASTM A500, Grade C (fy = 50 KSI)
Pipes:	ASTM A53, Grade B (fy = 35 KSI)

Structural Bolts: Bolted connections to be A325X bolts unless noted otherwise.	
Gravity Column Anchor Bolts	ASTM F1554-Grade 55 (fy = 55 KSI)
Seismic Column Anchor Bolts	ASTM F1554- Grade 105 (fy = 105 KSI)
Threaded Rod	ASTM A36 (fy = 36 KSI)
Shear Studs	ASTM A29-12 (Fu = 65 KSI)

Welding: In Conformance with AWS D1.1, D1.4 and D1.8.	
Electrode Strength	E80XX (Reinforcing Steel) E70XX (Structural Steel)

STEEL DECK	ASTM A446, Grade A; Galvanized G60 or G90 (ASTM A525)

08

MECHANICAL DESIGN CRITERIA

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08

MECHANICAL DESIGN CRITERIA

INTRODUCTION

The The Heating, Ventilation, and Air Conditioning (HVAC) systems shall be designed with emphasis and focus on energy efficient , reliability, and ease of maintenance. Design Build Entity (DBE) is responsible for final systems selection, design, engineering, installation, and performance for a complete and functional system that meets all requirements of the RFP. DBE shall select locations for all mechanical, electrical, and plumbing equipment. DBE is responsible for coordination of mechanical systems with the rest of the project. Systems covered by this Narrative include:

- HVAC Systems
- Controls and Monitoring

The building's energy efficiency shall meet or exceed the minimum performance requirements of the latest California Energy Code.

The project consists of a new building(s) to include program for:

- General Education
- Science Education including wet labs
- Library and Computer lab facilities
- Grab-n-go type Café and collaboration area
- Faculty and Administrative office support spaces.

All spaces shall be provided with HVAC unless approved in writing by the Owner. Provide complete design and construction of the new HVAC Systems for the new building(s).

HVAC DESIGN GENERAL

Ease of maintenance and low operational costs of the HVAC system and its components shall be a priority of the DBE. The operation and maintenance of HVAC system should be within the capacity of the College District's maintenance staff's realm of abilities and equipment. Direct Expansion systems and hydronic systems using Air-cooled chillers are acceptable for cooling.

Access to primary mechanical equipment shall be through doors or gates; the design shall avoid limited access paths such as, but not limited to, ladder-only access, roof hatches, and manhole vaults. A defined walking path shall be provided on the roof to all major mechanical equipment with bridges over all duct, piping and conduit obstructions. Provisions shall be made for maintenance and repair of the HVAC equipment so that these events can take place without special equipment and rigging of parts & materials into place.

Designer shall not locate mechanical equipment directly overhead of sound sensitive spaces. Typically the equipment that will cause noise and vibration issues includes, but is not limited to: exhaust fans, air handlers, air conditioning units, or condensers. Mechanical equipment that is needed directly for the spaces, such as exhaust fans, air distribution grilles, registers, and diffusers shall be designed to operate within the acoustical requirements listed in *Chapter 11 Acoustical Design Criteria*.

Access to mechanical spaces through offices, and/or classrooms is prohibited. No exposed rooftop ductwork shall be provided.

The HVAC equipment shall not use hard to find components or custom-made parts that will need to be replaced as part of routine or lifetime maintenance.

Should the contractor submit equipment not listed as an acceptable manufacturer in the specifications the equipment shall have locally stocked parts and service available within a 150-mile radius of the campus for all HVAC equipment.

DBE is responsible for calculating heating and cooling loads and final equipment sizes. Any HVAC loads and equipment sizes provided in this document are estimated from the campus programming needs and are for reference only. Loads shall be calculated using an industry standard calculation software such as Trace 700, HAP, IESVE, or similar. Title 24 performance approach shall be used to determine compliance with the California Energy Code. Energy model shall be run in a software approved by the California Energy Commission such as EnergyPro or IESVE.

DESIGN CRITERIA

A complete HVAC system is required. HVAC systems must comply with California Building Code, California Mechanical Code, California Energy Code, and California Fire Code. Where these codes are silent, use current edition of the ASHRAE handbooks at the time of design. Dust collection systems shall be compliant with NFPA 664 in addition to all California Codes.

APPLICABLE CODES

- California Building Standards Administrative Code (Title 24, Part I), 2019
- California Building Code (Title 24, Part 2), 2019
- California Mechanical Code (Title 24, Part 4), 2019
- California Energy Code (Title 24, Part 6), 2019
- California Fire Code (Title 24, Part 9), 2019
- California Green Building Standards Code (Title 24, Part 9), 2019
- California Reference Standards Code (Title 24, Part 12), 2019

REFERENCE ORGANIZATIONS AND GUIDELINES

AMCA:	Air Movement and Control Association
ANSI:	American National Standards Institute
ARI:	Air Conditioning and Refrigeration Institute
ASHRAE:	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
NFPA:	National Fire Protection Association
OSHA:	Occupational Safety and Health Administration, U.S. Department of Labor
SMACNA:	Sheet Metal and Air-Conditioning Contractors National Association
UL:	Underwriters Laboratories, Inc.

USE OF CURRENT VERSIONS

The above codes, standards, and guidelines shall be the current adopted editions, including all effective addenda, amendments, publications, supplements and references to such in effect upon award of the Project.

Reference to the standards of any technical society organizations, or association, or to the laws, ordinances or codes of governmental authorities shall mean the latest standard, code, or specification adopted, published and effective at the date of award, unless specifically stated otherwise in this document.

See *Chapter 2 Program + Room Data* for additional requirements that may affect the HVAC design associated with individual program spaces. Use the following design condition and load allowance information for performance calculations:

Project Location	Hollister, California 95023
Latitude	33.55o
Longitude	-121.36 o
Elevation	500 feet

ENERGY EFFICIENCY

The DBE must certify at the completion of the project that the building meets or exceeds the 2019 edition of California Title 24, Non-Residential Building Standards.

The following measures are required:

- Premium efficiency motors for all motors 1-HP and larger. Driven equipment brake horsepower requirements (including any applicable drive losses) within 75% of the motor rating.
- Electronic motor speed controllers (eg. VSD's) for all motors over 5-HP that serve demand controlled systems.
- Variable volume control on hydronic distribution systems.
- Balance and control dampers operating in excess of 1250 fpm to be airfoil blade type.
- Air distribution system incorporating low friction loss coefficient fittings and branch takeoffs.
- Low temperature heating hot water systems and condensing boilers for any gas-fired hydronic space heating systems.
- 400 FPM max CHW cooling coil face velocity
- Economizers for all systems except those requiring constant volume and 100%OSA.

OUTDOOR DESIGN CONDITIONS

Heat gains and losses to the exterior shall be calculated using ASHRAE outdoor design conditions at frequency levels of 2.0% for summer dry bulb and wet bulb temperature and 0.2% for winter dry bulb temperature.

Table: 8.1 OUTDOOR DESIGN CONDITIONS

	SUMMER	WINTER
Design Temperature	89/67 °F	27 °F
Mean Daily Range	30 °F	

INDOOR DESIGN CONDITIONS

Relative humidity between 30% and 80% is considered normal for the air conditioning system. The spaces in this building do not require specialized humidity control equipment. IDF/BDF spaces shall maintain space relative humidity between 30-50%. Design build team to determine if specialized humidity control equipment is required for these spaces.

Table: 8.2 INDOOR DESIGN CONDITIONS

	SUMMER	WINTER
General Areas	72 °F	67 °F
Offices	74 °F	68 °F
Computer Labs	72 °F	67 °F
Classrooms Labs	74 °F	68 °F
Restrooms	80 °F	68 °F
Circulation	80 °F	68 °F
Mechanical Rooms	80 °F	55 °F
Electrical Roomos	80 °F	55 °F
IDF/BDF Rooms	64-75 °F	64-75 °F

EXTERNAL LOADS

External loads must be based on listed design conditions and the proposed materials and construction for the building. Internal shading may not be used to reduce the load calculated. Fixed exterior shading may be allowed to reduce calculated cooling load.

VENTILATION RATES

The minimum ventilation rate for any space is 0.15CFM/SF

Table: 8.3 VENTILATION RATES

SPACES	RECOMMENDATIONS
Classroom Labs	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person
Open Offices/Reception	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person
Office/Study Rooms	The greater of that specified by California Energy Code or ASHRAE Standard 62-2019
Computer Lab/Labs	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person
General Classrooms	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person

All spaces shall be mechanically ventilated continuously during hours of scheduled occupancy. Systems with demand control ventilation shall be provided with direct airflow measurement (air flow measurement stations) to ensure minimum OSA rates are maintained.

ENERGY EFFICIENCY CONT'D

INTERNAL LOADS

Lighting Load: Calculate based on proposed light fixture specifications and design.

People Load:

- Administrative spaces: the greater of the two calculations - 150 square feet per person or actual count.
- Teaching Labs/Classrooms: people count or per California Energy Efficiency Standards, whichever is greater.
- Occupant density for all other areas shall be per California Energy Efficiency Standards.

Special Room Loads

- BDF Telecommunications Rooms: 12,000 BTU per hour minimum. Mechanical Engineer shall calculate actual heat load in room based upon telecommunications design.
- IDF Telecommunications Rooms: 12,000 BTU per hour minimum. Mechanical Engineer shall calculate actual heat load in room based upon telecommunications design.
- Elevator Equipment Rooms: Refer to basis of design manufacturers heat loads.
- Science and Prep Labs: design to accommodate equipment heat gain noted in Chapter 2 Program + Room Data Sheets.

Space load calculations should model required space temperatures per the ASHRAE Fundamentals Volume, Load and Energy Calculations. The portion of the load attributable to elements above this level should be applied to the cooling system only, not the space. Trace 700 /E-quest or approved software shall be utilized.

HVAC SYSTEM DESIGN CRITERIA

The option listed below for primary heating, cooling generation, and distributions systems is one possible configuration of HVAC equipment to accomplish the performance requirements contained herein:

OPTION 1: AIR COOLED CHILLER, CONDENSING GAS BOILER

- Primary cooling generation shall be provided by an air-cooled chiller located on grade in a fenced enclosure adjacent to the building. Chiller and pumping shall be configured for variable volume operation.
- Primary heating and reheat shall be generated by an on-site boiler located within a Mechanical room on the ground floor of the building. Boiler shall be gas-fired condensing/ and shall be configured for variable volume operation.
- Provide pumps, VFDs, tanks, air separators and all associated hydronic appurtenances for a fully functional hydronic heating and cooling system.
- Air shall be conditioned and distributed by variable volume air handling units located on the roof.
- Manufacturers for Chiller, Air Handling Units: Trane, Carrier, or approved equal.
- Manufacturers for Boiler: Lochinvar or equal

Design-builder may elect to propose alternate system configurations in their design-build proposal. Systems shall be selected in accordance with the requirements of the criteria and with the following priorities in mind:

- Local availability of parts
- Maintainability
- Access for service
- Future flexibility

Equipment installation shall comply with the following requirements:

1. Ensure minimum service clearances are maintained for all equipment as recommended by the manufacturer.

2. No equipment shall be within 10' of the edge of a roof unless parapet height exceeds 42" above the finished roof surface.

3. Provide spare parts for all equipment as recommended by the manufacturer.

4. Provide startup filters for all air handling systems and replace all startup filters prior to turnover. Furnish two additional sets of replacement filters for all air handling systems.

DEDICATED HEATING AND COOLING UNITS

BDF/IDF, elevator machine, and inverter rooms shall be provided with a dedicated Direct Expansion (DX) heat pump split systems to provide 24/7 thermal control. This requirement shall extend to any room dedicated to the use of telecommunications equipment. Split systems shall include a ducted fan coil located outside of the room of service, with ducted supply and return to and from the room.

HVAC SYSTEMS SERVING SCIENCE LABS AND PREP ROOMS

Comply with emergency power, air change, and pressurization requirements noted in Chapter 2 Program + Room Data Sheets. Provide ventilation and exhaust as required for all ventilated storage cabinets, fume hoods, and other lab equipment as designated by project Laboratory consultant. Provide true venturi style air valves for supply and exhaust to ensure proper airflow rates are maintained at all times.

DUCTWORK

All duct systems shall be constructed of rigid sheet metal, except for connections to equipment and runouts to grilles, registers, and diffusers 5' or less. Fume hood exhaust ducts shall be constructed of welded seam stainless steel unless approved otherwise by the DBE's laboratory consultant. Ductwork sizing and routing will be coordinated with all other systems, including structural and architectural.

Ductwork system will be designed in accordance with the latest edition and printing of the ASHRAE and SMACNA HVAC Systems Duct Design Manual. Ductwork will be designed with operating economy in mind as a priority. Design team will obtain lowest cost-beneficial pressure loss by limiting duct velocities at strategic locations, avoiding dynamic loss components where possible, and utilization of low dynamic loss components. Design team will avoid high-loss fittings, such as mitered elbows, abrupt transitions, and takeoffs and obstructions, including scoops. Design team will utilize the minimum coefficients whenever possible in addition to the following criteria

- Determine distribution system pressure losses by total pressure. Use of the "static-regain" design method will be explored, but other methods may be applied where appropriate.
- Route ducts to avoid or minimize architecturally and/or structurally induced dynamic losses. Maximize long, straight runs; avoid multiple penetrations through fire and/or smoke partitions. Multiple horizontal mains must be of comparable length and configuration to equalize pressure losses. Sheet metal gages shall be minimum 22 gage and in accordance with SMACNA HVAC Duct Construction Standards-Metal and Flexible for the appropriate duct pressure classification.

HVAC SYSTEM DESIGN CRITERIA CONT'D

- Provide drive slip or equivalent flat seams for ducts exposed in the conditioned space or where necessary due to space limitations. TDC is acceptable for supply air ductwork and is prohibited on exhaust air ductwork. Longitudinal seams shall use Pittsburgh lock. Button punch snap lock is not acceptable. On ducts over 48-inches wide, provide standard reinforcing on the inside of duct. Run outs to grilles, registers, or diffusers on exposed ductwork must be the same size as the flange outer perimeter on the grille, register, or diffuser.

Use round ducts to the maximum extent possible. As duct size increases, flat oval shape is preferred; limit rectangular ducts to areas of space restriction with a maximum aspect ratio of 2:1. If due to a structural clearance constraint, duct aspect ratio may be increased and/or duct cross-section reduced if upstream transition includes angles of 60° or less and downstream transition includes angles of 30° or less.

Size supply air ducts from AH unit discharge up to terminal units for friction losses no greater than 0.25 inches w.c. per 100 feet and not to exceed a maximum velocity of 2,000 FPM. Size return air ducts and general exhaust ducts for friction loss of no greater than 0.12 inches w.c. and not to exceed a maximum velocity of 1,600 FPM. Ductwork designs will respond appropriately to the characteristics of the materials being exhausted, such as particulates, corrosiveness, toxicity, reactivity, flammability, etc. based upon direction from the lab planner and chemical consultant.

Duct fittings shall be designed for low pressure loss to improve building energy performance. 90° taps are not acceptable. Exception: connection of terminal discharge duct to air outlets. Takeoffs supplying terminals must be conical branch; 45 wye, conical branch; low-loss tee; bell mouth, or branch with a loss coefficient equivalent to that for the conical branch. The slopes of transitions shall be limited to no greater than 5:1. Abrupt changes or offsets of any kind in the duct system are not acceptable. Round elbows must be smooth (die stamped) or with not less than five-piece gore, with an r/D of not less than 1.5. Radius elbows are required for rectangular ducts less than 24-inches in width. The r/D must be 1.5 times the width of the duct wherever possible; an r/D of less than 1.0 is unacceptable. Elbows in rectangular ducts 24-inches in width and larger are permitted to be square throat elbow; radius elbows with vanes are preferred. Square elbows must have turning vanes; single-thickness vanes are preferred. Use long-radius elbows wherever possible to reduce resistance. Three-piece elbows in stainless steel ductwork are acceptable.

PIPING

Hydronic piping shall be designed for the temperatures and pressures required by the design. Ductile iron piping is prohibited. All hydronic piping shall be sized in accordance with ASHRAE 90.1. Piping support spacing shall be in accordance with the California Mechanical Code or the manufacturer's recommendations; the more stringent requirement shall apply.

EXHAUST SYSTEMS

New exhaust systems shall be segmented by service. Exhaust for one service shall not be connected to exhaust of any other service. Exhaust systems shall consist of:

- General exhaust for restrooms, janitor closets, copy rooms, and other Air Class 2 spaces not otherwise noted.
- Science Laboratory exhaust for science classrooms and prep labs. This applies to wet and dry labs for future flexibility.
- Fume hood exhaust for lab hoods in science classrooms. Hoods shall be variable volume unless required otherwise by the project Laboratory consultant

Exhausted spaces shall be under negative pressure relevant to adjacent spaces. Return air from these spaces is not permitted. It is preferred that one common exhaust system is used for each exhaust system if the building layout permits this. The exhaust fans will be located on the roof. The exhaust fans shall be manufactured by Greenheck, Loren Cook, or equal. General requirements for exhaust systems listed below

- The restrooms shall have a minimum exhaust rate of 70 CFM per fixture (water closets and urinals).
- Direct drive exhaust fans with electronic speed control are required. Exhausters/Ventilators shall have a bird screen, back-draft dampers and factory roof curb (where appropriate). Belt drive fans are only permitted for excessive static pressures, but direct drive is preferred. Dust collectors shall be belt driven.
- Roof top exhaust fans for ventilators shall not be located within 6ft of a roof edge.
- Exhaust systems shall operate 24/7.

HVAC CONTROLS

The building automation/energy management system shall be open-source with no proprietary drivers or software. All components shall be compatible with the BACnet protocol (ANSI/ASHRAE Standard 135-2016). The building controllers shall integrate with central utilities control systems. The system shall be able to integrate multiple building functions, including equipment supervision and control, alarm management, energy management, historical data management and archiving.

All control panels shall be stand alone in memory, networking, and control operations. The design of the controls shall be in a modular format, permitting future expansion capabilities. The system shall monitor and control equipment according to the sequence of operation, as well as additional input and output points. The building control system shall operate to ensure operational safety, regulatory compliance and to satisfy process constraints as well as occupant comfort.

All HVAC systems shall be zoned for thermal comfort. Each classroom shall be an independent thermal control zone. Offices with an identical load profile may be zoned together with a maximum of three private offices per thermal control zone. Large spaces shall be divided into interior and perimeter zones.

Each thermal control zone shall be provided with an adjustable, Title 24 compliant temperature sensor with setpoint and temperature display built-in. Combination sensors shall be provided for spaces with CO_2, RH, or occupancy sensing controls. Device mounting shall comply with CBC requirements for accessibility and combo sensors with CO_2 sensing shall be installed in accordance with the Energy Code.

HVAC SYSTEM DESIGN CRITERIA CONT'D

HVAC CONTROLS CONT'D

Project shall include a central server for BAS controls to be installed in the new building at SBCC along with all associated software and graphical programming required for a fully functioning building automation system. Controls shop drawings shall indicate the proposed graphics, control points, and trending data to be programmed into the BAS system. Sample screens for the BAS shall be reviewed and approved by the campus. BAS software shall be housed on a server located on campus provided by the design-builder.

DDC POINTS

DBE shall provide unique and discrete points for each input and output, for both analog and digital points. Ganging points together shall not be allowed. Provide, at a minimum, the following control points (AO, AI, DI, DO):

- Spaces (as appropriate per design criteria):
  - Room temperature
  - CO2 Level
  - Occupancy sensor
  - Static pressure sensor
  - Natural Ventilation on/off switch
  - O2 Level (Labs)
- General Exhaust fans:
  - Enable
  - Amp draw
  - Status/Alarms
- Lab/Classroom Exhaust:
  - Enable
  - Amp draw
  - VSD Failure
  - KWH
  - Speed Feedback
  - Fan Speed Command
  - Status/Alarms
  - Bypass damper position (Hoods)
- Air-Cooled Chillers:
  - Enable
  - Status/Alarms
  - CHWS Temp
  - CHWS Valve position
  - Chiller DP
  - Output (Tons)
  - KW
  - KW/Ton
- Boilers:
  - Enable
  - Status/Alarms
  - Gas flow (CFH)
  - HHW Loop DP
  - HHWS Temp
  - Isolation Valve position
  - Bypass valve position
  - Thermal Efficiency (%)
- Variable Frequency Drives (VFDs):
  - Start/Stop
  - Status/Alarms
  - Speed (hz)

- Pumps:
  - RPM
  - Amps
- Air handlers (each):
  - Supply air temperature
  - Mixed air temperature
  - Outside air temperature
  - Return air temperature
  - Chilled water entering and leaving temperatures
  - Hot water entering and leaving temperatures
  - Fan enable
  - Supply fan VFD speed control
  - Relief air damper control
  - Mix air damper control
  - Outside air damper control
  - Differential pressure across filters
  - Return fan enable
  - Return fan VFD control
  - Static pressure sensor
  - Smoke detector
  - Chilled water control valve
  - Chilled water control valve feedback
  - Hot water control valve (if heating coils are provided)
  - Hot water control valve feedback (if heating coils are provided)
  - Outside air humidity sensor
  - Outside air CO2 sensor
  - Building pressurization control & sensors
  - Outside air flow station
  - Economizer damper control
  - Mixed air static pressure sensor
  - Supply fan status
  - Return fan status
  - Supply fan VFD feedback
  - Return fan VFD feedback
- VAV terminal units
  - Air volume
  - Leaving air temperature
  - Hot water valve control
  - Hot water valve feedback
  - Damper control
  - Damper Position
- Exhaust air valves - General
  - Air volume
  - Damper control
  - Damper Position
- Exhaust air valves - Hoods
  - Air volume
  - Damper control
  - Damper Position
  - Sash position
- Supply air valves
  - Air volume
  - Leaving air temperature
  - Hot water valve control
  - Hot water valve feedback
  - Damper control
  - Damper Position

HVAC SYSTEM DESIGN CRITERIA CONT'D

DDC POINTS CONT'D

- Packaged AC/Heat Pump units and split systems (each, if used):
  - Enable
  - Leaving air temperature
  - Return air temperature
  - Outside air temperature
  - Status/Alarms
  - Remainder of controls proprietary to unit installed
- Building Utilities
  - Natural gas totalizing meter
  - Electrical power, amps, volts, per each phase

Design-Build team shall submit as part of their proposed design a list of equipment that will be connected to the DDC system. They shall identify any additional DDC points needed for their design that was not listed above. They shall provide a list of DDC points listed above that are not used in their design. Design Build Entity shall provide a unit cost for additional points as part of the proposal.

AIR BALANCING

Design Build Entity shall provide air and water systems balance by an independent air balance contractor with active TABB or NEBB certification.

COMMISSIONING

All building HVAC systems shall be commissioned in accordance with Title 24 and District requirements. DBE shall participate in all building commissioning activities as required by the commissioning agent.

09

PLUMBING AND FIRE PROTECTION DESIGN CRITERIA

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09

PLUMBING AND FIRE PROTECTION DESIGN CRITERIA

INTRODUCTION

The plumbing and fire protection systems shall be designed with emphasis and focus on low flow fixtures and systems to achieve a sustainable building.

The intent of this report is to establish a basis of design / criteria for the plumbing discipline to meet the project requirements and coordinate the integration of these systems into the building architecture. The design of the proposed project will incorporate the objective of providing a system that complies with the occupant needs and provides a more efficient and safer environment. The scope of Plumbing shall include plumbing fixtures, domestic water distribution, sanitary sewer, waste, vent, grease waste, storm drainage, and natural gas system. The information is grouped as follows:

- Plumbing and Piping
- Fire Suppression
- Natural Gas

PLUMBING AND PIPING

APPLICABLE CODES

- California Building Standards Administrative Code (Title 24, Part I), 2019
- California Building Code (Title 24, Part 2), 2019
- California Plumbing Code (Title 24, Part 5), 2019
- California Mechanical Code (Title 24, Part 5), 2019
- California Energy Code (Title 24, Part 6), 2019
- California Fire Code (Title 24, Part 9), 2019
- California Reference Standards Code (Title 24, Part 12), 2019

Table: 9.1 REFERENCE ORGANIZATIONS AND GUIDELINES

ANSI:	American National Standards Institute
AGA:	American Gas Association
ASME:	American Society of Mechanical Engineers
ASSE:	American Society of Sanitary Engineers
ASTM:	American Society of Testing and Materials
AWWA:	American Water Works Association
CISCP:	Cast Iron Soil Pipe institute
NSF:	National Sanitation Foundation
PDI:	Plumbing and Drainage Institute
NFPA:	National Fire Protection Association
OSHA:	Occupational Safety and Health Administration, U.S. Department of Labor
SMACNA:	Sheet Metal and Air-Conditioning Contractors National Association
SOCCCD:	South Orange County Community College District Design Standards
UL:	Underwriters Laboratories, Inc
NFPA 13:	Installation of Sprinkler Systems
NFPA 14:	Standards for Installation of Standpipe, Private Hydrant and Hose Systems
NFPA 24:	Installation of Private Fire Service Mains and their Appurtenances

USE OF CURRENT VERSIONS

The above codes, standards, and guidelines shall be the current adopted editions, including all effective addenda, amendments, publications, supplements and references to such in effect upon award of the Project.

Reference to the standards of any technical society organizations, or association, or to the laws, ordinances or codes of governmental authorities shall mean the latest standard, code, or specification adopted, published and effective at the date of award, unless specifically stated otherwise in this document.

DOMESTIC WATER SYSTEMS

A new domestic water service line and backflow prevention shall be provided for the new building to provide for all domestic water demands as well as industrial water needs.

A central backflow prevention device shall separate the domestic and industrial services. Domestic cold water shall be distributed to fixtures throughout the building via looped distribution through each floor of the building. Looped piping is to be supplied on each floor to maintain water flow / pressure to all fixtures equally.

Domestic cold water supply shall connect to the new cold water campus distribution loop. Points of connection will be coordinated with Civil Engineer. A water meter located at the building entry and connected to the EMS shall be provided and coordinated with Mechanical and Electrical accordingly.

A new Electric Water Heater shall be provided to supply for all domestic hot water needs. Instantaneous Water Heaters will be used for remote locations if needed. A hot water recirculation pump shall be provided with a 7day/24hr programmable time clock. Water temperature within the hot water distribution system shall be maintained by means of a hot water return system designed to maintain a 10-Degree-F temperature differential between the hot water supply and return piping connections at the storage tanks.

The hot water heating equipment and associated components will be located in a dedicated water heater room. Hot water shall be routed to all domestic plumbing fixtures. All hot water distribution piping will be insulated with appropriate thickness of insulation and fire-retardant jacket.

The cold water systems shall be sized using flush valve curves, and hot water systems using flush tank curves. Size equipment branches and mains based on flow requirements without diversity.

Isolation Valves shall be provided at each level of the building for all water systems. Groups of fixtures on each floor shall be provided with isolation valves for ease of maintenance. Each plumbing fixture shall also be provided with individual isolation valves (fixture stops) for maintenance purposes. Water temperature shall be controlled by a thermostatic mixing valve at the water supply side of the fixture.

Restroom fixtures shall be operated by hard wired, infrared technology. Faucets and flush valves shall be provided with metal cap and manual bypass. Water closet flush valves shall be dual flush type. Water hammer arrestors shall be provided in the wall, as required, behind an access panel.

- Trap primers with access panels for all floor drains and floor sinks shall be provided.
- Isolation valves and unions at equipment connections are required.

PLUMBING AND PIPING CONT'D

Refer to *Campus Standards and Guidelines* for additional requirements. Refer to *Chapter 2 Program and Room Data* for provision of fixtures and services in each of the spaces.

Minimum residual pressure at most remote water closet is required to be at least 25 psig. Install pressure regulators to comply with California Plumbing Code, Chapter 6 should the incoming pressure exceed 80 psig. Contractor shall obtain the latest flow test data to determine the need for booster pump and/or Pressure reducing valve. If a booster pump is determined necessary contractor shall design a booster pump in full compliance with plumbing code and provisions of this design criteria. See booster pump design criteria below. If the incoming pressure exceed 80 psig then a pressure reducing station shall be provided. See Pressure Reducing Station below.

- Water velocity exceeding 5 ft/sec is unacceptable.
- Minimum supply pipe size is ½" for one plumbing fixture with a maximum flow of 2.0 gpm, 1-1/2" for a flush valve water closet, 3/4" for a shower or sink and 3/4" for a urinal.
- Provide ¾-inch hose bibbs to allow service to all areas of the exterior including the roof with a 50-foot hose.
- Additional Hose bibbs at roof for future PV panel wash down (if any) shall be provided.
- Separate isolation valves are required for main supply to building, each toilet room, each floor and each zone or lab spaces.
- Routing of water lines in Electrical, Elevator Machine, IDF or BDF rooms shall not be permitted.

Provide 0.35 gpm aerator with lavatory faucets to meet Cal Green requirements. Chrome plated stops with gasket seats are required for sinks, lavatories, and wash basins when exposed to public view. Provide at least one hose bibb with vacuum breaker in a lockable cabinet under the lavatories in each public toilet room. Exposed branch water supply piping in toilet rooms and custodial rooms must be chromium plated. Floor type service sinks are required in custodial closets and shall include removable rim guards, mop hanger bracket and stainless steel splash panels.

BOOSTER PUMP

- Booster pump to be equip with VFD.
- Provide full size by-pass line for the booster.
- BMS to be provided and coordinated with Electrical and Mechanical. Control Conduit shall be extended from booster pump to IDF/MDF room.
- Provide a pump that is a Duplex minimum with a lead lag sequence.
- Provide Expansion Tank and size per manufacturers recommendation.
- Provided skid mounted package system.
- Meet building demand for total GPM and total feet of head.
- PRV at discharge side of booster pump.
- Floor sink provided in front of booster pump with trap primer.
- Housekeeping pad for booster pump and tank.
- Provide pressure gauges at inlet and outlet of pump.
- Booster control panel to have graphical LCD screen.

PRESSURE REDUCING STATION

- Pressure Reducing station to be multi stage with a high low arrangement.
- Floor Sink with trap primer to be provided in front of Pressure Reducing Station.
- Pressure relief valve to be provided immediately downstream of PRV.
- The drain line from pressure relief valve to be piped to discharge into the floor sink with 2" air gap.
- A full size by pass line to be provided.

Hub drain for the fire sprinkler system main drain inside the fire riser room on the ground floor will be provided and connected to the sanitary system as applicable. Coordination with Fire Sprinkler contractor will be required.

ACID WASTE SYSTEM

Acid waste shall serve all science classrooms and science prep/workroom sinks for both student and Instructor use where corrosive chemicals might be used.

An exterior chemical sample box and Neutralization Tank shall be provided and placed underground prior to connecting to the sanitary sewer lateral serving the building.

Sample box shall include a removable gastight, bolted cover, p-trap and cleanout.

A combination emergency eye/face wash and shower shall be provided in the Science Lab with adjacent floor drain connected to acid waste/vent with Trap Primer. Floor drain shall be provided only for the emergency eye/wash.

A pull-down emergency eye/face wash shall be provided in the Science Lab Prep at the common sink.

Acid Waste stub-out for connections to fume hood (if any) will be provided. Location of fume hoods to be determined.

Acid waste vents shall not interconnect with vents of other Plumbing systems.

GREASE WASTE SYSTEM

Grease waste shall serve Three (3) compartment sinks, floor drains, floor sinks, trough drains, prep sinks and mop sinks within the Kitchen preparation area. Hand sinks are not required to drain to grease waste. Ice makers shall not discharge to grease waste.

Grease interceptor capacity is estimated to be 1,000 gallons. Further coordination with Food service is required to determine proper sizing of interceptor capacity. Additional coordination to determine location of interceptor and sample box on site will be required. Exact size/capacity shall be determined based on final quantity of grease producing fixtures connected to the interceptor.

Cleanouts shall be provided at base of stacks, every 100 ft. of horizontal straight run, change in direction exceeding 135 degrees, upper terminal of fixtures and end of line.

Quantity and location of floor sinks to serve kitchen equipment and appliances will be provided and coordinated with Food Service drawings. See *Chapter 14, Food Service Design Criteria* for additional information.

Quantity and location of floor drains to serve kitchen areas will be provided and coordinated with Food Service and/or Architectural drawings.

STORM DRAINAGE SYSTEMS

The building storm drainage system shall be sized based on Chapter 11, Table 1101.7 and 1101.11 of the California Plumbing Code. Sizes shall be based on 2"/hour rainfall intensity.

A complete gravity storm drainage system connecting to each roof drain and overflow drain shall be provided.

Roof drains will be collected and connected to separate risers and will be connecting to the underground on-site storm drainage system per coordination with Civil Engineer. The Civil Engineer will collect the roof drainage system from the building to central collection points including any perimeter exterior drains.

Primary drainage will be connected to campus infrastructure while Secondary (Overflow) drains will daylight and terminate through face of outside wall at 12" to 18" above finished grade. Provide wall flanges at overflow terminations.

Sump pumps for general building drainage are acceptable only if gravity flow cannot be achieved, in which case duplex submersible style intrinsically safe units equipped with automatic float controls and high-water alarms are required. All basins must be designed for full immersion.

Table: 9.2 PIPING MATERIALS

HW, CW ABOVE GRADE:	Copper tube, Type L, with wrought copper fittings with brazed or soldered joints.
HW, CW BELOW GRADE:	Copper tube, Type K, with wrought copper fittings with brazed joints.
Natural Gas ABOVE GRADE:	Schedule 40 black steel with threaded galvanized malleable iron fittings as required. Low pressure 2" & smaller shall be threaded and 2½" & larger shall be welded.
GW, W, V BELOW GRADE:	Heavy duty cast iron. No hub, minimum 1/4" per foot slope with Polyethylene tubbing or pipe wrap.
GW, W, V ABOVE GRADE:	Heavy duty cast iron. No hub, minimum 1/4" per foot slope.
AW, AV ABOVE GRADE:	Polypropylene (PP), sch. 40 above grade with fused fittings.
AW, AV BELOW GRADE:	Polypropylene (PP), sch. 80 with fused fittings.
Condensate (CD):	Type "L" copper, insulated, minimum 1/4" per foot slope.
SD, OD:	General Service cast iron. No hub, minimum 1/4" per foot slope. Piping located under the building slab will be extra-heavy weight, hub-and-spigot soil pipe.

PLUMBING FIXTURES

All fixtures must not contain lead in the brass fittings. Plumbing fixtures must incorporate ceramic stems and bibbs.

Water closets @ 1.28 GPF w/ Hardwired, Sensored flushvalves – American Standard, Kohler, Sloan

Urinals – Sloan @ 1/8 GPF w/ Hardwired, Sensored flushvalves – American Standard, Kohler, Sloan

Lavatory @ 0.35 GPM w/ metered operation faucet – American Standard, Kohler, Chicago Faucet

Kitchen / Lounge sink faucets @ 1.5 GPM w/ Manual faucet – Elkay, Chicago faucet, Sloan

Sink Faucets: Chrome plated brass.

Garbage Disposals: ABS with stainless steel grinding elements, 3/4-HP.

Drinking Fountains: Stainless steel, dual dish, refrigerated, 120-VAC (hardwired) with bottle filler.

Mop Sinks: Enameled cast iron, floor mounted.

Mop Sink Faucets: Chrome plated brass.

Hose Bibbs: Rough cast brass, loose key tee.

Wall Hydrants: Rough cast brass, wheel handle, aluminum box and locking cover.

Floor Drains: Cast iron with nickel bronze strainers.

Floor Sinks: Enameled cast iron, with enameled cast iron grate.

Roof Drains: Cast iron with cast iron domes.

FIRE SUPPRESSION

FIRE PROTECTION SYSTEM DESIGN GOALS, GENERAL

A firewater line shall be connected to the Campus Fire Water Loop. A double detector check assembly (DDCA) shall be installed outside the building to protect the supply water main. Downstream of the building DDCA, a fire department connection (FDC) shall be provided to allow the fire department to pressurize the building firewater lines. An electric driven fire pump dedicated to the building shall also be installed inside the fire pump room. The fire pump shall be sized and installed in full compliance with NFPA 20 and CFC.

APPLICATION CODES

California Building Standards Administrative Code (Title 24, Part 1), 2019

California Building Code (Title 24, Part 2), 2019

California Plumbing Code (Title 24, Part 5), 2019

California Fire Code (Title 24, Part 9), 2019

California Referenced Standards Code (Title 24, Part 12), 2019

PUBLICATIONS AND STANDARDS

Underwriters Laboratories (UL)

National Fire Protection Association

NFPA 13 - Installation of Sprinkler Systems, 2016 Edition

NFPA 14 – Standard for the Installation of Standpipe and Hose Systems, 2016

NFPA 20 – Installation of Stationary Pumps for Fire Protection, 2016

NFPA 24 - Standard for the Installation of Private Fire Service Mains and Their Appurtenances, 2016 Edition

NFPA 72 – National Fire Alarm and Signaling Code, 2016 Edition

APPLICATION

Light Hazard – Common spaces, Administration spaces, Lounge, Restrooms, concessions and ticket, Green room

Design Density: 0.1 GPM/SF

Ordinary Hazard Group I – Black Box, Control Rooms, Telecom rooms, Mechanical rooms, Storage rooms, Electrical rooms, Custodial rooms

Design Density: 0.15 GPM/SF,

Ordinary Hazard Group II – Stages and seating areas, Loading galleries, Trap room, Scene Shop, Costume shop

Design Density: 0.2 GPM/SF

Non-separated rooms – rooms shall assume the hazard classification of highest-hazard adjacent space where there is no sufficient separation per CBC

Design Density: Varies bases on hazard classification

SYSTEM DESCRIPTION

Water Supply shall be from a fire water line tying into a dedicated fire water system comprised of a backflow preventer, fire water meter and Post Indicator valve. Post-Indicator Valves must be accessible.

Table 9.3 PROTECTION AREA PER HEAD

CONSTRUCTION TYPE	MAX. PROTECTION AREA (SF)	MAX. SPACING (FEET)	OCCUPANCY CLASSIFICATION
Noncombustible unobstructed	225	15	Light Hazard
Noncombustible obstructed	225	15	Light Hazard
Combustible unobstructed w/ no exposed members	225	15	Light Hazard
Combustible unobstructed w/ members less than 3ft on center	130	15	Light Hazard
Combustible obstructed all w/ exposed members 3ft or more on center	168	15	Light Hazard
Combustible obstructed all w/ members less than 3 ft on center	130	15	Light Hazard
Combustible concealed all spaces in accordance w/ 8.6.4.1.4	120	15 parallel to the slope 10 perpendicular to the slope	Light Hazard
ALL	130	15	Ordinary Hazard

SYSTEM COMPONENTS

The system components shall include the following:

- Fire Pump
- Fire Pump Controller interconnected with the building FACP
- Jockey Pump
- Jockey pump controller
- FDC
- Fire pump test header
- Flow Meter
- Automatic Fire Sprinkler piping, sprinklers, hangers, and seismic bracing
- Valve and water-flow switch monitoring
- Audible sprinkler flow alarms on the exterior and interior of the building. The fire protection system shall be monitored by the central fire alarm system in the building
- Pre-action control valve interlocked with FACP with air compressor and pressure switch.

Piping shall be concealed above ceilings and within walls except for non-public equipment rooms without ceilings. Piping in public areas with no ceilings will be coordinated with architect.

Coverage shall be provided for rooms, void spaces, underneath stains, overhangs and as required by code, with sprinkler protection in combustible attics.

Sprinkler heads in ceilings shall be concealed pendant type with white or chrome finish cover plate flush with ceiling. Sprinkler heads will be concealed in finished ceilings and exposed uprights in non-finished spaces such as mechanical rooms, data rooms, and/or electrical rooms.

High temperature sprinkler heads will be provided in electrical rooms. OS&Y gate or butterfly valves with tamper switches shall be provided to isolate heads in these rooms.

All isolating and sectionalizing valves on the fire protection system shall be provided with tamper switches that shall be annunciated at the fire alarm control panel.

The system shall have a central control panel with digital read-out as part of the Fire alarm system. The system should be installed so that it may be connected to an automation system.

Piping Material 2" nominal diameter and smaller shall be ASTM A 795 steel piping schedule 40 black steel-pipe. Connections or fittings shall be threaded, flanged or welded.

Piping larger than 2" nominal diameter may be ASTM A 795 Schedule-10 roll-grooved black steel pipe. Connections or fittings shall be grooved or welded.

Sprinkler heads shall be spaced for symmetry with ceiling features. Any additional heads required to accomplish this spacing shall be provided in base bid. Basis of head location shall be:

- Align in straight rows
- Maximize symmetry in room
- Locate in center of ceiling tiles where applicable

All valves controlling the water supply for the standpipe system shall be electronically monitored by an approved central station, remote station, or proprietary monitoring station.

All products used for the installation of these systems shall be U.L. listed for service in a Fire Protection system or shall be approved by the Authority Having Jurisdiction for their intended use.

All Sprinkler heads exposed to the elements shall have a factory applied corrosion resistant finish.

The design team shall provide double interlock pre-action sprinkler system in all IT rooms, control rooms, and all other similar rooms that house high value equipment. The pre-action system shall be interlocked with Fire Alarm Control Panel. A rate of rise heat detector shall be provided in all above mentioned rooms.

FIRE PUMP SYSTEM REQUIREMENTS

A complete, functional and adequately sized electric fire pump shall be provided to address the pressure demand of the sprinkler system in the building. The Fire pump shall be horizontal split case or vertical inline and shall be provided with Jockey pump, Fire pump and jockey pump controller, VFD, etc.

The Fire Pump controller shall be interlocked with the Fire Alarm control panel, and shall have indicating lights on the Fire alarm control panel and Fire Alarm Annunciation Panel, indicating the status of the fire pump. The Fire Pump shall be UL listed and rated to the building demand in accordance with requirements of NFPA 20 and California Fire Code.

STANDPIPE SYSTEM

Per California Building Code Section 905.3.1 a standpipe system shall be installed in building four stories or more in height. A Manual-Wet Class I standpipe system, designed in accordance with NFPA 14, 2016 Edition shall be provided since the building will be protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Hose connections shall be provided in accordance with 2019 CBC Section 905.4. In interior exit stairway, hose connections shall be located on main floor landings unless otherwise approved.

NATURAL GAS SYSTEM

Natural gas supply shall connect to the new medium pressure gas system on campus as required. A new gas supply connection will be provided for the building comprising of a gas pressure regulator, automatic gas seismic shut-off valve and lube type shut-off at the gas rise.

Gas to the building will be routed below grade on site with service deriving from the campus infrastructure. Gas supply into the building will step-down from medium pressure and distribute at low pressure into the building to all gas-fired appliances and equipment such as the kitchen area, science area and possibly HVAC equipment. A gas meter located at the building entry and connected to the EMS shall be provided and coordinated with Mechanical and Electrical accordingly. Additional sub-meters will be provided for the kitchen spaces to monitor those loads.

Automatic gas shut-off valve locations as part of the Fire Suppression system (i.e. Ansul) will be coordinated with Food Service drawings.

Gas stub-outs for connection to kitchen equipment will be provided and coordinated with Food service drawings.

10

ELECTRICAL DESIGN CRITERIA

10

ELECTRICAL DESIGN CRITERIA

INTRODUCTION

The electrical system for the San Benito County Campus (SBCC) Center shall be designed with emphasis and focus on energy efficiency. The electrical system shall encompass the main distribution system, interior and exterior lighting, power to support equipment, convenience power and fire alarm system. All these systems shall be designed to provide the user maximum flexibility. All equipment that form parts of these systems shall be selected for durability and maintenance ease that are consistent with *Gavilan Joint Community College District (GJCCD) Standards and Guidelines*.

OVERVIEW

The following applicable codes and standards shall be referenced for the electrical design for the proposed building.

APPLICABLE CODES

California Building Standards Administrative Code (Title 24, Part 1)

California Building Code (Title 24, Part 2)

California Electrical Code (Title 24, Part 3)

California Energy Code (Title 24, Part 6)

California Fire Code (Title 24, Part 9)

California Referenced Standards Code (Title 24, Part 12)

REFERENCE STANDARDS AND GUIDELINES

NFPA 72: National Fire Alarm Code

Latest Edition of the Illuminating Engineering Society of North America Handbook

NFPA 30 Flammable and Combustible Liquids

DESIGN CRITERIA

Primary power for SBCC shall be coordinated with local utility, Pacific Gas and Electrical Company. Based on the approximate 35,000sf building footprint, electrical load is estimated to be 525,000VA or 525KVA. An 800A, 480Y/277V, 3 phase, 4 wire main utility service is anticipated for this estimated load. *Actual size shall be determined by design team and shall be based on electrical demand loads. Include 25% spare capacity for future flexibility.

The system will include a PG&E pad mount transformer, sized by PG&E. Electrical equipment 480V/277 and below will be Campus owned.

The electrical equipment shall be housed in the main electrical room and sub electrical closets if necessary. The system will include an 800A, 480Y/277, 3 phase, 4 wire, distribution board, 480-208Y/120Vdistribution transformer(s) and 120/208V distribution panel board(s).

Service gear shall be provided with a digital meter for monitoring of overall load, and for sub-metering of mechanical, lighting and power loads. The metering system shall at minimum meter peak amperage, voltage, peak kW, and continuous kWH consumption. CT's and PT's shall be sized to allow IDR level metering.

BUILDING POWER AND DISTRIBUTION SYSTEM

A 480/277V and 208/120V systems are anticipated to be provided as follows:

Table: 10.1 BUILDING POWER AND DISTRIBUTION

	VOLT/PHASE
Large motors (1/2 HP & larger)	480-volt, 3 phase.
Small motors (1/3 HP & smaller)	120-volt and 208-volt
Lighting, LED	277-voltw
Receptacles, general purpose	120-volt
Receptacles, special Purpose	208-volt, 1 phase
VAV boxes	120-volt
Misc. power	120-volt and 208-volt

BUILDING INTERIOR

The basis for calculating the Volt-Ampere to be provided per Square Foot floor area would be as follows:

Table: 10.2 BUILDING INTERIOR

Offices >250sf:	Lighting	0.75	
	Receptacle		2.0
Offices <250sf:	Lighting	1.0	
	Receptacle		2.0
Classrooms:	Lighting	1.2	
	Receptacle		3.0
Labs:	Lighting	1.4	
	Receptacle		3.0
Lobbies, Restrooms:	Lighting	0.6	
	Receptacle		1.5
Storage Rooms:	Lighting	0.5	
	Receptacle		1.5
Advanced Tech:	Lighting	1.2	
	Equipment/Receptacles		Per needs
	Power		Actual motor Hp
Arts and Design:	Lighting	1.2	
	Equipment/Receptacles		3.0
	Power		Actual motor Hp
BDF/IDF Rooms:	Lighting	1.0	
	Equipment/Receptacles		10.0
	Power		Actual motor Hp
Corridor:	Lighting	0.6	
	Power		0.5
Mechanical Areas:	Lighting	0.55	
	Power		Actual Motor HP

ELECTRICAL SYSTEM

All conduits consisting of 480/277V, 3 phase, 4 wire conductors shall originate from the 480/277V Switchboard housed in the main electrical room to lighting panels on each floor of the building. Likewise, conduits consisting of 208/120V, 3 phase, 4 wire conductors shall originate from the 208/120V Distribution Boards housed in the main electrical room and floor electrical rooms and shall serve the power panels on each floor of the building to meet the power demands of the building. 480-208Y/120V, 3phase, 4wire distribution transformers sized to meet the load requirements shall be provided in the electrical room on each floor. Separately derived systems with K-13 rated Isolation transformers shall be provided to serve loads in the computer labs and all audio visual equipment. Panel boards shall be surface mounted in the electrical rooms and recess mounted in other locations. All panel boards shall be 42 circuits 3 phase. 30% spare circuit breakers shall be included in each panel.

Equipment not related to the support of the electrical rooms, BDF and IDFs (e.g., piping, ductwork, etc.) cannot be installed in, pass through, or enter electrical rooms per California Electrical Code (CEC) 110.26,

MEDIUM VOLTAGE PADMOUNT TRANSFORMERS

- Shall be pad mount, oil-filled type.
- Dual radial incoming feed.

METERING

- Provide metering on main building service.
- Meters shall be Modbus compatible and be connected to the Campus BMS via CAT 6 connection.
- The meter shall be a multi-point meter in the main switchboard that meters all sub-breakers in the main switchboard.
- The building loads (Lighting, HVAC, receptacles) shall be metered independently, and recorded/trended by the Campus BMS.
- Square-D is preferred manufacturer.

SWITCHBOARD, PANELBOARDS

- Breakers shall be bolt-on.
- Minimize use of shunt trip breakers.
- Square-D is is preferred manufacturer.

LOW VOLTAGE DRY TYPE TRANSFORMERS

- Square-D is is preferred manufacturer.

ENCLOSED SWITCHES AND DISCONNECTS

- Square-D is is preferred manufacturer.

LABELING

- Switchboard, Panels, Disconnect switches: Provide phenolic label on equipment indicating equipment name, voltage, and source.
- Receptacle and light switch cover plate: Provide pre-printed vinyl labels on all cover plates indicating circuit.
- Junction boxes. Provide pre-printed vinyl labels on all junction box indicating circuit and source for all wiring

ELECTRICAL DISTRIBUTION TELECOMMUNICATION ROOMS

Provide dedicated 225A, 208/120V, 3ph, 4W electrical panel with built-Surge Protective Device (SPD) at MDF room. Provide dedicated 150A, 208/120V, 3ph, 4W electrical panels in all other Telecom Rooms 'TR'.

Provide rack mounted dedicated 20A/120V quad receptacles and 30A/208V receptacles at each equipment rack.

Provide convenience receptacles, no less than 6 feet on center or one per wall minimum at each MDF or TR room.

Location of other non-dedicated electrical equipment within telecommunication rooms is not allowed.

Refer to telecommunications systems design criteria for additional requirements.

EMERGENCY SYSTEM

Provide emergency generator to serve egress lighting, designer selected emergency lights, and building standby loads.

Genereator shall be diesel fuel and shall be sized appropriately to handle life safety and optional standby loads.

Generator Criteria:

- Generatror fuel oil storage shall comply with UL 142 and NFPA 30 requirements.
- Generator shall be located exterior to the building with a sound attenuated exterior enclosure.
- Generator shall be provided with a skid mount tank to allow 24 hour run time.
- Separate Automatic Transfer Switches (ATS) and distribution shall be provided for life safety and optional standby loads.
- Life Safety shall include all emergency lighting and any equipment essential for human safety.
- Optional standby loads shall include Science labs standby loads and any other selected equipment by the Owner.
- Acceptable Manufacturers: Catepillar, Onan Cummins or approved equal.
- IDF/BDFs to be backed up by Contractor provided UPS.

WIRING METHODS

All cables and conduits shall run parallel and perpendicular to building structure. Cables and conduits shall not run diagonally to the structure are unacceptable.

CONDUIT

- Minimum conduit size of 3/4 inch when installed above ground, serving receptacles and other power related is required. Increase conduit size as required per code. Support all conduits per current CEC. Allowed length of flex conduit shall be limited to 4 feet or less. Surface mounted conduit is acceptable only in locations where exposed structure is the finished surface; in such cases, locate conduit for minimum visual impact.
- Above ground: rigid conduit, IMC or EMT are acceptable. Rigid conduit is required in outdoor locations and where conduit is exposed to physical damage.
- Underground: Schedule 40 PVC with concrete encasement (red dye on top surface of the duct bank) is required. Use PVC-wrapped or PVC-coated steel elbows for plastic conduit runs and elbows penetrating floor slabs. Minimum underground conduit size shall be 2".
- MC cable, rigid non-metallic conduits, electrical non-metallic tubing, and screw type fittings are unacceptable.

CONDUIT CONT'D

- Spare conduits (minimum size 2") shall be provided to each panelboard from the electrical room. Additional (6) ¾"conduit stub outs from each panelboard shall be stubbed above the ceiling.

POWER AND LIGHTING SYSTEMS 600 OR LESS

CONDUCTORS

- All wiring shall be copper.
  #12 and larger shall be stranded.
- Minimum conductor size for runs over 100 feet for 120/208V system shall be #10 AWG or larger as per CEC Voltage Drop calculations.

Provide no more than (3) duplex receptacles on one 20A/1P branch circuit. Determine the exact number of duplex outlets on each circuit based on load proposed to be connected to each outlet.

Multi-wire (shared neutral and ground) receptacle circuits are not acceptable. A dedicated neutral and ground is required for each receptacle circuit.

Provide power outlets as required to support Audio-Visual (A-V) equipment. All audio visual equipment shall be served from isolated ground receptacles.

Provide power outlet, one duplex per each communications outlet location including those equipped with cable and jacks, or conduits and boxes placed for future.

Provide wall mounted 120V convenience outlets no more than 6 feet on center or one per wall minimum.

Provide USB receptacles in seating and common areas.

Provide above the counter 120V convenience outlets no more than 3 feet on center or one per counter space minimum unless otherwise specified. Over the counter outlets shall be provided with dedicated circuits.

Provide 120V power to irrigation controller(s) and as required per landscape design criteria.

Provide 120V Power to "Blue Light Phone" (emergency telephone station) and security system.

Provide 120V receptacles in exterior areas. Provide 120V charging ports at exterior classrooms and gathering spaces. Receptacles shall be routed through relay control panel to allow shut off during non scheduled Campus hours.

Provide 120V and 208V outlets as required for each space. All necessary power to audio visual equipment computers shall be provided based on the power requirements of the equipment and shall be provided through an isolated ground power system. Minimimum of two floor boxes anticipated in general classrooms, lab rooms, and collaborative spaces. Floor boxes shall be limited and shall only be used for transition to outlets provided as part of the furniture in computer lab, or at instructor's stations, demonstration tables, or conference tables.

All circuits for audio visual equipment loads shall be provided with dedicated neutrals. No sharing of neutrals shall be allowed.

All necessary conduit infrastructure shall be provided in each of the classrooms to provide flexibility of routing power in the future to adapt to change in programming of the space.

Provide power wiring to all motors, fans, pumps and all equipment provided under mechanical, plumbing and architectural sections shall be provided as part of the electrical construction. All wiring below 120V shall be considered as part of other trades such as mechanical systems. All low voltage devices, where required, shall be provided with raceway only. 20 ampere branch circuits shall be provided for convenience outlets.

Provide provisions to allow the building to be PV ready as required by Title 24. Provisions shall include spare breaker to tie in the system, space for future inverter, and conduits to the roof space.

Provide power to parking booths and EV charging stations.

EV chargers shall be Class II type charger. Required quantity shall be per Cal Green requirements.

GROUNDING

A complete grounding system per CEC shall be established in the building and the main switchboards shall be connected to this grounding system. A central grounding system shall be provided from the building service substation to panels, metallic conduit and raceways. A separate ground conductor shall be provided for all circuits. All metallic piping attached to the building is also required to be bonded.

LIGHTING

Light fixtures and systems shall be selected for efficiency, durability, maintenance ease, and to accentuate the area architecture. Indoor lighting shall be tailored to building's needs and theme.

The illumination levels shall conform to the latest edition of Illuminating Engineering Society (IES) guidelines and shall be as follows:

Table: 10.3 ELECTRICAL SYSTEMS GENERAL

AREA	AVERAGE FOOTCANDLES
General Classroom, General Lecture Room	MIN. 35-50 FC
Science Laboratories, Science Prep Lab	MIN. 50 FC
Library/Learning Resource Center	MIN. 35-50 FC
Open Office, Private Office	MIN. 35-50 FC
Cafe	MIN. 35-50 FC
Lobby/Reception Area	MIN. 35-50 FC
Corridors	15 FC (Floor Level)
Storage/Support Space	15 FC (Floor Level)
Telecom Rooms	MIN. 35-50 FC
Electrical Room	20-40 FC (Floor Level)
Exterior/Landscaping	1-5 FC (Grade Level), 1 FC Average for Main Egress Ways
Parking Lot	1 FC (Grade Level)

Note #1 - Values at Work/Activity Level Unless Otherwise Noted.

Foot-candle levels shall comply with campus energy standards and shall be designed based on user requirements.

All spaces shall be illuminated with efficient LED light fixtures (a minimum efficiency of 90%). Task light fixtures shall be considered in offices to reduce the overall lighting power density.

General lighting shall be level 80 color rendering index (CRI) minimum.

Lighting shall have a color temperature of 5000K.

Use light fixtures that have a rated life L70 for LED sources of at least 24,000 hours.

Classrooms shall be designed with indirect/ direct general lighting.

Electrical, Mechanical and data rooms shall be illuminated with industrial LED fixtures. Provide vapor tight, 4' sections, with cable/chain hung for ease of alterations.

Recessed fixtures are preferred for labs, offices, classrooms, and other rooms when possible. Light fixtures shall be located to allow ease of maintenance.

LED Exit signs shall be provided at all exits and along the path of egress and shall be vandal resistant. Illumination levels shall conform to current CBC requirement at floor level during loss of normal power.

Exterior light fixtures shall be LED and shall be Dark Skies compliant and shielded to prevent grate for pedestrians. Lighting shall match Gavilan College aesthetics and standards.

Interior photometrics calculations shall utilize the following:

Calculation plane of 30" or work plane height for labs/offices/classrooms/workrooms.

Calculation plane of floor for corridors and restrooms.

Light loss factor of 0.9.

Reflectances shall be 80/50/20. These shall be adjusted down if finishes in the room are worse than indicated.

Major obstructions shall be modeled in the calculations.

Lighting power densities and controls shall comply with Utility Company's Energy Savings program and shall beat current Title 24 requirements by a minimum of 20%.

LIGHTING CONTROLS

Provide Lutron lighting controls for control of interior and exterior lighting. Low voltage wireless controls for interior and exterior are preferred. Provide Lutron Vive for interior applications, wireless and wired hybrid system can be considered.

Dimming Switching shall be provided in all classrooms and all spaces. Automatic dimming controls shall be provided in all day-lit areas to harvest the daylight savings. Automatic shut off for all areas shall be accomplished through low voltage lighting control panel and override switches in compliance with current California Energy Code. Likewise corridor lighting shall be capable of dimming when occupants are not detected as required by Title 24.

LIGHTING CONTROLS CONT'D

Occupancy sensors equipped with dimming switches consistent with campus standards shall be provided in all offices. Restrooms shall be provided with single level switch and ceiling mounted occupancy sensors. All fixtures provided shall be compatible with the control system.

Classrooms, Labs, Offices, and multipurpose rooms with A/V equipment shall have lighting controls integrated with the A/V control equipment.

Outdoor lighting control shall allow control via time clock and photosensor. Contractor is required to include all parts, time and material to tie into Campus desired lighting control system.

FIRE ALARM SYSTEM

Provide Lutron lighting controls for control of interior and exterior lighting. Low voltage wireless controls for interior and exterior are preferred. Provide Lutron Vive for interior applications, wireless and wired hybrid system can be considered.

Dimming Switching shall be provided in all classrooms and all spaces. Automatic dimming controls shall be provided in all day-lit areas to harvest the daylight savings. Automatic shut off for all areas shall be accomplished through low voltage lighting control panel and override switches in compliance with current California Energy Code. Likewise corridor lighting shall be capable of dimming when occupants are not detected as required by Title 24. Occupancy sensors equipped with dimming switches consistent with campus standards shall be provided in all offices. Restrooms shall be provided with single level switch and ceiling mounted occupancy sensors. All fixtures provided shall be compatible with the control system.

Classrooms, Labs, Offices, and multipurpose rooms with A/V equipment shall have lighting controls integrated with the A/V control equipment.

11

ACOUSTICAL DESIGN CRITERIA

11

ACOUSTICAL DESIGN CRITERIA

INTRODUCTION

This document outlines acoustical basis of design criteria for the San Benito County Campus (SBCC) Center Project (the Project). The design criteria outlined below are intended to support speech communication, speech privacy, learning, studying, group activities, and to minimize distractions from unwanted noise. This document is divided into the following sections: room acoustics, sound isolation, and MEP systems. This Project is expected to consist of the following spaces:

- Lobby and welcome area, open collaboration area, café/seating
- Administrative offices, faculty offices
- General lecture classrooms
- Science (wet, prep) and computer labs
- Multi-use spaces: flexible classroom/studio, maker lab, multi-use/community room, and museum
- Library and learning resources room, student collaboration spaces

The Acoustical Design Criteria address architectural elements, building systems noise, and vibration. It shall be the sole responsibility of the DBE to design and review the project documents to comply with the acoustical performance requirements set out below. To show compliance with the project requirements, a minimum of two reports are necessary: one report prior to the completion of the construction documents and the second report just before commissioning the building. The DBE shall engage the services of a qualified acoustical consultant to review of the project documents. The acoustical consulting firm shall be an active member of the Institute of Noise Control Engineering.

ROOM ACOUSTICS - REVERBERATION TIME

The intent is to provide acoustically absorptive finishes to meet the reverberation time requirements outlined below. Specifying room finish treatments that include appropriate amounts of sound absorption assists with reducing the buildup of noise and supporting clear speech communication in instructional environments. Reverberation time (RT60) is a measure of the amount of time it takes for sound to decay by 60 decibels within a space. In general, long reverberation times can be desired for music whereas shorter reverberation times are needed to support speech intelligibility.

Table 11.1 identifies acoustically sensitive spaces for this project and reverberation time criteria. When reviewing and selecting sound absorbing products to achieve the RT60 criteria, specify products that have been laboratory tested and include Noise Reduction Coefficients (NRC ratings). The higher the NRC rating, the greater the amount of sound absorption that the product provides.

Table: 11.1 REVERBERATION TIME CRITERIA

SPACE TYPE	RT (IN SECONDS)
Classrooms, Labs, Private Offices, Conference Rooms	< 0.6
Open Plan Office Areas, Multi-Use/Community Room	< 0.8
Collaboration and Study Areas, Library/Learning Resources Room	< 1.0
Lobby/Welcome Center, Museum	< 1.2
*Reverberation Time is value at 500 Hz. Reported in seconds	

Following are additional comments on roof finishes:

- Classrooms and labs shall sound absorbing ceilings with an NRC rating of 0.9 or higher
- Offices shall have sound absorbing ceilings with an NRC rating of 0.75 or higher
- Conference areas should have sound absorbing ceilings with NRC ratings of 0.9 or higher, and minimum 1-inch thick sound absorption (NRC 0.7 or higher) on two perpendicular walls
- Study areas shall have sound absorbing ceilings (NRC 0.8 or higher)

SOUND ISOLATION

Interior partitions and floor-ceiling assemblies shall be selected and designed to control airborne and impact noise transfer between spaces. The exterior building shall reduce noise from environmental sources to acceptable levels indoors. Airborne sound isolation is characterized in terms of Sound Transmission Class (STC) ratings. The STC rating is a single number metric based on the laboratory test of a single element (such as a wall or door) or a combination of elements that comprise the entire assembly (such as a wall and door or floor-ceiling assembly). Higher STC ratings block or reduce more sound.

Table 11.2 provides performance criteria for walls and floor-ceiling assemblies to support appropriate levels of sound isolation and speech privacy. Walls should be full-height and sealed to the underside of the structure above.

Table: 11.2 AIRBORNE SOUND ISOLATION CRITERIA

ADJACENCY	SOUND TRANSMISSION CLASS RATING
Core Learning Spaces to the same	STC 50
Core Learning Spaces to Public Restrooms	STC 53
Core Learning Spaces to Mechanical equipment room or cafe	STC 60
Core Learning Spaces to Admin Office, Corridor, or Staircase*	STC 45
Ancillary Learning Space to Ancillary Learning Space, office, or conference room	STC 45
Private to Private	STC 45
Private to Hallway, stairway	STC 35
Confidential to private, confidential	STC 50
Collaborative/multi-use to Hallway, stairway	STC 25
Mechanical Equipment Room to Hallway, stairway	STC 50
Mechanical Equipment Room to Occupied Area	STC 60

* Doors between classrooms and core learning spaces and corridors shall be STC 30 or higher.

NOTE: The College expressed a preference to only use hard finish flooring. If this is reconsidered, classrooms, offices, conference and faculty areas would benefit, acoustically, from using carpet as the floor finish.

SOUND ISOLATION CONT'D

- Construction documents shall also include details for patching and sealing penetrations. All penetrations (such as conduit, ductwork, and piping), as well as recessed elements such as outlet boxes, shall be properly sealed to maintain the acoustic separation. If the project includes storefront, curtainwall, or window wall systems, wall ends at window mullions must be treated to maintain sound isolation.
- Doors and Windows
  - At noise-sensitive spaces, doors should be framed solid core wood, insulated steel, or stile-and-rail style with full perimeter gaskets including door bottom seals and solid thresholds. Vision panels, door glazing, and sidelights, shall have sound insulation of STC 30 or higher (e.g., ¼-inch thick laminated glass). Sliding or unframed doors are not equivalent and should not be used where sound isolation is needed. Door hardware should be equivalent to the following:

Table: 11.3 DOOR HARDWARE

Head and jamb	Pemko S88
Automatic door bottom or Door shoe	Pemko 434_RL Pemko 234_V
Threshold	Pemko 14/1A
Astragal	Pemko 355_S and 313_N

  - Doors and window assemblies between acoustically sensitive spaces should provide sound isolation equivalent to the wall STC rating for the specific adjacency (see Table 11.3 above).

Speech privacy is a function of the partition performance and background sound level. If the district indicates that confidential speech privacy is required, such as at specific offices or conference rooms, the project shall consider incorporating electronic sound masking to maintain a constant background sound level.

The floor- ceiling assemblies over acoustically sensitive spaces shall be designed to reduce structure-borne noise to the space below. This noise is introduced into the structure when people walk around and impart energy into the floor-ceiling assembly, and from activities such as chairs sliding across the floor. The floor-ceiling assemblies shall be designed to achieve a minimum Impact Insulation Class (IIC) rating of 50. Options to address this include the use of carpet, cushioned flooring, or incorporating a resilient underlayment, such as rubber or cork, below hard finish flooring.

Environmental noise from roadway traffic and other sources can transmit through the building shell into occupied spaces and shall be addressed as follows:

- Provide an environmental noise assessment as needed to address CalGreen code standards
- Limit environmental noise in classrooms and labs to 40 dB(A); note that 35 dB(A) is preferred

MEP SYSTEM NOISE AND VIBRATION

ACOUSTIC DESIGN GOALS

Table 11.4 summarizes acoustical criteria for background noise levels from HVAC systems in terms of Noise Criteria (NC) ratings. Noise produced by the HVAC system is caused by supply air, return air, duct breakout noise and radiated noise coming from the mechanical unit itself.

Table: 11.4 BACKGROUND NOISE CRITERIA

SPACE TYPE	NOISE CRITERIA	A-WEIGHTED SOUND LEVEL
Classrooms, Quiet Study Rooms, Private Offices	NC 30	35 dB(A)
Labs (Science, & Computer), Multi-Use/ Community Room, Museum, Student Collaboration Spaces, Learning Resources Room	NC 35	40 dB(A)
Lobby/Welcome Center, Café/ Seating, Open Plan Office Areas	NC 40	45 dB(A)

GENERAL LAYOUT

- Mount rooftop equipment on steel stanchions elevated above the roof
- Side inlet and discharge rooftop units are preferable to down-discharge types
- Avoid locating ceiling-mounted air-moving devices (e.g., VRF units) in or above spaces having criteria of NC 30

AIR DISTRIBUTION

- Attach ductwork to air moving units with flexible duct connectors. Provide at least five equivalent duct dimensions of straight duct at the inlet and discharge to fans.
- Ductwork should have smooth transitions not exceeding 10 degrees. Use airfoil turning vanes at 90-degree duct turns. Avoid bullhead tees.
- Minimize wall and ceiling penetrations by locating trunk ducts over corridors and providing one branch duct into the room being served.
- Install minimum five feet of acoustical flex duct prior to supply air diffusers. Do not penetrate sound-rated construction with flexible duct.
- Locate volume dampers a minimum of six feet upstream of air registers.
- Specify diffusers and grilles with NC ratings at least five points lower than the noise goal for the spaces they serve.
- Air-velocity in ductwork should decrease at each branch from the fan discharge until the air velocity is reduced to that recommended for the neck of supply and return air terminal devices (see Table11.5). Final duct branch air velocities must not exceed the diffuser neck velocity by more than 100 fpm. Size ducts accounting for internal lining.

AIR DISTRIBUTION CONT'D

Table: 11.5 MAXIMUM AIR VELOCITY IN DUCTS (FPM)

LOCATION	C 30 (FMP)	C 35 (FMP)	C 40 (FMP)
Main duct above ceiling	800	1,200	1,700
Branch or secondary duct	500	650	800
Grille or diffuser neck	325	450	600

VIBRATION ISOLATION

Operation of MEP equipment can introduce vibration that propagates into occupied spaces through structure-borne paths. Vibration isolate all MEP equipment (including reciprocating and rotating equipment) connected to the structure per ASHRAE guidelines and the following:

- Select un-housed spring vibration isolators with independent seismic restraints, such as steel braided cable or snubbers.
- Specify neoprene pads under the base plates and anchor as required.
- Select vibration isolators on the basis of static and dynamic load including thrust and rotational inertia. Select each isolator independently for the load at each mounting point.
- The mechanical specifications should require contractors to submit detailed load and spring coil selection calculations.
- Specify flexible piping, ductwork, and electrical conduit connections at all vibration isolated rotating equipment.
- Provide an itemized table documenting all equipment and associated vibration isolation. Include isolator manufacturer, model. required deflection, and reference details.
- Mount transformers and other large pieces of electrical equipment on neoprene mounts sized for a 0.2-inch static deflection (e.g., Mason BR).
- Plumbing
  - Vibration-isolate pipes in sound-rated walls, and in walls adjacent to noise sensitive spaces (classrooms, offices, conference rooms, etc.). Exceptions are vent stacks, gas, and sprinkler lines. Do not allow vent stacks to contact gypsum wallboard.
  - Avoid rigid metal-to-metal contact between pipes and supports, framing, or structure. Do not mount pipes on gypsum board or allow pipes to contact gypsum board surfaces.
  - Isolate small pipes (i.e., pipes less than three inches in diameter) within 100 feet of rotating equipment using neoprene mount or hanger isolation (i.e., Mason isolators ND or HD). This applies to the lines connecting the outdoor and indoor sections of split systems.
  - Use resilient sleeves at the point or attachment for small pipes beyond 100 feet (i.e., neoprene condensation insulation, preformed glass-fiber pipe, or insulated hangers similar to Trisolator).
  - Use cast iron waste pipes. Attach waste pipes and rainwater leaders using neoprene mounts or resilient sleeves.
  - Use proprietary resilient attachments, such as Acousto-Plumb or Hubbard Hold-Rite Silencer System, for domestic water lines less than one inch in diameter.
  - Specify flexible piping and conduit connections at all vibration isolated rotating equipment.

12

LOW-VOLTAGE TECHNOLOGY DESIGN CRITERIA

12

LOW-VOLTAGE TECHNOLOGY DESIGN CRITERIA

INTRODUCTION

This Basis of Design narrative for low-voltage technology systems is for the new Center at the new San Benito County Campus (SBCC). The building includes the following space types:

- General classrooms (4)
- Wet Science Lab (4)
- Flexible Classroom / Studio
- Multi-Use / Community Room
- Computer Labs (2)
- Library & Learning Resources
- Six (6) Student Collaboration Rooms
- Administrative and faculty offices
- Welcome Center and Café
- Single Occupancy Offices

SECURITY SYSTEMS

SECURITY SYSTEM OVERVIEW

The goal of the security systems is to provide a safe and secure environment for the students, staff, employees, visitors, and guests.

An access control system (ACS) will use specified high-security encrypted RFID credentials at to-be-determined locations.

A video surveillance system will record high-definition video from cameras in the Public Employment Relations Board (PERB) approved locations for later review. If criminal or problematic activity occurs, the system can readily provide the police and prosecutors with actionable evidence. In addition, live video will allow the operations staff and the campus safety office to observe what is happening throughout the facility in real time.

COVID CONSIDERATIONS

In the post COVID era, consideration should be given to screening people entering a facility and reducing common touch points such as door levers and push bars. Screening areas would direct people to a choke point were staff could do a manual temperature check or use a fever detection camera. The screening area should include a secondary screening area for people with high skin temperatures. This area is to let people's skin temperature stabilize to better reflect their body temperature and be rescanned by a staff member. Common touch point reduction can be done using door operators triggered by touchless access control readers and touchless sensors.

The systems described below will focus on providing a high-level of security, making the students and staff feel safe, and conveying a level of sophistication compatible with this project.

The security system consists of the following subsystems:

- Electronic access control
- Video surveillance
- Intrusion detection
- Video security intercoms
- Emergency exit alarms and door management alarms
- Elevator landing communication system

Emergency lockdown

ACCESS CONTROL SYSTEM (ACS)

Staff and students will be enrolled into the ACS. Their enrollment will include their access rights to specific doors. The access rights may include time of day, day of week and holiday restrictions.

The ACS is to be designed in conjunction with the building architecture to assist the Owner in establishing layered control zones of access. Card readers will be placed at the following locations:

- Building entry doors
- Telecom and electrical rooms
- Back of house mechanical rooms

CLASSROOM LOCKSETS (COLUMBINE LOCKS)

Although not part of the electronic security design, all classroom doors will have mechanical classroom locksets (also known as Columbine locks).

ACS ALARM NOTIFICATION

The integrator will coordinate with campus safety staff on the alarm message format, graphic display, and message content of ACS alarms, prior to system commissioning.

ACS SERVER AND FIELD PANELS

The future ACS system server and field panels will reside on the Gavilan College Ethernet Infrastructure (GCEI) on a dedicated security VLAN. The field panels will be located in telecom rooms on fire-retardant plywood wall fields.

The ACS will use standards-based field panels. Proprietary field panels are not acceptable.

CARD READERS AND CREDENTIALS

The card readers must be RFID readers using an encrypted contactless format such as MIFARE or HID iClass SE. The RFID cards will be used as student and staff ID cards, so must support dye sublimation printing.

CARD PRINTER

Provide a color ID badge printer.

- Capable of double-sided printing
- High capacity and throughput
- Laminator with security seal
- Card encoding

BUILDING INTRUSION DETECTION SYSTEM (BIDS)

Intrusion detection included exterior door position switches, motion detectors in lobby and corridors, and glass break sensors. These sensors will be monitored by the ACS panels.

ARMING/DISARMING BIDS

Arming/disarming of the BIDS will be on a schedule from the ACS and can be overridden by authorized staff at the ACS workstation. Stations will be located at the doors where staff members enter/exit the building, so that authorized staff can override the ACS schedule.

DURESS ALARMS

The ACS will monitor covert duress alarms. A duress alarm will notify the police via a central station monitoring the system. Duress buttons will be located as designated in the SMS.

ACS INSTALLATION

The integrator will provide and install the field panels, ACS devices and software licenses. The devices will reside on the campus supplied IP network, with infrastructure by Division 27. The integrator will coordinate with campus safety on the alarm notification messages, graphic displays and controls, prior to system commissioning.

BUILDING LOCKDOWN

All entry doors will have electronic locking controlled by the ACS. The primary entry door(s) will be unlocked by a schedule in the ACS system. When the doors are locked, a card reader will provide access to those with card authorization. Fire exit doors will always be locked from the exterior, while maintaining free egress.

During a lockdown, all exterior entry doors will automatically lock. The ACS will automatically upgrade the access rights to the entry doors to include only staff with emergency access rights, such as first responders.

Lockdown switches will be provided in areas designated in the SMS. The switches will connect to the ACS to initiate the lockdown sequence and notify campus safety.

EMERGENCY COMMUNICATION SYSTEM

Provide an emergency communication system that can be expanded campus wide.

- Comply with NFPA 72 National Fire Alarm and Signaling Code Chapter 24 requirements
- Perform Risk Analysis for Mass Notification
- In Building Emergency Communication System
- Ensure speech intelligibility throughout the building
- Separate from building fire alarm system
- Video Surveillance System (VSS)

VIDEO SURVEILLANCE SYSTEM (VSS)

The IP-based high definition video surveillance system will be designed to communicate on the campus IT network using a dedicated security VLAN.

The cameras can be viewed on existing and new workstations that have the VSS viewing rights.

VIDEO STORAGE

The main VSS server will be located within the MDF. The camera recording for this project will be done onsite. Locate the recorder(s) in a telecom room equipment rack . Video storage for the cameras will be sufficient to provide 30 days of storage of continuous recording at full-camera resolution, at 10 frames per second. The local video recorder will have the following minimum specifications:

- Multiple hot-swappable hard drives
- Redundant and hot-swappable storage controllers, disk drives, power supplies and fans
- Dual active controller with failover.
- Dynamic disk arrays using RAID 6
- Drive health monitoring

CAMERA COVERAGE (PENDING APPROVAL) WILL BE INCLUDED FOR THE FOLLOWING SPACES:

- Building entries
- Lobby areas
- Building exterior, all sides
- Elevator cabs
- Elevator lobbies
- Stairwell entry/exit
- All technology rooms

CAMERA REQUIREMENTS

- Minimum fixed camera resolution will be 1080p; higher resolution or multi-imager cameras are needed for cameras with wide field of views or long-distance views.
- Exterior fixed cameras will have built in IR illuminators to improve low-light level camera performance
- At the points of pedestrian entry, the camera resolution, positioning and technology will be selected to recognize facial details of at least 80 pixels per foot (PPF)..
- Building perimieter will use multi-imager 270 degree cameras on the building corners to for a permiter view of all sides of the facility. Multi-imager cameras will have a minium resolution of 12MP
- The exterior cameras on the south side of the building will be 270 degree multi imager cameras with an integrated PTZ camera. These combination cameras will have a minium resolution of 12MP with a 2MP PTZ camera with a 30X zoom.

Multi-imager 360/270-degree camera

Multi-imager camera with integrated PTZ

ACCEPTABLE CAMERA MANUFACTURERS:

Axis

- Single imager Dome cameras – P32 series
- Single-imager 360-degree 12MP cameras – M3058
- Multi-imager cameras – P37 series
- Multi-imager cameras with integrated PTZ camera – Q6000-E series
- Hanwha
- Multi-imager camera with integrated PTZ – PNM-9320VQP

VSS INSTALLATION

The integrator will provide and install the cameras, video recorders and software licenses. The devices will reside on the campus supplied IP network. The integrator will coordinate with campus safety on the camera views and graphic display, prior to system commissioning.

EMERGENCY EXIT AND DOOR PROP MONITORING

Emergency exits are vulnerable to criminal activity. To deal with these threats, all emergency exits will have a door management unit with a local audible alarm to discourage use of the door. These alarms will be monitored by the ACS.

Entry doors are also vulnerable, even when they are unlocked by a schedule in the ACS. During a lockdown, a door propped open cannot be locked, defeating the protection of the lockdown. A door management unit, located near the door, will provide an audible alarm when the door is propped open for a programable amount of time. The alarm will be reset when the door is closed. If a door is not closed when the alarm sounds, a second programable timer will start, when that time elapses, a signal will be sent to the ACS. This feature encourages people in the area to close a propped door. Only if the alarm is not responded to, will campus safety be notified. The device can be bypassed with a key switch during move-in or for maintenance activities.

Acceptable manufacturers include: DSI models ES4200

Door Management Unit

ELEVATOR LANDING - AREA-OF-REFUGE INTERCOMS

California Building Code require an area-of-refuge intercom system at all elevator landings above and below the level of discharge. These intercoms will call campus safety, and if no answer, roll over to a 24-hour answering service. Appropriate signage will be located near each area-of-refuge calling stations. The system installation must meet the requirements laid out in NFPA code 72 including Circuit Integrity with two-hour rated cabling.

Acceptable manufacturers include: Rath, Cornell

ELECTRONIC COMMUNICATIONS

The electronic security systems will require structured cabling and static IP addresses for the following:

- IP cameras
- Access control panels
- Servers

TELECOMMUNICATIONS SYSTEMS

The telecommunications systems infrastructure will support the following systems:

- Voice and data networking
- IP-based security systems
- Wireless (Wi-Fi) in common areas, including outdoor areas
- To support the above systems, the design will include the following infrastructure:
-

Telecommunications spaces, including the following:

- Main Distribution Facility (MDF) the location where cables enter building
- EF (entrance facility): the location for service provider equipment
- ER (equipment room): the location for servers, routers, TV receivers, audiovisual, and other centralized technology equipment
- TR (telecommunications room, formerly known as IDF rooms): the location on each floor for network switchers, patch bays, and other equipment
- There will be one joint MDF/EF/ER space on Level 1 that needs to be a minimum of 400 sq. ft.
- There will be a TR on every floor
- Intra-building network cabling (copper, optical fiber, and coaxial cabling)
- Telecommunications pathways to support the telecommunications cabling
- Horizontal cabling distribution to support voice and data
- Grounding and bonding of the telecommunications system

INCOMING SERVICE PATHWAYS

OUTSIDE PLANT (OSP) CONDUIT SYSTEMS

As the New Center will be the first building on the campus, outside plant pathways will be limited to those to service provides. Provisions should made for future outside plant pathways to other buildings.

- Conduit pathways should extend from manholes to the EF/MDF where the building equipment racks are placed.
- Entrance conduits in the EF must be above the manhole level to avoid flooding. Provide four (4) 4-inch conduits, the conduits would run from their manholes into the building.
- Provide one (1) 4-inch conduit for fire alarm, the conduit would run from their manholes into the building.

BACKBONE PATHWAYS

A riser pathway will extend from the MPOE to each telecommunications room (TR) via a series of slots from the lower TR to the one above. (Slots are preferred over conduit sleeves as they require less floor space than a bank of sleeves). Initial slot sizing for the TRs can be 36 inches by 12 inches in the lower portion of the tower and may be reduced 24 inches by 12 inches in the upper part. Place a 3” X 3” curb around the slots to prevent water from migrating from floor to floor in the event of a flood from a unit or burst pipe.

For Emergency Responder Radio Communication System (ERRCS), the pathway from head end equipment on an upper floor TR will need to be in a two-hour rated enclosure. Therefore, all TRs will be 2-hour rated.

If more than one TR is required on a floor, the TRs on the same floor would need to be connected with cable tray or conduit.

Two 1-1/4-inch pathways should be provided between the MPOE and all elevator machine rooms to support voice and video systems.

EMERGENCY RESPONDER RADIO COMMUNICATION SYSTEM (ERRCS)

As mentioned above, the ERRCS will be provided to augment the reception of cellular and public safety systems throughout the building.

The public safety system will feature the following components:

- Donor antenna on the roof; the antenna is 36 inches by 8 inches by 2 inches on a 6 foot mast
- Bi-directional amplifier with a fiber distribution system located on topmost level TR
- A 19-inch rack required for the building distribution amplifier, fiber gear, and the UPS (the equipment will be located in a NEMA 4 enclosure with a load of less than 400W)
- Fiber remotes located on various levels
- All riser cable and pathways need to be two-hour rated. All fiber remotes will need to share NEMA 4 enclosures with a dedicated UPS.

TELECOMMUNICATIONS SPACES

GENERAL REQUIREMENTS

The MDF and TRs will be the common access points for backbone cabling, horizontal cabling, grounding systems, and building pathways. The rooms will contain telecommunications, audiovisual, CATV, and DAS equipment; security-related network cabling; cable terminations; and associated cross connect and/or patch cable wiring.

The MDF and TR are dedicated to the telecommunications, security, and audiovisual functions and related support facilities. They are not to be shared with electrical installations other than those that directly support those functions. Equipment not related to the support of these rooms (e.g., piping, ductwork, conduit) should not be installed in, pass through, or enter the rooms.

SPECIFIC REQUIREMENTS

The following are additional requirements for the telecommunications systems:

- Electromagnetic interference: Locate telecommunications spaces away from sources of electromagnetic interference, such as electrical power supply transformers, motors, and generators
- Water infiltration
  - Telecommunications spaces should not be located below water level unless preventive measures against water infiltration are employed
  - Water or drainpipes that are not directly required in support of the equipment should not be located within the spaces
  - A floor drain should be provided within spaces where there is risk of water infiltration

TELECOMMUNICATIONS SYSTEMS
CONT'D

- Doors are to be a minimum of 40 inches wide and 80 inches high and have electronic access control door locks
- Ceilings
  - The height between the finished floor and the lowest point of the ceiling in the BDF should be a minimum of 10 feet to accommodate tall frames and overhead pathways
  - Walls should be full height to the slab above
- Plywood Backboards: All walls to include 3/4-inch thick AC-grade plywood painted flat white over the gypsum board

MDF

The MDF is will initially serve as the main equipment room on the new campus and will need an area of at least 400 square feet. The MDF could include equipment and connectivity to support all building services, such as a local area network (LAN)/wide area network (WAN), private branch exchange (PBX)/voice server, security, and other low-voltage services. Equipment may be located within the MDF to support horizontal cabling to work area outlets located adjacent to the MDF.

The entrance facility (EF) and equipment room (ER) will be located within the MDF. The EF will require about 4 feet by 8 feet of floor space for conduits and 4 feet by 6 feet of wall space.

TELECOMMUNICATIONS ROOMS (TR)

The telecom rooms located at the elevator core need to be separate from the electrical rooms. Preferred size for the TR need is 140 sq. ft.

These rooms will vary from floor to floor for equipment and will contain infrastructure for voice, and data services.

The TR should be located such that no horizontal cable exceeds 250 feet in total length. Practically speaking, this means that the TR should not be greater than about 220 feet from the farthest data or voice connections, as measured along corridors. This accounts for cable slack at racks and work area outlets, vertical changes in cable direction, etc.

SYSTEM REQUIREMENTS

HORIZONTAL CABLING

For offices place two unshielded twisted-pair (UTP) Category 6A (Cat6A) cables for voice and Place two unshielded twisted pair (UTP) category 6A (cat6A) cables for Data = 2V2D

Telecommunications outlets are provisioned with 5" square style Randl Telecommunications backboxes and single-gang faceplates. Each telecommunications outlet will have one (1) 1-1/4-inch conduit for every four cables that extends from the backbox to the accessible ceiling space.

The following telecommunication outlet standards are in use:

- Type A – one voice, one data (1V1D) in four-port faceplate, unused ports blanked.
- Type B – two data (2D) in four-port faceplate, unused ports blanked.
- Type C – two voice, two data (2V2D) in four-port faceplate.
- Type D – four data (4D) in four-port faceplate.
- Type E – one voice (1V) in one port faceplate with knobs for hanging wall phones.

Printer/fax locations will receive a minimum of 2 cat6A cable each. Depending on equipment density at any one location, cable quantities may be increased.

BACKBONE CABLING

- Building services backbone cabling will be composed of category 5e riser cable and 50-micron OM4 multi-mode fiber cable. We suggest that a minimum of 12 pairs of cat5e cable and 12 strands of fiber be terminated in selected TRs.

OSP BACKBONE CABLING

- OSP backbone cabling will be composed of 200 Pair copper and 48 Strands of Single-mode fiber cable.

SUPPORTED TELECOMMUNICATIONS SYSTEMS

- There will be a variety of networking and building-wide systems supported by the infrastructure outlined above. This section outlines the main systems that are currently being considered.
- In addition, for all telephony and specialty circuits (such as T1 lines), cabling will be provided to each TR and terminated on standard patch panels.

WIRELESS ACCESS POINTS (WAP)

- Wireless will be provided via four Category 6A cables for 802.11 devices for common areas of the building. The WAP will be located such that the density will accommodate high-bandwidth users. For exterior locations, coverage will be provided by WAP that are built into the facade of the building or surrounding landscaping. Heat maps will be generated to identify potential locations for the WAPs.

VOICE AND DATA NETWORKING

- There will be computer-networking equipment to support voice and data communications relevant to the building's needs. This equipment could include large network switches, desk and/or wall-mounted telephones, WAP, and network connections to various emergency, cellular, mechanical, electrical, or plumbing systems for building management.

SECURITY SYSTEMS

- Because the planned security system for the new building will rely heavily on networked cameras and IP based communication protocols, there will be a significant amount of telecommunications cable infrastructure to support it. Card readers and intercoms will also be IP-based. Therefore, space will need to be to be allocated in the MPOE and each TR for the equipment and any UPS that will be needed.

AUDIOVISUAL SYSTEMS

- Da ta outlets will be provided at AV device locations to allow for control and monitoring, streaming over the internet, IP-based TV, etc.

TELECOMMUNICATIONS SYSTEMS
CONT'D

OTHER PROVISIONS FOR TELECOMMUNICATIONS

- In each TR, provide one non-switched dedicated 120V/20A quadra-plex electrical receptacle above each equipment rack location. The outlets shall be placed at six-foot intervals around the room.
- Provide one 208V/30A outlet above each two-post equipment rack.
- The grounding and bonding should be as follows:
  - Provisionally, plan on one #4/0 copper cable from main ground bar in the MPOE to the electrical service entrance grounding electrode system
  - Provisionally, plan on one #4/0 copper cable from the main ground bar I the riser to the highest TR in the building. Each TR's ground bar will be bonded to this riser with exothermic welds.
- Provide electrical panels in the rooms that are dedicated to communications equipment only. No other loads – such as utility electrical, lighting, motor, or other devices – shall be placed on these panels.
- Provide lighting with a minimum of 500 lx (50 foot-candles) measured three feet above the floor.
- HVAC shall be provided on a 24/7/365 basis that can be called independently from surrounding spaces. The heat load in communication rooms will be at least one-half of the total wattage capacity supplied to each room.
  - Equipment loads for building services will be supplied by the building Owner's IT services staff in the next design phases. For the MPOE and DAS rooms, utilize 25 watts per square foot as a place holder until more clear information is available.

SPECIAL CONSIDERATION – SMART BUILDING INFRASTRUCTURE

With consideration for balancing overall project needs and budget, the design team should have discussions on how smart-building technology can improve the efficiency, wellness, comfort and sustainability of the building. To prepare the the building for emerging and future smart building technology a zoned cabling system should be considered.

- The latest trend towards smart buildings and increased requirements for health and safety should be considered when designing the building's structured cabling system. Towards that goal, a zoned-ceiling cabling system as describe in *ANSI/TIA-862-B: Structured Cabling Infrastructure Standard for Intelligent Building System*, should be considered to enable ready connection of PoE smart building devices, such as occupancy sensors, daylight sensors, security cameras, lighting, Wi-fi, wayfinding beacons, distance learning microphones and cameras, and other Internet-of-Things (IoT) devices.
- A zoned structured cabling design consists of horizontal cables run from the telecommunications room to an intermediate connection point (zone enclosure), typically in the ceiling where most smart building devices reside. Cables are then patched from the zone enclosure to the smart devices located nearby. The benefits of a zoned cabling approach include ease of deploying new technologies and improved pathway utilization.

AUDIOVISUAL SYSTEMS

Audiovisual design for the project will support the following areas and systems:

- General Lecture Classrooms
- Science Labs
- Flexible Classroom / Studio
- Multi-Use / Community Room
- Student collaboration
- Computer labs
- Open Collaboration Area
- Faculty Conference Room
- Lobby / Welcome Center
- Café

AUDIOVISUAL STANDARDS & GUIDELINES

The project should consider existing campus audiovisual standards. However, as design/construction schedules are long and audiovisual technology is a constant state of change, the project should be open to advances in technology beyond existing standards. Audiovisual is rapidly converging with computer networks and the Internet. The project should consider leveraging these emerging technologies for both the potential the new capabilities and cost benefits that can be realized.

DESIGN PHILOSOPHY

Audiovisual systems that are simple to use tend to get used the most often. Systems should be designed to minimize complexity while supporting the pedagogical approaches and features preferred by the faculty.

DISPLAY STANDARDS

Displays systems, including projectors and flat panel display shall be designed to provide good legibility for all students in the classroom. Both projection screens and flat panel displays shall be 16:9 aspect ratio for high-definition and ultra-high-definition content, and appropriately sized based on AVIXA's (an international audiovisual standards organization) display image size standards (AVIXA V202.01). Projector resolution shall be minimum high-definition (1080P), with 4K UHD resolutions for consideration. Image brightness shall be based on AVIXA's Projected Image Systems Contrast Ratio standards (3M).

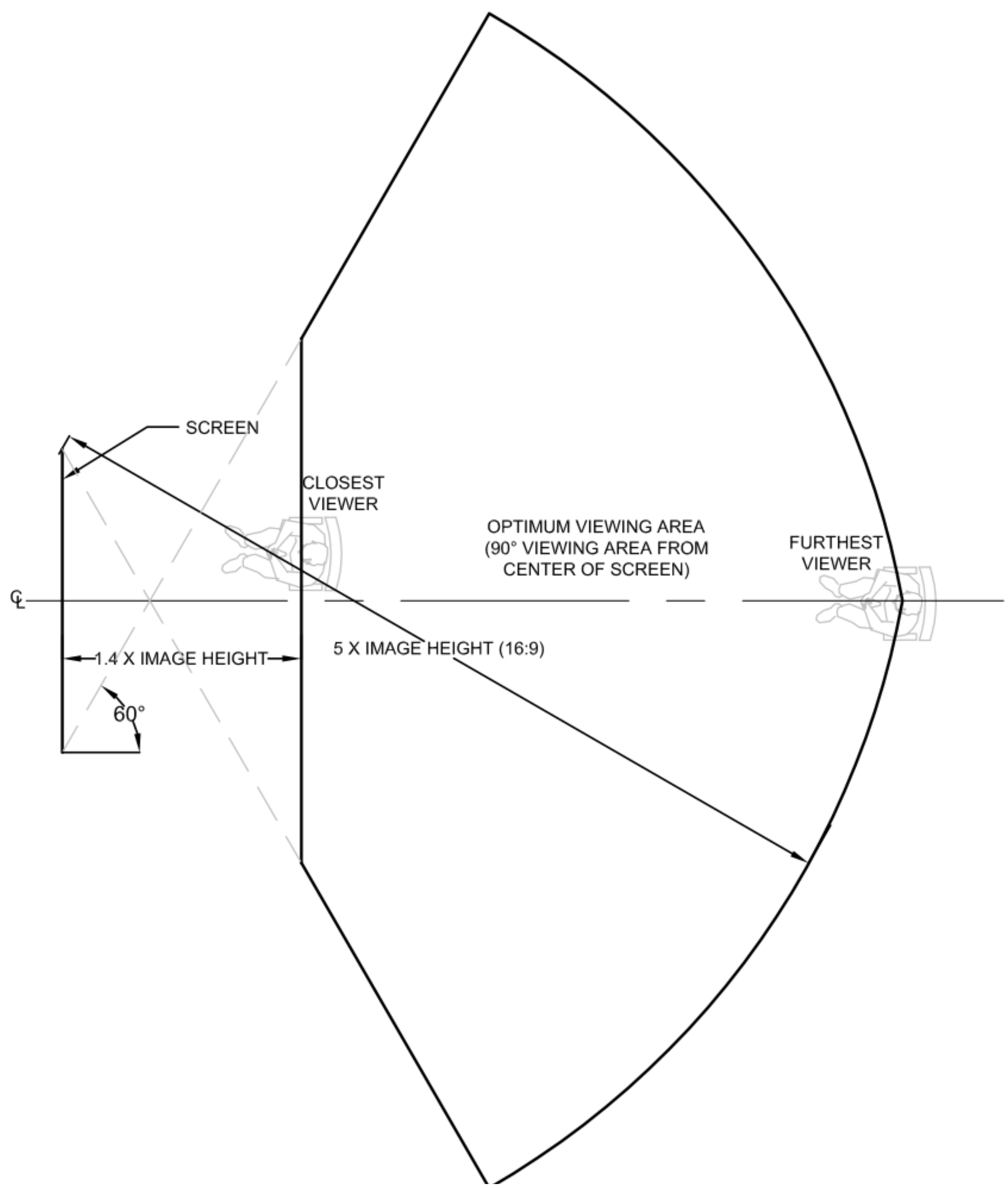
Flat-Panel Displays shall be fully backlit LCD Displays and shall also be sized using AVIXA's V202.01 standard and be a minimum of 400 nits in spaces without outside windows or with shades. LCD Displays in rooms with outside-facing windows and no shades shall be a non-reflective matte finish and be at least 700 nits to overcome ambient light conditions.

DIGITAL SIGNAGE

Digital signage displays can inform students, staff, faculty, and the public of events, provide wayfinding and other content. Displays can reside in to-be-determined locations throughout student and public circulation areas including the Lobby and Welcome Center. The digital signage software/hardware platform should conform to existing platforms already in use on the campus as content creation and maintenance is often an issue.

Each digital signage will require a small media player behind its display. The signage player will be connected to a network-based server/ management system for content management and deployment. Scheduling of display on/off and content shown will be managed through this centralized server. Displays will receiver commands either from

Table 12.1.AUDIOVISUAL SYSTEM



ASSISTIVE LISTENING SYSTEMS (ALS) WITH INDUCTION LOOP

Per ADA requirements, each space with audio systems shall be provided with an Assistive Listening System (ALS) for the hearing-impaired. For the New Center, assistive listening shall be made available via an induction loop system in each room that has audio amplification system.

Induction systems use electrical cables concealed within the building structure to induce audio-modulated radio frequency signals into a hearing aids outfitted with T-coils. Since many people with hearing impairments already wear hearing aids, they merely need to turn on their T-coils to receive a direct signal from the room's audio amplification system. People without hearing aids should be able to request and check-out neck-worn loop receivers with earphone attachments. Each room with an installed amplified sound system, should be outfitted with a quantity of receivers based on its occupancy as dictated by the ADA and/or local/regional/state codes.

Acceptable manufacturer: Amptronics

WIRELESS COLLABORATION

Wireless collaboration is a means of screen sharing using wireless technologies such as Wi-Fi (IEEE 802.11). This technology offers a means of connecting to displays without a cable. This Technology should be provided in all classrooms, study rooms and meeting/conference e rooms

Wireless collaboration can be deployed in classrooms, small (100 sf) student meeting spaces, open collaboration areas.

Besides screen sharing, wireless collaboration technology be extended for applications such as active learning and unified communications (Skype, Zoom). Other manufactures such as Mersive, Kramer and Wolfvision provide their own unique software feature sets allowing extended capabilities. This project could be good opportunity to explore these emerging technologies.

Wireless collaboration systems are most user friendly when using the same network that students use to access the Internet. Therefore, a Wi-Fi network should be planned to account for the additional bandwidth requirements for casting video.

ACTIVE LEARNING

Active learning is a pedagogical approach that often relies on audiovisual technology for its implementation. Although many colleges and universities do not have active learning curriculum, when it comes to planning for new academic buildings, it is recommended to provide infrastructure in at least one classroom to enable a pilot program.

An active learning classroom often has several small group tables distributed throughout the room, with each having its own flat-panel display to allow group collaboration. Often the classroom will have a main projection screen that is used by the instructor to bring the entire class's attention to the front of the room. Traditionally, expensive video matrix switchers have allowed the ability to screen share any student or instructor device (e.g. laptop) on any display.

Fortunately, emerging wireless collaboration technologies are leveraging existing campus networks, to provide flexible screen sharing at a fraction of the cost for both equipment and infrastructure (network based means no AV conduit needed). The emerging technologies should be considered where active learning capabilities are desired.

UNIFIED COMMUNICATIONS - VIDEO CONFERENCING, DISTANCE LEARNING AND LECTURE CAPTURE

The emergence and acceptance by higher education for software-based conferencing tools such as Microsoft Team and Zoom, have created cost-effective options for distance learning and lecture capture. In higher education, many of today's classrooms are outfitted with video conferencing cameras and beam-forming ceiling microphones that can be used in a Zoom-type session. As these "soft codecs" can simultaneously record while the transmit, they can be a highly cost-effective means of lecture capture.

For all learning spaces including labs and classrooms, there shall be two means for deploying software-based video conferencing/ distance learning systems:

- Installed computer with Zoom, Teams or other similar apps with HDMI and USB connections to AV system.
- Bring Your Own Device (BYOD): A means to connect laptops and mobile devices to the Room's audiovisual system peripherals (i.e. cameras, microphones, audio DSP, etc.) by means of both direct and wireless connections. At most, there shall be two connections required for video conferencing/ collaboration- a single HDMI cable for video from computer to display, and a single USB connection for audio and camera connection. A single, USB-C connection is preferred.

UNIFIED COMMUNICATIONS - VIDEO CONFERENCING, DISTANCE LEARNING AND LECTURE CAPTURE CONT'D

Distance learning equipment requirements for learning spaces include:

- Remote controllable pan/tilt/zoom 4K cameras focused on both instructor (at back of room) and classroom (at front of room).
- Ceiling Beam-Forming Microphones
- Audio Digital Signal Processor (DSP) with acoustic echo cancellation.
- Instructor Far End Video Monitor: Ceiling-mounted 65" LCD display at back of room adjacent to instructor pan/tilt/zoom 4K camera.

SPECIAL CONSIDERATION – TELEPRESENCE-BASED DISTANCE LEARNING

The latest conditions caused by the pandemic has caused the District to give greater consideration for distance learning. Furthermore, the distance between District sites puts a burden on students, staff and faculty as well the highway system and carbon usage. With consideration for balancing overall project needs and budget, the design team should have discussions to increase technologies in at least one room, to provide telepresence-based distance learning. This room would have multiple displays at both front and back of the room to bring the distant classroom to life size proportions at both ends, while readily sharing documents and screen views. Consideration should made for the following:

- Camera Lighting
- Sightlines and space proportion
- Acoustics
- Wired and wireless network connectivity
- AC Power
- Equipment and lighting heat loads
- Audiovisual display locations and sizing
- Camera and other AV device locations
- Audiovisual conduits and electrical back boxes
- Instructor millwork

Rutgers University - Telepresence Distance Learning Classroom

SPECIFIC AUDIOVISUAL DESCRIPTIONS BY SPACE TYPE

GENERAL CLASSROOM AUDIOVISUAL SYSTEMS

The Academic Building will have four general lecture classrooms.

Audiovisual systems in classrooms will be served from equipment residing in an instructor's station. The instructor's station will feature the following:

- Touch screen or push-button controller
- Table box with cable manager (HDMI, VGA, network, USB, mini stereo) and AC power duplex
- Document camera
- 22" LCD instructor confidence monitor
- Equipment rack featuring:
  - Presentation switcher
  - Control system (Crestron, Extron)
  - Instructor computer with Zoom or similar app
  - Wireless collaboration gateway
  - Wireless microphone receiver (optional
  - Loudspeaker amplifier
  - Power conditioner
  - Rack drawer

The Classroom display systems will comprise of:

- 98" flat panel 4K display is preferred over projections in classrooms. Size of the screen should be based on the furthest viewer being no more than six screen height dimensions away from the screen.

Other features of the classroom audiovisual system will include:

- Ceiling or wall-mounted loudspeakers for audio playback voice reinforcement
- Assistive listening per ADA requirements (induction loop required for each room)
- Lecture capture and distance learning cameras having the following
  - Pan/tilt/zoom
  - 20x optical zoom
  - 4K resolution
  - One camera for instructor, one for students
  - Acceptable Manufacturers: Vaddio, Panasonic
- Beam-forming ceiling microphones with Dante signal transport to provide pickup coverage of entire classroom (Quantity 2)
  - Acceptable Manufacturers: Shure, ClearOne, Sennheiser
  - Two channels of wireless microphones for instructor (lavalier and handheld)
  - Acceptable Manufacturers: Shure, Audio Technica

AUDIOVISUAL SYSTEMS CONT'D

SCIENCE LABS

Science labs will be outfitted similarly to classrooms however with ultra-short-throw projectors with "smart board" type collaboration capabilities. Audiovisual system design and planning will need to consider the space and usage requirements of lab equipment.

COMPUTER LABS

Computer labs will be outfitted similarly to classrooms; however, they should also include the ability have student computers project onto the projection main screen.

FLEXIBLE CLASSROOM / STUDIO

The Flexible Classroom / Studio should be outfitted similarly to classrooms. In addition, the room shall be setup with six 60" 4K active learning displays throughout the room affixed to walls. A network-based streaming system shall allow wireless connection and screen sharing of all displays including the projector, mobile devices and instructor computer to any display.

MULTI-USE COMMUNITY ROOM

- The Multi-use Community Room should have capabilities similar to the General Classrooms including distance learning and lecture capture, but with the following considerations:
- No instructor desks
- Storage space should be provided for an equipment rack
- Presenter lectern having the following:
  - Gooseneck microphone
  - Floor box for HDMI and power connections
- Wall-mounted (7") touch panel (Crestron or Extron) in each space
- Ceiling-mounted loudspeakers
- If a divisible space, the audiovisual system should be configural for room-combined and room-divided modes of operation
- High-lumen (>7000 Lumen) 4K video projector in each space (total quantity two) to project to ceiling-mounted motorized projection screens.
- Two 4K 80" displays to serve as presenter confidence monitor or collaboration

STUDENT COLLABORATIONS SPACES (GROUP STUDY HUDDLE ROOMS)

A single wall-mounted 55" 4K LCD display for group collaboration

- Wireless Collaboration device behind displayed
- Table to abut display wall to minimize need for floor boxes and conduit to display
- Cable cubby at table for wired HDMI connection and AC power.
- Control via wall-mounted button panel for display on/off, source selection overall volume control, etc.
- Displays can be set to default digital signage posting when not in use or put in sleep mode

OPEN COLLABORATION

The new Academic building should consider that learning can occur in not only in classrooms, but also anywhere in the building. As such the project should consider audiovisual collaboration technology in open areas. Assume four 55”-65” 4K displays with wireless input at various locations.

LOBBY, WELCOME CENTER, CAFÉ AND OTHER CIRCULATION

The Lobby, Welcome Center and other circulation spaces should each be outfitted with digital signage to list events, schedules, way-finding and other informational postings for student, faculty, staff and visitors. Assume up to four 55” 4K LCD display with campus-standard digital signage player.

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13

SUSTAINABILITY DESIGN CRITERIA

13

SUSTAINABILITY DESIGN CRITERIA

INTRODUCTION

The purpose of the sustainable design is to contribute to the achievement of sustainable development in building design, remodel, and new construction projects. Gavilan Joint Community College District (GJCCD) has recognized the need to deliver sustainable built environment in support of its overall academic vision and mission.

The built environment has the greatest potential for delivering cost-effective solutions that also reduce operational costs. GJCCD is committed to ensuring both existing and future facilities meet and maintain the highest level of energy and other resource efficiency.

Each project team responsible for reviewing and verifying applicable project-specific regulatory requirements with the Districts prior to and during design and construction.

OVERALL DESIGN APPROACH

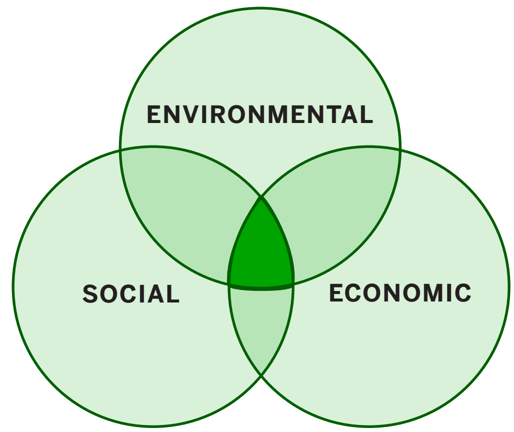
REFERENCE DOCUMENTS

As we look into the future and the threat of climate change, the building industry is challenged with bringing forth environmentally responsible deigns. Where practical, projects shall pursue overall sustainable strategies and practices inclusive but not limited to those indicated in the following standards:

1. LEED Rating System for Operations + Maintenance, latest version
2. AIA 2030 Challenge
3. Collaborative for High Performance Schools
4. WELL Building Standard
5. Living Building Challenge
6. Net Zero Energy Building

As we approach 2030, each project should take into consideration its effect on the ZNE community of Gavilan College as the District plans to meet these requirements.

THREE PILLARS OF SUSTAINABILITY



Balance economic, social, and environmental sustainability factors in equal harmony. All projects at GJCCD shall strive to address these fundamental needs and the requirement to do a systems-thinking throughout the entire design and construction process seeing it as a collection of interconnected systems.

ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability means that we are living within the means of our natural resources. To live in true environmental sustainability, we need to ensure that we are consuming our natural resources, such as materials, energy fuels, land, water, etc., at a sustainable rate. Some resources are more abundant than others and therefore we need to consider material scarcity, the damage to environment from extraction of these materials, and if the resource can be kept within circular economy principles.

ECONOMIC SUSTAINABILITY

Economic sustainability requires that a business or organization uses its resources efficiently and responsibly so that it can operate in a sustainable manner to consistently produce an operational profit. Without an operational profit a business cannot sustain its activities. Without acting responsibility and using its resources efficiently a company cannot sustain its activities in the long term.

SOCIAL SUSTAINABILITY

Social Sustainability is the ability of society, or any social system, to persistently achieve a good social well-being, including equity and diversity. Achieving social sustainability ensures that the social well being of an organization or a community can be maintained in the long term.

OVERALL DESIGN APPROACH

SUSTAINABLE DESIGN PRINCIPLES

The Design Build Entity (DBE) shall take into account the following principles when designing for new or renovation projects.

A. Minimize negative long-term effect of the built environment and its operations on the natural environment.

B. Promote social equity, environmental justice and sustainable communities.

C. Resource stewardship & conserve natural capital, e.g. water, fossil fuels, forests.

D. Reduce CO2 emissions.

E. Use recyclable & recycled materials.

F. Maximize use of renewable resources, e.g. solar energy, geothermal energy etc.,

G. Explore opportunities for facilities to be used as a teaching tool.

H. Maximize energy efficiency, water efficiency and utilization.

I. Measurement and verification i.e. ensure ongoing performance.

J. Enhance and restore biodiversity.

K. Enhance health and wellbeing of building occupants:

1. Improve interior air quality and
2. provide for daylighting when possible
3. Mitigate noise factors
4. Reduce negative influence of waste products

L. Facilitate use of alternate forms of transportation:

1. Public transportation
2. Bicycles
3. Carpooling
4. Non-fossil fuel vehicles

M. Integrative processes to ensure sustainable design delivery.

14

FOOD SERVICE DESIGN CRITERIA

14

FOOD SERVICE DESIGN CRITERIA

INTRODUCTION

This document outlines the Food Service Criteria for the San Benito County Campus Center Project (the Project).

These criteria will include two type of spaces:

- Grab and Go Cafe
- Staging Kitchen, as part of the Multi-use room

STANDARDS AND REFERENCES

The food service facility shall comply with all district and campus standards, as well as the following standards and references:

- County of San Benito Environmental Health
- California Retail Food Code
- Department of State Architect, DSA submittal and approvals (fire, structural, and accessibility)

PROGRAM

As part of the campus Welcome Center, a Café will be provided. The Café will provide coffee, grab n' go, and small bites but will not contain any onsite cooking. The back of house will support the Café by providing warewashing, storage, and preparation space. Adequate customer queuing is required at the front counter. See sample layout for additional information.

The Staging Kitchen will be located at the Multi-Purpose Community Room and provide a back of house landing and finishing space for outside catering companies and special events vendors. No open food preparation will be allowed in this space. All food will be provided by an outside vendor and all soiled ware will be taken out of the facility. Onsite warewashing is not provided at this space.

Both programs will require a health department operational permit as well as be submitted through the county health plan check program.

SYSTEMS AND MATERIALS

Mechanical, electrical, and plumbing infrastructure for the Café and Staging Kitchen shall be provided.

Everything above the ceiling and below the finished floor shall be part of this scope, including but not limited to heating, ventilation, air-conditioning comfort conditioning, and the following plumbing, electrical, and structural items:

- Water connections
    - Hot/ cold water
- Plumbing connections
    - Floor sink
    - Floor trough
    - Floor drains
    - Direct/ indirect waste
    - A grease interceptor may be required for the Cafe
- Power connections
    - 120v general convenience connections
    - 208v 1 & 3 phase power

All interior surfaces shall have County of San Benito Environmental Health approved finishes and conform to district and campus standards. The DBE shall confirm requirements.

RECOMMENDED FINISHES

FLOORING

- Floor surfaces shall be smooth and of durable construction and nonabsorbent material that is easily cleanable (impervious to water, grease and acid).
    - Quarry tile with 3/8" radius integral cove base minimum 4"H
    - Epoxy w/ 3/8" radius self coving base minimum 4"H

WALL

- Full height of walls shall be of a durable, smooth, non-absorbent, easily cleanable surface, and are recommended to be light in color.
    - Porcelain/ ceramic tile
    - Epoxy semi-gloss paint
    - FRP (fiberglass reinforced panel)

CEILING

- Ceilings shall be of a durable, smooth, non-absorbent, easily cleanable surface, and are recommended to be light in color.
    - Painted gyp semi-gloss
    - Washable/ scrubbable T-bar grid ceiling

EQUIPMENT

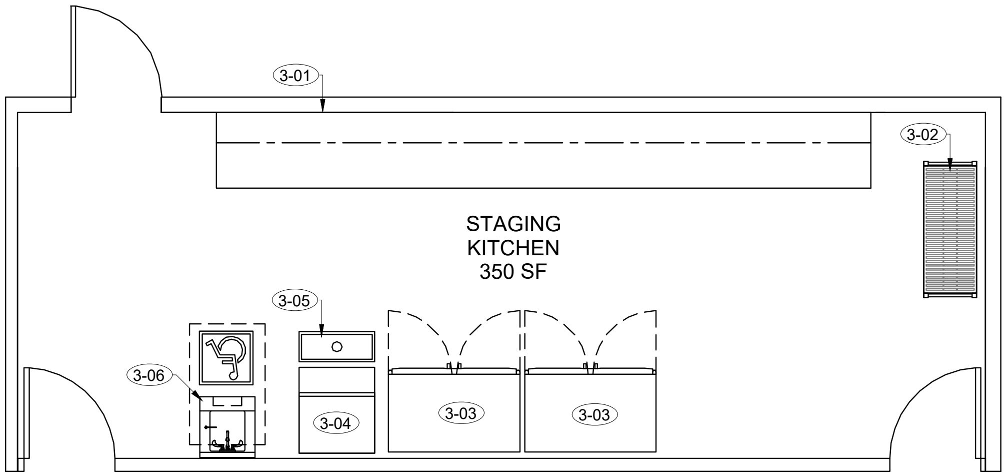
All foodservice equipment, whether custom or buy-out, shall adhere to district Foodservice Equipment Standards, be of heavy duty grade, and conform to the following agency or industry standards: ANSI/NSF, UL, AGA, SMACNA, FM, ASHRAE, ASTM, EPA Energy Star, and 2016 Appliance Efficiency Regulations CEC-400-2016-009-CMF (California Code of Regulations, Title 20).

- Staging Kitchen: See sample floor plan for equipment adjacencies and schedule
- Café: See sample floor plan for equipment adjacencies and schedule

SUSTAINABILITY

Sustainability is a critical factor for any foodservice facility. Since foodservice equipment will represent a substantial portion of the energy model, it is highly recommended that the Design Build team look at various ways to reduce energy use as it pertains to foodservice equipment and systems. As a reference, resources provided by the PG&E Foodservice Technology Center (http://www.fishnick.com) on energy use of equipment may be utilize. This resource will provide information on Energy Star rated equipment, gas and electric appliances, ventilation, water use, refrigeration, and lighting. All equipment, in available categories must be energy star rated.

STAGING KITCHEN LAYOUT



EQUIPMENT LIST

EQUIPMENT SCHEDULE		
ITEM #	QTY	DESCRIPTION
3-01	1	S/S WORK COUNTER W/ UPPER CABINET (LOCKABLE)
3-02	1	MOBILE STORAGE SHELF
3-03	2	REACH IN REFRIGERATOR
3-04	1	ICE MAKER (SELF-CONTAINED)
3-05	1	FLOOR TROUGH
3-06	1	WALL MOUNT HAND SINK W/ SOAP & TOWEL DISPENSER

CAFE LAYOUT

EQUIPMENT LIST

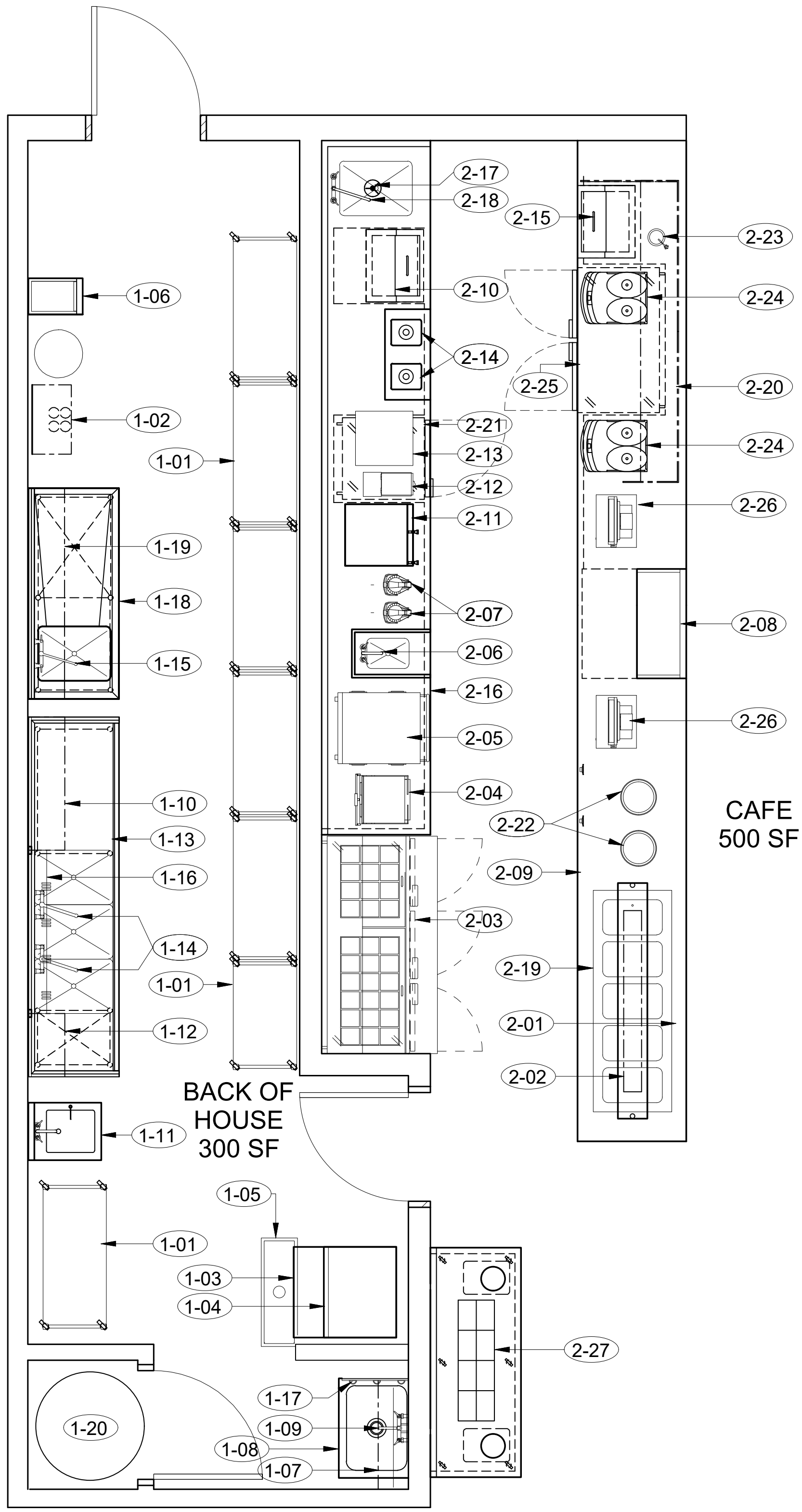
BOH EQUIPMENT SCHEDULE

ITEM #	QTY	DESCRIPTION
1-01	7	MOBILE DRY STORAGE SHELVING UNITS
1-02	1	R.O. WATER FILTRATION SYSTEM & 20 GAL TANK
1-03	1	ICE STORAGE BIN
1-04	1	ICE MAKER (SELF-CONTAINED)
1-05	1	FLOOR TROUGH
1-06	1	EMPLOYEE LOCKERS
1-07	1	WALL SHELF (CHEMICAL SHELF)
1-08	1	JANITOR'S MOP SINK (FLOOR MOUNTED)
1-09	1	JANITOR'S SINK FAUCET W/ VACUUM BREAKER
1-10	1	WALL SHELF (KNIFE BRACKETS)
1-11	1	WALL MOUNT HAND SINK W/ SOAP & TOWEL DISPENSER
1-12	1	WALL SHELF (KNIFE BRACKETS)
1-13	1	3 COMPARTMENT SINK
1-14	2	SPLASH MOUNTED HI-FLO UTENSIL SINK FAUCETS
1-15	1	SPLASH MOUNTED PREP SINK FAUCET
1-16	1	UTENSIL RACK
1-17	1	JANITOR'S MOP RACK
1-18	1	WORK TABLE W/ PREP SINK
1-19	1	WALL SHELF (KNIFE BRACKETS)
1-20	1	DEDICATED FOODSERVICE WATER HEATER

CAFE EQUIPMENT SCHEDULE

ITEM #	QTY	DESCRIPTION
2-01	1	VERTICAL SNEEZEGUARD
2-02	1	HEAT LAMP
2-03	1	MOBILE FOOD PREP TABLE (SELF-CONTAINED)
2-04	1	PANINI GRILL
2-05	1	RAPID COOK OVEN
2-06	1	HAND SINK FAUCET, 4" CTR, DECK MOUNT
2-07	2	COFFEE AIRPOT
2-08	1	REFRIGERATED OPEN MERCHANDISER (SELF-CONTAINED)
2-09	1	SERVICE COUNTER
2-10	1	INSULATED ICE STORAGE BIN
2-11	1	COFFEE MAKER (AIRPOTS)
2-12	1	COFFEE GRINDER
2-13	1	HOT WATER DISPENSER
2-14	2	BLENDER
2-15	1	INSULATED ICE STORAGE BIN
2-16	1	WORK COUNTER W/ HAND SINK AND RINSE SINK
2-17	1	BLENDER CONTAINER RINSER
2-18	1	DECK MOUNTED PREP. FAUCET
2-19	1	DROP-IN HEATED WELLS
2-20	1	VERTICAL SNEEZEGUARD W/ PASSOVER
2-21	1	UNDERCOUNTER FREEZER (SELF-CONTAINED) (1 DOOR)
2-22	2	DROP-IN SOUP WELL
2-23	1	DIPPER WELL W/ FAUCET
2-24	2	ESPRESSO CAPPUCCINO MACHINE
2-25	1	UNDERCOUNTER REFRIGERATOR (SELF-CONTAINED) (2 DOOR)
2-26	2	CASH REGISTER
2-27	1	MOBILE CONDIMENT COUNTER

CAFE LAYOUT



BACK OF HOUSE 300 SF
CAFE 500 SF
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2-27

SERVICE ACCESS

Exterior door service access shall be provided for loading/ unloading at the Café.

APPENDICES

A

APPENDIX

The following pages in Appendix A record the survey results from the participants of the San Benito County Campus (SBCC) Task Force.
The results of this survey were recorded in May 2020. The results found in the survey identify key principles that were taken into consideration throughout the entirety of the project.

Please refer to *Chapter 1*: Project Goals, Scope and Description for further details.

WHAT FUNCTIONAL REQUIREMENT(S) ARE MOST IMPORTANT?

To provide a high quality of education to students by offering courses in which a student can complete a **certificate of degree.** This also includes having the variety of **student services** that will support their educational journey.

Easy and **safe access** to the campus is very important along with **sufficient parking**.

Classroom space is a given. Aside from that, there should be (this is from my students' feedback) **safe parking** and a pleasant **café** with delicious food and indoor/outdoor seating. Then comes **space for students** to study, get tutoring, use computers. A place to have fitness **PE** is great. I am also, along with many community members, hoping for a joint welcome center with **representation from Pinnacles**.

Infrastructure, infrastructure, infrastructure. Build this **right the first time** and we will not be continually repairing it.

WHAT CONDITION(S) ARE IMPORTANT TO YOUR COMFORT?

Comfortable seating and updated **technology** to provide a proper learning environment.

Easy access, **safe** environment, aesthetically **pleasing**

It would be nice to have an **office** that isn't shared by 10+ teachers. I prefer **natural lighting** in my classrooms. And **bulletproof windows** and two exit doors would be nice.

Mechanical system HVAC. The contractor needs to properly balance the air systems. I have experienced many issues where this has not been done. The mechanical contractor needs to work directly with the BMS controls low voltage contractor.

FFE that is sturdy enough to take abuse but comfortable enough to put the students to sleep.

WHAT ENVIRONMENTAL AND SUSTAINABILITY PARAMETERS ARE IMPORTANT FOR THIS FACILITY?

Parameters that reflect the San Benito community. Making connections with the **Pinnacles National Park** is a good example.

We should have an eco friendly parking lot with a walking trail and Pinnacles signage. Solar heating and green building materials as well as self-cooling by design. You know more about this than I do, but it would be nice to **do more** than the minimum.

Proper drainage. No chance for standing water either in the parking/ roadway areas or on the building rooftops. If bioswales exist, then they need to be maintainable

Drought resistant, low maintenance plantings.

Proper **door hardware** since no other part of a building takes more abuse (other than a mechanical system) than a door.

WHAT IS YOUR BIGGEST ASPIRATION FOR THIS FACILITY?

That students residing in the areas of **our district** will find it appealing to come get their education at this facility.

Offering relevant curriculum to our community and providing it in a **welcoming campus**.

That it is gorgeous and **attracts** many students and becomes a fixture in the community for arts, exercise, and Pinnacles.

A well-built, structurally sound, yet **easily maintained** facility.

WHAT CHARACTERISTICS ASSIST WITH ENSURING A "SAFE" CAMPUS?

An open and welcoming campus with **visibility** of the outdoors and proper security staff patrolling the campus.

Safe traffic flow and security.

Each room needs multiple exits. All doors should lock with the click of one button. We need a **PA** system as well, like West Valley. A sheriff would be nice as well.

No trees that drop Galls or Spiny balls causing **trip hazards.**

Coverings on glass to hide from any potential active shooters, yet do not generate radiant heat into the room.

Room to **room communication** equipment or a PA system. or incorporated into the fire alarm system.

Door locks with dual locking (Columbine Locks).

HAVE THERE BEEN RECENT PROJECT ISSUES TO BE AVOIDED?

Money management always seems to be an issue. When we run out of money, who votes on the compromise plan?

Using **multi-prime** contractors to perform the work

WHAT MAINTENANCE & OPERATIONAL ELEMENTS WOULD MAKE THE SAN BENITO COUNTY CAMPUS SUCCESSFUL?

Having **sufficient funds** and personnel to maintain a safe and clean campus.

Great **landscaping** with grey water, built-in greenwaste, recycling, and trash containers, appropriate lighting, speedy wi-fi.

Good quality systems for which parts are readily available for all **equipment**

HOW WOULD YOU DETERMINE THE SUCCESS OF THIS PROJECT?

Success of this project will be based on when we open the doors and **students** begin to register for courses offered at this facility.

Maintain constant input from the individuals involved in the **community** and following through with suggestions made.

When the facility opens we will have **few problems** with poor work from the contractors.

IS THERE AN EXISTING ROOM/BUILDING YOU THINK SHOULD BE EXEMPLIFIED IN THE NEW SAN BENITO COUNTY CENTER?

The **student services** offices and support services i.e. tutoring, counseling should be exemplified. These services are the "gate" of entry for students to pursue their education.

Existing where? I think the joint **Welcome Center** could put the COMMUNITY back into community college.

Main entrances in the **welcome area**.

DESCRIBE YOUR DESIRED TEACHING ENVIRONMENT

The teaching environment would be making students feel welcomed by having **open office hours** and supporting all student in their learning environment.

A **clean classroom** with sufficient seats and an overhead screen that connects to a laptop. A whiteboard and AC.

Natural light, **views** of nature outside, **desks that move** easily into pods or rows, office hours that can be held at picnic tables outdoors

Good **durable seats** and **equipment** that will withstand the test of time but be comfortable enough to sit on for 3 hours.

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B

APPENDIX

This page records all of the Chapter 2 Room Data FF&E Keynotes in order of appearance.

1 WRITABLE SURFACE
2 MOBILE INSTRUCTOR MULTIMEDIA PODIUM
3 FLAT-PANEL DIiSPLAY W/QUADRUPLEX CONNECTION
4 ACCESSIBLE STATION
5 INSTRUCTORS STATION
6 SMART BOARD
7 VERTICAL SLIDING PANEL
8 TALL CABINET
9 BOOK-BAG CUBBIES
10 18" DEEP UPPER CASEWORK
11 ADA COMPLIANT SINK W/DI WATER
12 FIRE BLANKET WALL CABINET
13 MOBILE TABLE W/OPEN SHELF CABINETS FOR MICROSCOPES
14 4' BIO SAFETY CABINET
15 CART SPACE
16 WALL MOUNTED BULLETIN BOARD/PERIODIC TABLE
17 SAFETY SHOWER/EYE WASH STATION
18 RECESSED FIRE EXTINGUISHER CABINET
19 FIXED TABLE W/1 DUPLEX, 1 GAS, 1 VACUUM PER STUDENT 1 EACH INSTRUCTOR
20 5' CHEMICAL FUME HOOD
21 4' CHEMICAL FUME HOOD
22 U.C. DISHWASHER
23 U.C. ICE MACHINE
24 INCUBATOR(S)
25 BIOLOGICAL WASTE DRUM
26 FLAMMABLES TALL CABINETS
27 CHEMICAL WASTE DRUM
28 DESKTOP AUTOCLAVE
29 SIX FEET BIO-SAFETY CABINET
30 TECH WORKSTATION
31 CORROSIVES TALL CABINET
32 MOBILE CARTS
33 REFRIGERATOR
34 FREEZER
35 MOBILE TABLE W/ INTEGRATED WHITEBOARDS
36 STUDENT GOVERNANCE STATION
37 MOBILE WHITE BOARD PARTITION
38 RESERVE STORAGE CABINET
39 GO-PRINT STATION
40 LAPTOP CART
41 INFORMATION KIOSK
42 4-PERSON BOOTH
43 2-PERSON BOOTH
44 PERIODICAL DISPLAY
45 FOLDING GLASS WALL PANEL
46 LOCKERS
47 GALLERY DISPLAY CASE
48 30x66" - SIT TO STAND DESK (NO DESK RETURN)
49 30X66" - SIT TO STAND DESK
50 30X72" - SIT TO STAND DESK
51 MOBILE PEDESTAL (PENCIL DRAWER + 1 FILE DRAWER)
52 42" WIDE BOOKSHELF
53 42" WIDE LATERAL FILE CABINET
54 WALL MOUNTED OVERHEAD STORAGE UNIT
55 GALLERY DISPLAY TALL CASE
56 WALL HUNG ARTIFACTS
57 TRASH/RECYCLE CENTER

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C

APPENDIX

Appendix C records all of Figures and Tables in order of appearance in the San Benito County Campus Criteria Document.

For further details on the figures and tables please refer to the chapter and page called out per item.

FIGURES AND TABLES

FIGURE 1.1

Figure 1.1. Source: Steinberg Hart. Limit of Work. Chapter 1. Pg. 1.7

The Project scope includes the construction of a new building providing general assignment classrooms, science laboratories, and student support spaces.

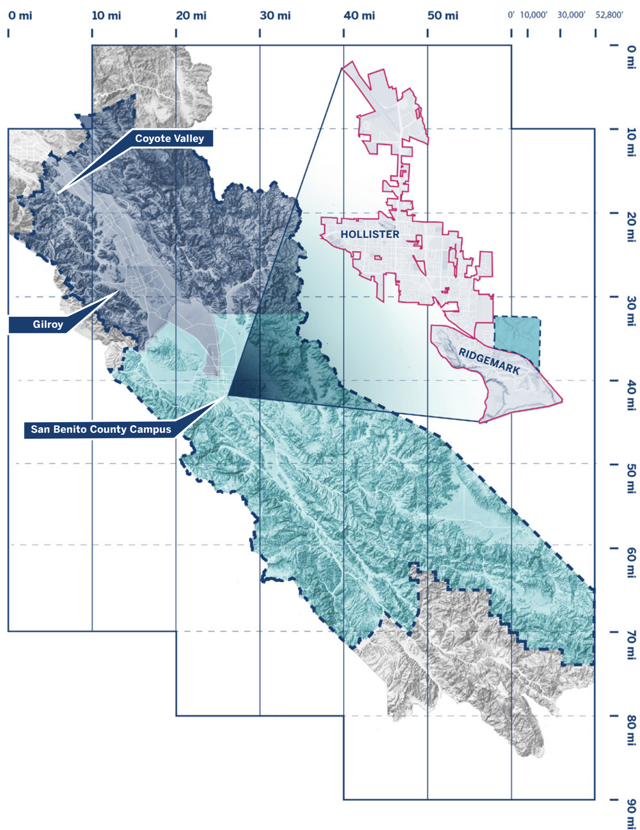


FIGURE 1.2

Figure 1.2. Source: Steinberg Hart. GJCCD District Boundaries. Chapter 1. Pg 1.9.

The SBCC is located in San Benito County, California. The Campus is part of the Gavilan Joint Community College District (GJCCD), which is comprised of 2,700 square miles encompassing southern Santa Clara and most of San Benito County

FIGURE 1.3

Figure 1.3. Source: Steinberg Hart. Campus Context. Chapter 1. Pg. 1.10

The illustration above shows the non-buildable area on Campus, to the south of the College property. The fault line is highlighted in red above. Areas within 50 feet of the active fault line are considered non-buildable.

FIGURES AND TABLES

FIGURE 1.4

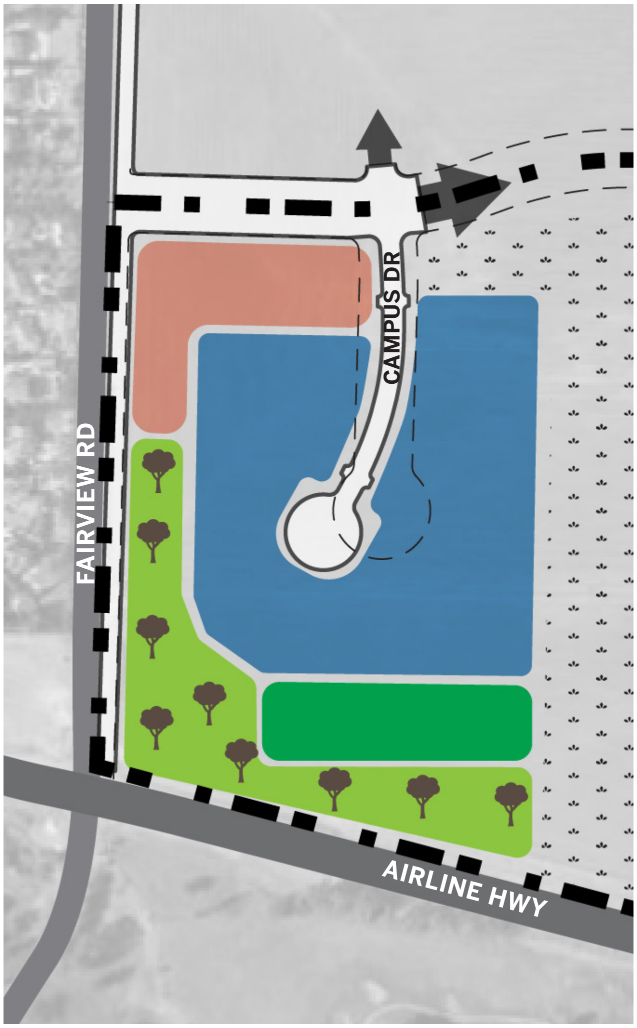


Figure 1.4. Source: Steinberg Hart. Zoning Locations for SBCC. Chapter 1. Pg 1.11.

Campus Proposed locations.

TABLE 1.6

CODE TYPE	CODE TITLE
Building	California Building Code (CBC) 2019 Edition
Mechanical	California Mechanical Code (CMC) 2019 Edition
Plumbing	California Plumbing Code (CPC) 2019 Edition
Electrical	California Electrical Code (CEC) 2019 Edition
Energy	California Energy Code
Gas	California Mechanical & Plumbing Codes, 2019 Edition
Fire and Life Safety	California Fire Code (CFC) 2019 Edition / National Fire Alarm and Signaling Code (NFPA 72), as amended by the CBC, 2016 edition / Standard on the Installation of Sprinkler Systems (NFPA 13), as amended by the CBC, 2016 edition / Standard for the Installation of Standpipe and Hose Systems (NFPA 14), as amended by the CBC, 2016 edition / National Fire Alarm and Signaling Code (NFPA 72), as amended by the CBC, 2016 edition / Standard for Emergency and Standby Power Systems (NFPA 110) as amended by the CBC, 2016 Edition.
Accessibility	California Building Code / Americans with Disabilities Act (ADA)
Ventilation/ Indoor Air Quality	California Energy Code
Sustainability	California Green Building Code
Elevator	Elevator Safety Orders
Food	California Retail Food Code

Table 1.6. Source: AHJ + Steinberg Hart. Building Codes. Chapter 1. Pg 1.13.

TABLE 2.1

GENERAL CLASSROOM	**4,000**
SCIENCE LABORATORIES	**5,000**
MULTI-USE SPACE	**5,000**
LEARNING RESOURCES	**5,500**
OFFICE	**1,730**
LOBBY+WELCOME CENTER	**1,950**
	ASF **23,180**
TOTAL	GSF **35,662** (includes 65% efficiency)

Table 2.1. Source: Steinberg Hart. Space Needs Summary. Chapter 2. Pg 2.2.

The following table outlines each Program component and its proposed square footage.

FIGURES AND TABLES

TABLE 2.2

Room Type	Room ASF	Minimum # of Seats
GENERAL CLASSROOM	**4,000**	
General Lecture	1,000	48
General Lecture	1,000	48
General Lecture	1,000	48
General Lecture	1,000	48
SCIENCE LABORATORIES	**5,000**	
Science Lab (wet)	1,280	28
Science Lab (wet)	1,280	28
Science Lab (wet)	1,280	28
Science Prep Lab	1,216	
MULTI-USE SPACE	**5,000**	
Flexible Classroom	1,400	47
Multi-Use / Community Room	2,500	83
Storage + AV closet	200	
Students of San Benito Office/Activities	900	30
LIBRARY & LEARNING RESOURCES	**5,500**	
Library and Learning Resources	2,500	83
Student Collaboration Spaces/Mtg	600	20
General Use Computer Lab	1,200	40
General Use Computer Lab	1,200	40
ADMIN, SERVICES, FACULTY	**1,730**	
Administrative Office	380	
Administrative Open Office(s)	600	
Faculty Offices	750	
LOBBY, WELCOME CENTER, OTHER	**1,950**	
Lobby/Welcome Center	250	
Open Collaboration Area	750	
Café / Seating	750	
SBC Museum	200	
SUBTOTAL ASF	**23,180**	
Desired Efficiency	65%	
TOTAL GSF	**35,662**	

Table 2.2. Source: Steinberg Hart. Space Program Matrix. Chapter 2. Pg 2.5.

FIGURE 2.3

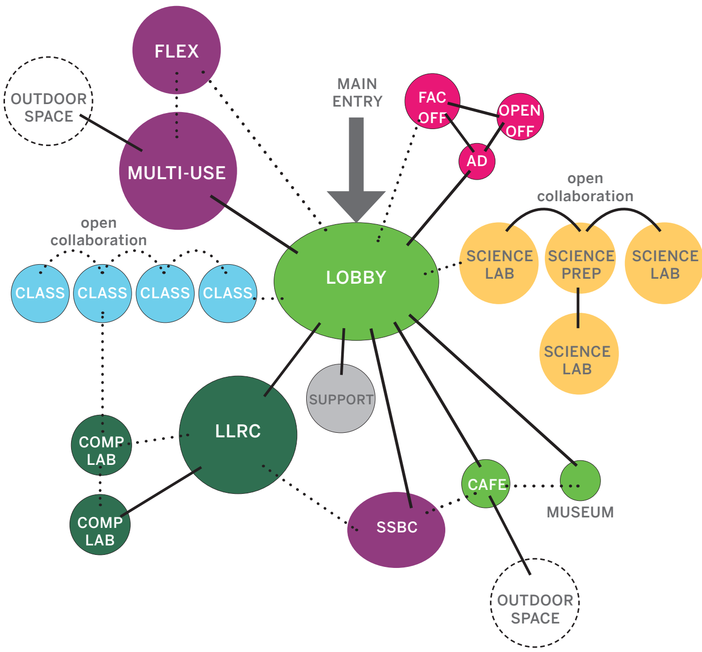


Figure 2.3. Source: Steinberg Hart. Conceptual Adjacency. Chapter 2. Pg 2.7.

Adjacency Diagrams describe space/room groupings and their spatial relationships. Support spaces (such as restrooms) and program pieces with no critical adjacencies are not illustrated.

The adjacencies were organized following three categories:

- Required Adjacency
- Preferred Adjacency
- No Adjacency

FIGURE 3.1

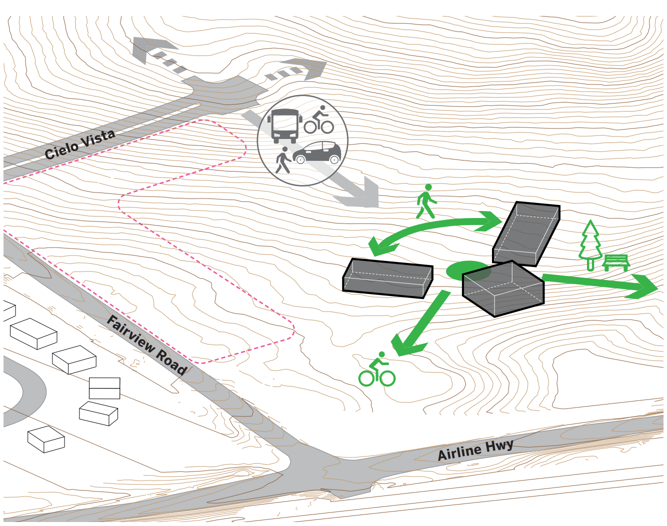


Figure 3.1. Source: Steinberg Hart. Conceptual Building Location. Chapter 3. Pg. 3.2

The geometry of this study is angled and has the entry plaza as hinge point. The plaza, is located at the northern portion of the site and is nestled between the building masses. The new Center will be well visible to students and the community approaching the campus.

FIGURES AND TABLES

FIGURE 3.2

Figure 3.2 Source: Steinberg Hart. Conceptual Site Plan. Chapter 3. Pg 3.3.

Based on the approved program, conceptual massing were developed to identify advantages and disadvantages of various strategies.

FIGURE 3.3

Figure 3.3 Source: Steinberg Hart. Building Test Fit Sudy 01. Chapter 3. Pg 3.4.

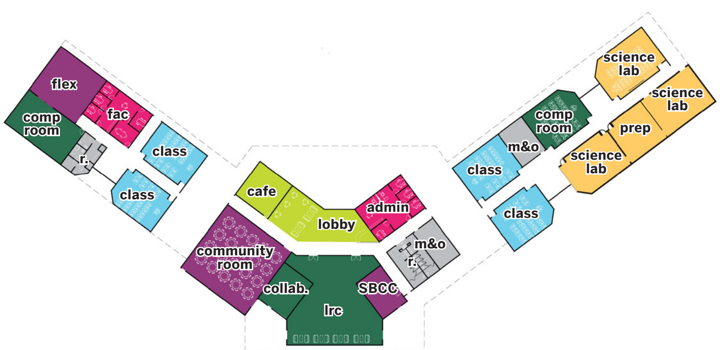


FIGURE 3.4

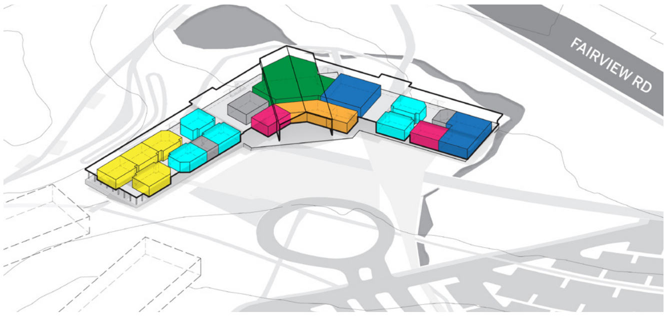


Figure 3.4. Source: Steinberg Hart. Building Test Fits Study 01. Chapter 3. Pg 3.5.

View From North.

FIGURE 3.5

Figure 3.5. Source: Steinberg Hart. Building Test Fits Study 01. Chapter 3. Pg 3.5.

Birdseye perspective from South.

FIGURE 3.6

Figure 3.6. Source: Steinberg Hart. Building Test Fits Study 01. Chapter 3. Pg 3.7.

View from Northeast.

FIGURES AND TABLES

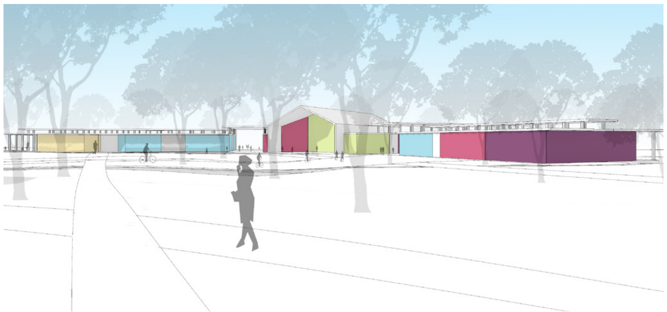


FIGURE 3.7

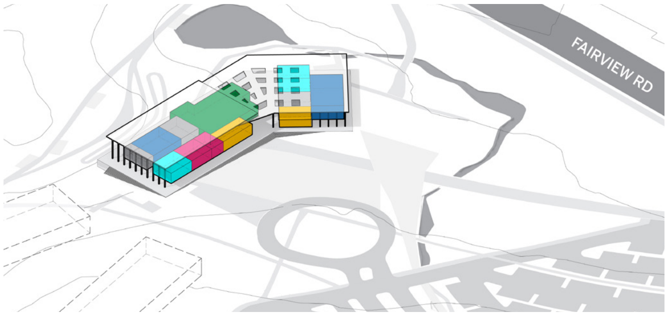
Figure 3.7 Source: Steinberg Hart. Building Study Test Fit 01. Chapter 3. Pg 3.7.

View from Northwest.

FIGURE 3.8

Figure 3.8. Source: Steinberg Hart. BuildingTest Fits Study 02. Chapter 3. Pg 3.8.

Study 02 investigates a two-story massing with a smaller footprint.



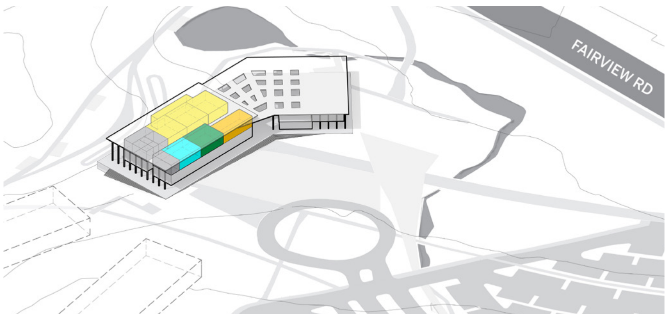


FIGURE 3.9

Figure 3.9. Source: Steinberg Hart. Building Test Fits Study 02 - Views Chapter 3.Pg 3.9.

View from North 1st Floor and View from North 2nd Floor.

FIGURES AND TABLES

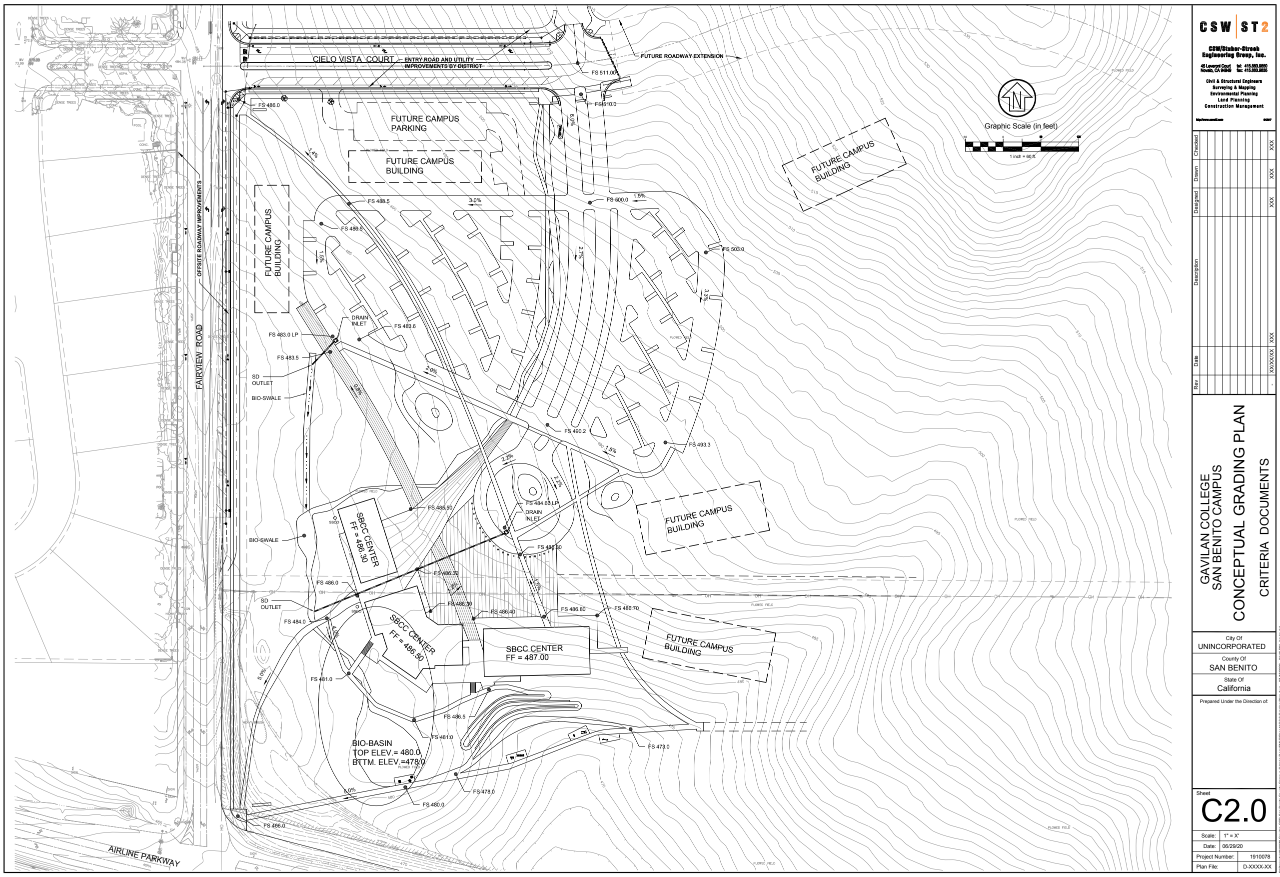


FIGURE 4.1

Figure 4.1. Source: CSW/ Stuber-Stroeh Engineering Group. Conceptual Grading. Chapter 4. Pg 4.6.

The finished grading should be designed to balance the cuts and fills on-site.

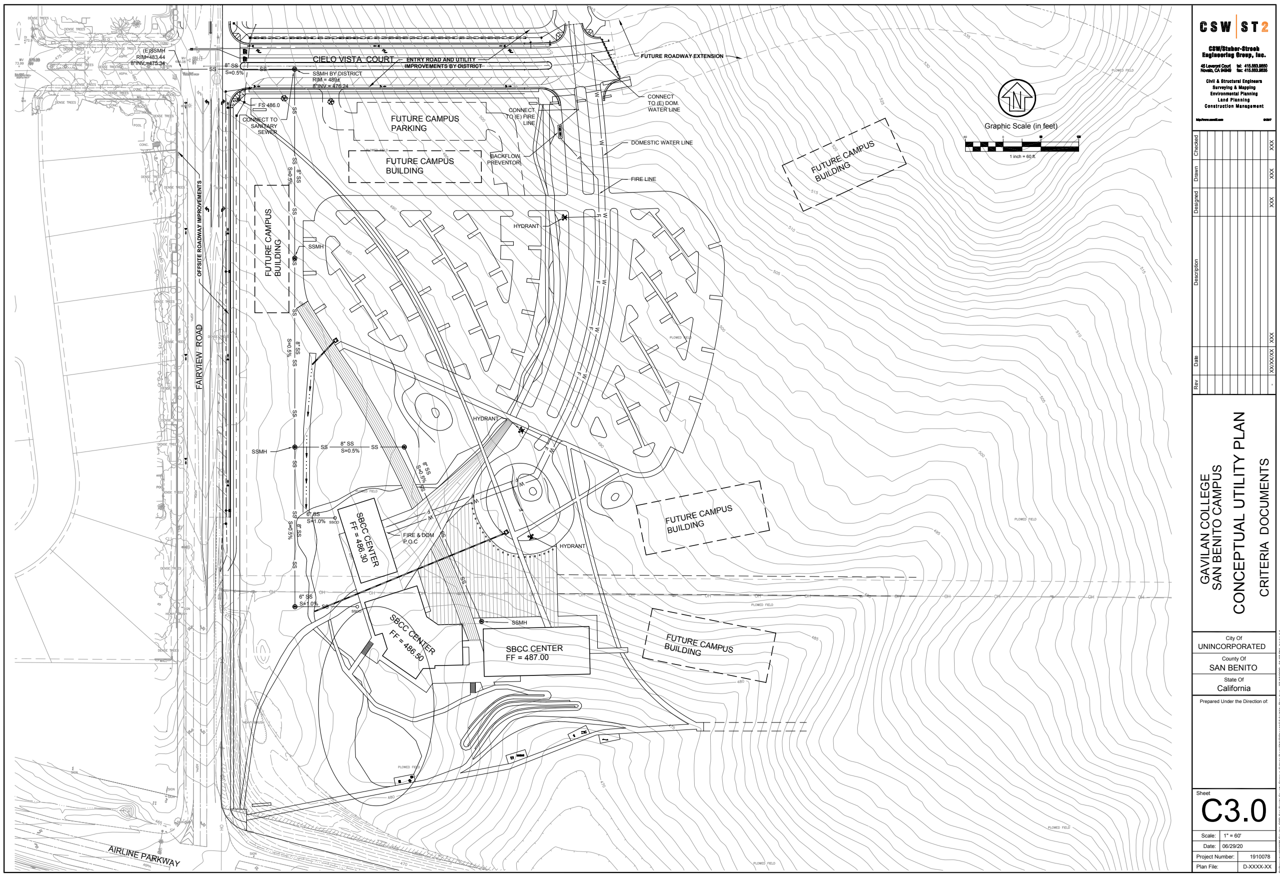


FIGURE 4.2

Figure 4.2. Source: CSW/ Stuber-Stroeh Engineering Group. Utility Plan Chapter 4. Pg 4.7

FIGURES AND TABLES

FIGURE 5.1

Figure 5.1. Source: Spurlock Landscape. Landscape Master Plan. Chapter 5. Pg 5.6.

FIGURE 5.2

Figure 5.2. Source: Spurlock Landscape. Pedestrian Circulation System. Chapter 5. Pg 5.12.

Pedestrian circulation systems shall be designed to ensure a well-connected campus.

Figure 5.3. Source: Spurlock Landscape. Bike Circulation. Chapter 5. Pg 5.13.

FIGURE 5.4

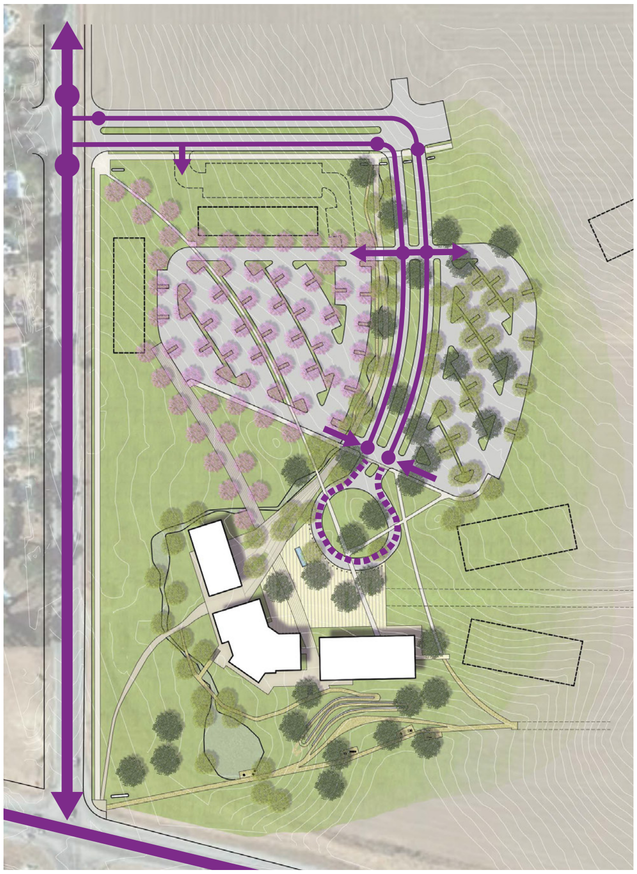


Figure 5.4. Source: Spurlock Landscape. Vehicular Circulation. Chapter 5. Pg 5.14.

FIGURE 5.5

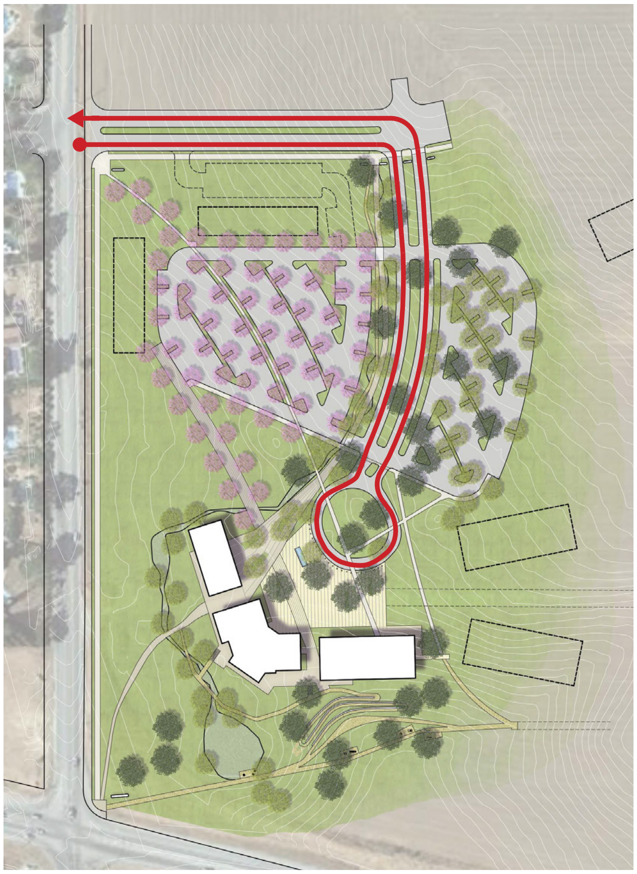


Figure 5.5. Source: Spurlock Landscape. Service and Fire Access. Chapter 5. Pg 5.15.

FIGURES AND TABLES

FIGURE 5.6

Figure 5.6. Source: Spurlock Landscape. Fencing and Rails. Chapter 5. Pg 5.21.

FIGURE 5.7

Figure 5.7. Source: Spurlock Landscape. Planting Palette Zones. Chapter 5. Pg 5.25.

Five distinct planting palette zones are identified.

TABLE 5.8

Table 5.8. Source: Spurlock Landscape. Orchard. Chapter 5. Pg 5.27.

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Canopy Trees					
Prunus persica	Flowering Peach	36"box, 48" box	25' x 25'	Deciduous; Fruit - Spring	L
Malus 'Profusion'	Profusion Crabapple	36"box, 48" box	25' x 30'	Deciduous; Fragrant; Fruit; Pink Flower - Spring	M
Amelanchier laevis 'Allegheny'	Allegheny Serviceberry	36"box, 48" box	35'x35'	Deciduous; Fragrant; Fruit; White Flower - Spring/Summer	M
Cercis canadensis	Eastern redbud	36"box, 48" box	20' x 25'	Deciduous; Rose Pink Flower - Spring	M
Pistacia chinensis	Chinese Pistache	36"box, 48" box	30' x 30'	Deciduous; Fruit - Spring	L
Understory					
Carex sp.	Sedges	1gal	2'x2'	Grass	M, L
Carrissa 'Green Carpet'	Green Carpet Natal Plum	5 gal		Groundcover shrub	L
Callistemon 'Little John'	Dwarf Callistemon	5 gal	4'x6'	Shrub; Red Flower - Year-round	L
Dianella tasmanica	Tasman Flax Lily	1gal	1-2' Tall	Grass; Blue Flower - Spring	M
Dianella caerulea Cassa Blue	Blue Flax Lily	1gal	2-3' Tall	Grass; Dark Blue Flower - Spring	M
Festuca mairei	Atlas Fescue	1gal	3' x 3'	Grass	L
Muhlenbergia lindheimeri	Lindheimer's Muhly	5 gal	5' x 4'	Grass	L
Rosmarinus officinalis 'Tuscan Blue'	Upright Rosemary	15 gal	6' x 4'	Shrub; Blue Flower - Spring/Summer	L
Rhaphiolepis umbellata 'Minor'	Dwarf Yeddo Hawthorn	15 gal	6' x 3'	Shrub; White Flower - Spring	L
Salvia gregii	Magenta Red Texas Sage	5 gal	4' x 3'	Shrub; Magenta Flower - Spring/Fall	L
Westringia fruticose 'Morning Light'	Coast Rosemary	15 gal	4' x 4'	Shrub; White Flower - Year-round	L

TABLE 5.9

Table 5.9. Source: Spurlock Landscape. Grove. Chapter 5. Pg 5.29.

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Large Specimen Trees					
Quercus agrifolia	Coast Live Oak	48"box, 60"box	50' x 70'	Evergreen	VL
Quercus lobata	Valley Oak	48"box, 60"box	60' x 40'	Deciduous	L
Juglans nigra	Eastern Black Walnut	48"box, 60"box	70' x 60'	Deciduous	M
Aesculus x carnea	Red Horse Chestnut	48"box, 60"box	40' x 40'	Deciduous; Red Flower - Spring	M
Medium Canopy Trees					
Cinnamomum camphora	Camphor Tree	48" box	60' x 60'	Evergreen	M
Tipuana tipu	Tipu Tree	48" box	30' x 50'	Deciduou; Yellow flower - Summer	M
Ulmus parviflora ' Drake'	Chinese Elm	48" box	50'x 60'	Evergreen	L
Schinus molle	California Pepper	48" box	40' x 35'	Evergreen	VL
Arbutus 'Marina'	Strawberry Tree	48" box	35' x 35'	Evergreen, Pink Flower - Summer	L
Geijera parviflora	Australian Willow	48" box	35' x 25'	Evergreen	M
Understory					
Agave americana	Century Plant	15 gal	5' x 10	Succulent	VL
Carissa grandiflora 'Green Carpet'	Green Carpet Natal Plum	5 gal		Shrub	L
Dianella tasmanica	Tasman Flax Lily	5 gal	1-2' Tall	Grass; Blue Flower - Spring	M
Dianella caerulea Cassa Blue	Blue Flax Lily	5 gal	2-3' Tall	Grass; Dark Blue Flower - Spring	M
Dietes bicolor	Yellow Wild Iris	5 gal	3' x 3'	Grass; Yellow Flower - Spring/Fall	L
Pittosporum crassifloium 'Nana'	Compact Pittosporum	15 gal	3' x 3'	Shrub;	M
Rhaphiolepis umbellata 'Minor'	Dwarf Yeddo Hawthorn	15 gal	6' x 3'	Shrub;	L
Rosmarinus officinalis 'Tuscan Blue'	Upright Rosemary	15 gal	6' x 4'	Shrub; Blue Flower - Spring/Summer	L
Scaevola albida 'Mauve Clusters'	Fairy Fan Flower	5 gal	1' x 4'	Groundcover; Lavender Blue Flower - Spring Summer	L
Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal	2' x 4'	Perennial; Purple Flower - Spring/Summer	L
Salvia leucantha 'Santa Barbara'	Santa Barbara Sage	5 gal	3' x 4'	Shrub; Violet Flower	L
Salvia clevelandii 'Winnifred Gilman'	Blue Sage	5 gal	5'x5'	Shrub; Violet Flower - Spring/Summer	L

FIGURES AND TABLE

TABLE 5.10

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Large Specimen Trees					
Quercus agrifolia	Coast Live Oak	48"box, 60"box	50' x 70'	Evergreen	VL
Quercus kelloggii	Black Oak	48"box, 60"box	60' x 40'	Deciduous	L
Quercus lobata	Valley Oak	48"box, 60"box	60' x 40'	Deciduous	L
Juglans nigra	Eastern Black Walnut	48"box, 60"box	70' x 60'	Deciduous	M
Aesculus x carnea	Red Horse Chestnut	48"box, 60"box	40' x 40'	Deciduous; Red Flower - Spring	M
Medium Canopy Trees					
Tipuana tipu	Tipu Tree	48" box	30' x 50'	Deciduou; Yellow flower - Summer	M
Ulmus parviflora ' Drake'	Chinese Elm	48" box	50'x 60'	Evergreen	L
Schinus molle	California Pepper	48" box	40' x 35'	Evergreen	VL
Arbutus 'Marina'	Strawberry Tree	48" box	35' x 35'	Evergreen, Pink Flower - Summer	L
Geijera parviflora	Australian Willow	48" box	35' x 25'	Evergreen	M
Cercis occidentalis	Western Redbud	48" box	20' x 25'	Deciduous; Purple Flower - Spring	VL
Myrica californica	Pacific Wax Myrtle	15 gal	25' x 20'	Evergreen Shrub	M
Understory					
Agave attenuate	Fox Tail Agave	15 gal	5' x 8'	Succulent	L
Aloe striata	Coral Aloe	5 gal	3' x 2'	Succulent	L
Baccharis pilularis 'Pigeon Point'	Dwarf Coyote Brush	5 gal	7' x 12'	Shrub; Yellow Flower	L
Ceanothus sp.	California Lilac	5 gal	8'x8'	Shrub; Blue or Purple Flower	M, L ,VL
Carex sp.	Sedges	1 gal	2'x2'	Grass	M, L
Festuca mairei	Atlas Fescue	1 gal	3' x 3'	Grass	L
Gaura lindheimeri	Gaura	5 gal	4' x 2'	Perennial; White Flower	M
Lavatera maritima	Tree Mallow	15 gal	8' x 12'	Shrub; Lavender Flower	L
Muhlenbergia lindheimeri	Lindheimer's Muhly	5 gal	5' x 4'	Grass	L
Rhamnus californica 'Eve Case'	Coffeeberry	15 gal	8' x 8'	Evergreen Shrub	L
Rosmarinus officinalis 'Tuscan Blue'	Upright Rosemary	15 gal	6' x 4'	Evergreen Shrub; Blue Flower - Spring/Summer	L
Salvia gregii	Magenta Red Texas Sage	5 gal	4'x 3'	Shrub; Magenta Flower - Spring/Fall	L
Salvia clevelandii 'Winnifred Gilman'	Blue Sage	5 gal	5' x 5'	Shrub; Blue Violet Flower - Summer	L
Salvia leucantha 'Santa Barbara'	Santa Barbara Sage	5 gal	3' x 4'	Shrub; Violet Flower - Year-round	L

Table 5.10. Source: Spurlock Landscape. Terrace. Chapter 5. Pg 5.31.

TABLE 5.11

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Trees					
Quercus agrifolia	Coast Live Oak	36" box	50' x 70'	Evergreen	VL
Quercus dumosa	Scrub Oak	36" box	12' x 8'	Evergreen	VL
Sambucus nigra	Blue Elderberry	24" box	15' x 20'	Deciduous; Fragrant; White Flower - Spring/Summer	L
Salix lasiolepis	Arroyo Willow	24" box	30' x 15'	Deciduous	H
Cercis occidentalis	Western Redbud	36" box	20' x 25'	Deciduous; Purple Flower - Spring	VL
Understory					
Baccharis pilularis 'Pigeon Point'	Dwarf Coyote Brush	5 gal	7' x 12'	Shrub	L
Epilobium canum	California Fuchsia	1 gal	4' x 5'	Shrub; Red Flower - Summer/Fall	L
Festuca idahoensis	Idaho Fescue	1 gal	3' Tall	Grass; Yellow and Cream Flower	VL
Iris douglasiana	Douglas Iris	1 gal	2' x 3'	Perennial; Lavender Flower - Spring	L
Juncus patens	California Gray Rush	1 gal	2' x 2'	Grass	L
Leymus condensatus 'Canyon Prince'	Canyon Prince Wild Rye	1 gal	3' Tall	Grass	L
Muhlenbergia rigens	Deer Grass	1 gal	5' x 5'	Grass	L
Salvia mellifera	Black Sage	1 gal	5' x 5'	Shrub; Fragrant; Var. Color Flower - Winter/Spring	L
Sisyrinchium bellum	Blue-eyed Grass	1 gal	1' x 1'	Grass, Purple Flower - Spring	L
Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal	2' x 4'	Perennial; Purple Flower - Spring/Summer	L
Carex sp.	Sedges	1 gal	2'x2'	Grass	M, L

Table 5.11. Source: Spurlock Landscape. Swale. Chapter 5. Pg 5.33.

TABLE 5.12

SPECIES	COMMON NAME	CONTAINER SIZE	MATURE SIZE (ht. x spr.)	NOTES	WUCOLS RATING
Trees					
Quercus agrifolia	Coast Live Oak	36" box	50' x 70'	Evergreen	VL
Quercus dumosa	Scrub Oak	36" box	12' x 8'	Evergreen; Fruit - Spring	VL
Sambucus nigra	Blue Elderberry	24" box	15' x 20'	Deciduous; Fragrant; White Flower - Spring/Summer	L
Understory					
Artemisia califonica	California Sagebrush	1 gal	4' x 4'	Shrub	L
Arctostaphylos glauca	Big Berry Manzanita	15 gal	15' x 15'	Shrub	VL
Baccharis pilularis	Coyote Brush	5 gal	10' x 12'	Shrub	L
Baccharis pilularis 'Pigeon Point'	Dwarf Coyote Brush	5 gal	7' x 12'	Shrub	L
Eriogonum fasciculatum	California Buckwheat	1 gal	5' x 3'	Perennia; Yellow and Pink Flower - Spring/Summer	VL
Epilobium canum	California Fuchsia	1 gal	4' x 5'	Perennia; Red Flower - Summer/Fall	L
Festuca idahoensis	Idaho Fescue	1 gal	3' Tall	Grass	VL
Isocoma menziesii	Menzies' Goldenbush	1 gal	3' x 5'	Shrub; Yellow Flower - Spring/Summer	?
Malosma laurina	Laurel Sumac	15 gal	15' x 15'	Shrub; Fragrant; White Flower - Winter/Spring	VL
Muhlenbergia rigens	Deer Grass	1 gal	5' x 5'	Grass	L
Rhus integrifolia	Lemonade berry	15 gal	15' x 10'	Shrub; Light Pink Flower - Spring	L
Ribes sanguineum	Red Flowering Currant	5 gal	10'x 8'	Shrub; Fragrant; Var. Color Flower - Winter/Spring	L
Rosa californica	California Wild Rose	5 gal	3' x 3'	Shrub; Fragrant; Var. Color Flower - Spring/Summer	L
Salvia mellifera	Black Sage	5 gal	5' x 5'	Shrub; Fragrant; Var. Color Flower - Winter/Spring	L

Tables 5.12. Source: Spurlock Landscape. Meadow. Chapter 5. Pg 5.35

TABLE 7.1

Office & Classroom	50 PSF + 20 PSF partitions
Corridors & Exit ways	80 PSF + 20 PSF partitions
Mechanical/Electrical Rooms	125 PSF (or actual weight if heavier)
Stairs	100 PSF
Light Storage	125 PSF

Table 7.1. Source: Degenkolb Engineers. Live Loads. Chapter 7. Pg 7.4.

TABLE 7.3

Roof LL (Plaster and Stucco ceiling)	L/360
Roof LL (Non-plaster ceiling)	L/240
Roof LL (No ceiling)	L/240
Floor LL	L/360

Table 7.3. Source: Degenkolb Engineers. Deflection Control Criteria Chapter 7. Pg 7.6.

TABLE 7.3

CONCRETE	
All structural concrete to have a minimum compressive strength at 28 days as follows:	
Foundations (footing elements & grade beams)	4,000 PSI (Hardrock)
Slab-on-grade	4,000 PSI (Hardrock)
Fill on Metal Deck	4,000 PSI (Lightweight)
Miscellaneous (pads, curbs, etc.)	4,000 PSI (Hardrock)

REINFORCEMENT	
Typical Reinforcement	ASTM A615, Grade 60 (fy = 60 KSI)
Welded Rebar	ASTM A706, Grade 60 (fy = 60 KSI)
Welded Wire Fabric	ASTM A185 (fy = 65 KSI)

STRUCTURAL STEEL	
All Structural steel to conform to the following specifications (unless noted otherwise):	
Wide-flange Sections (Column and Beams)	ASTM A992, Grade 50 (fy = 50 KSI)
Channels, Plates, and Angles	ASTM A572 Grade 50 (fy = 50 KSI)
Miscellaneous Shapes	ASTM A36 (fy = 36 KSI)
Hollow Structural Shapes (HSS)	ASTM A500, Grade C (fy = 50 KSI)
Pipes:	ASTM A53, Grade B (fy = 35 KSI)

Structural Bolts: Bolted connections to be A325X bolts unless noted otherwise.	
Gravity Column Anchor Bolts	ASTM F1554-Grade 55 (fy = 55 KSI)
Seismic Column Anchor Bolts	ASTM F1554- Grade 105 (fy = 105 KSI)
Threaded Rod	ASTM A36 (fy = 36 KSI)
Shear Studs	ASTM A29-12 (Fu = 65 KSI)

Welding: In Conformance with AWS D1.1, D1.4 and D1.8.	
Electrode Strength	E80XX (Reinforcing Steel) E70XX (Structural Steel)

STEEL DECK	ASTM A446, Grade A; Galvanized G60 or G90 (ASTM A525)

Table 7.3. Source: Degenkolb Engineers. Materials List. Chapter 7. Pg 7.6.

FIGURES AND TABLES

TABLE 8.1

	SUMMER	WINTER
Design Temperature	89/67 °F	27 °F
Mean Daily Range	30 °F	

Table 8.1. Source: P2S. Outdoor Design Conditions. Chapter 8. Pg 8.4

TABLE 8.2

	SUMMER	WINTER
General Areas	72 °F	67 °F
Offices	74 °F	68 °F
Computer Labs	72 °F	67 °F
Classrooms Labs	74 °F	68 °F
Restrooms	80 °F	68 °F
Circulation	80 °F	68 °F
Mechanical Rooms	80 °F	55 °F
Electrical Roomos	80 °F	55 °F
IDF/BDF Rooms	64-75 °F	64-75 °F

Table 8.2. Source: P2S. Indoor Design Conditions. Chapter 8. Pg 8.4

Relative humidity between 30% and 80% is considered normal for the air conditioning system.

TABLE 8.3

SPACES	RECOMMENDATIONS
Classroom Labs	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person
Open Offices/Reception	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person
Office/Study Rooms	The greater of that specified by California Energy Code or ASHRAE Standard 62-2019
Computer Lab/Labs	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person
General Classrooms	Use demand control ventilation with CO2 sensors, and a maximum ventilation rate of 15CFM/Person

Table 8.3. Source: P2S. Indoor Design Conditions. Chapter 8. Pg 8.5

All spaces shall be mechanically ventilated continuously during hours of scheduled occupancy.

TABLE 9.1

CONSTRUCTION TYPE	MAX. PROTECTION AREA (SF)	MAX. SPACING (FEET)	OCCUPANCY CLASSIFICATION
Noncombustible unobstructed	225	15	Light Hazard
Noncombustible obstructed	225	15	Light Hazard
Combustible unobstructed w/ no exposed members	225	15	Light Hazard
Combustible unobstructed w/ members less than 3ft on center	130	15	Light Hazard
Combustible obstructed all w/ exposed members 3ft or more on center	168	15	Light Hazard
Combustible obstructed all w/ members less than 3 ft on center	130	15	Light Hazard
Combustible concealed all spaces in accordance w/ 8.6.4.1.4	120	15 parallel to the slope 10 perpendicular to the slope	Light Hazard
ALL	130	15	Ordinary Hazard

Table 9.1. Source: P2S. Protection Area Per Head. Chapter 9. Pg 9.9

FIGURES AND TABLES

TABLE 10.1

	VOLT/PHASE
Large motors (1/2 HP & larger)	480-volt, 3 phase.
Small motors (1/3 HP & smaller)	120-volt and 208-volt
Lighting, LED	277-voltw
Receptacles, general purpose	120-volt
Receptacles, special Purpose	208-volt, 1 phase
VAV boxes	120-volt
Misc. power	120-volt and 208-volt

Table 10.1. Source: P2S.Building Power and Distribution System. Chapter 10. Pg 10.2

TABLE 10.2

Offices >250sf:	Lighting	0.75	
	Receptacle		2.0
Offices <250sf:	Lighting	1.0	
	Receptacle		2.0
Classrooms:	Lighting	1.2	
	Receptacle		3.0
Labs:	Lighting	1.4	
	Receptacle		3.0
Lobbies, Restrooms:	Lighting	0.6	
	Receptacle		1.5
Storage Rooms:	Lighting	0.5	
	Receptacle		1.5
Advanced Tech:	Lighting	1.2	
	Equipment/Receptacles		Per needs
	Power		Actual motor Hp
Arts and Design:	Lighting	1.2	
	Equipment/Receptacles		3.0
	Power		Actual motor Hp
BDF/IDF Rooms:	Lighting	1.0	
	Equipment/Receptacles		10.0
	Power		Actual motor Hp
Corridor:	Lighting	0.6	
	Power		0.5
Mechanical Areas:	Lighting	0.55	
	Power		Actual Motor HP

Table 10.2. Source: P2S.Building Interior. Chapter 10. Pg 10.3

TABLE 10.3

AREA	AVERAGE FOOTCANDLES
General Classroom, General Lecture Room	MIN. 35-50 FC
Science Laboratories, Science Prep Lab	MIN. 50 FC
Library/Learning Resource Center	MIN. 35-50 FC
Open Office, Private Office	MIN. 35-50 FC
Cafe	MIN. 35-50 FC
Lobby/Reception Area	MIN. 35-50 FC
Corridors	15 FC (Floor Level)
Storage/Support Space	15 FC (Floor Level)
Telecom Rooms	MIN. 35-50 FC
Electrical Room	20-40 FC (Floor Level)
Exterior/Landscaping	1-5 FC (Grade Level), 1 FC Average for Main Egress Ways
Parking Lot	1 FC (Grade Level)
Note #1 - Values at Work/Activity Level Unless Otherwise Noted.	

Table 10.3. Source: P2S. Electrical Systems General. Chapter 10. Pg 10.8

TABLE 11.1

SPACE TYPE	RT (IN SECONDS)
Classrooms, Labs, Private Offices, Conference Rooms	< 0.6
Open Plan Office Areas, Multi-Use/Community Room	< 0.8
Collaboration and Study Areas, Library/Learning Resources Room	< 1.0
Lobby/Welcome Center, Museum	< 1.2
*Reverberation Time is value at 500 Hz. Reported in seconds	

Table 11.1. Source: Charles M Salter Associates Inc. Reverberation Time Criteria. Chapter 11. Pg 11.2

FIGURES AND TABLES

TABLE 11.2

ADJACENCY	SOUND TRANSMISSION CLASS RATING
Core Learning Spaces to the same	STC 50
Core Learning Spaces to Public Restrooms	STC 53
Core Learning Spaces to Mechanical equipment room or cafe	STC 60
Core Learning Spaces to Admin Office, Corridor, or Staircase*	STC 45
Ancillary Learning Space to Ancillary Learning Space, office, or conference room	STC 45
Private to Private	STC 50
Private to Hallway, stairway	STC 35
Private to Private	STC 45
Collaborative/multi-use to Hallway, stairway	STC 25
Mechanical Equipment Room to Hallway, stairway	STC 50
Mechanical Equipment Room to Occupied Area	STC 60
* Doors between classrooms and core learning spaces and corridors shall be STC 30 or higher.	

Table 11.2. Source: Charles M Salter Associates Inc. Airborne Sound Isolation Criteria. Chapter 11. Pg 11.3.

.

TABLE 11.3

SPACE TYPE	NOISE CRITERIA	A-WEIGHTED SOUND LEVE
Classrooms, Quiet Study Rooms, Private Offices	NC 30	35 dB(A)
Labs (Science, & Computer), Multi-Use/ Community Room, Museum, Student Collaboration Spaces, Learning Resources Room	NC 35	40 dB(A)
Lobby/Welcome Center, Café/ Seating, Open Plan Office Areas	NC 40	45 dB(A)

Table 11.3. Source: Charles M Salter Associates Inc. Background Noise Criteria Table . Chapter 11. Pg 11.5.

TABLE 11.4

LOCATION	C 30 (FMP)	C 35 (FMP)	C 40 (FMP)
Main duct above ceiling	800	1,200	1,700
Branch or secondary duct	500	650	800
Grille or diffuser neck	325	450	600

Table 11.4. Source: Charles M Salter Associates Inc. Display Standards. Chapter 12. Pg 12.12

FIGURE 12.1

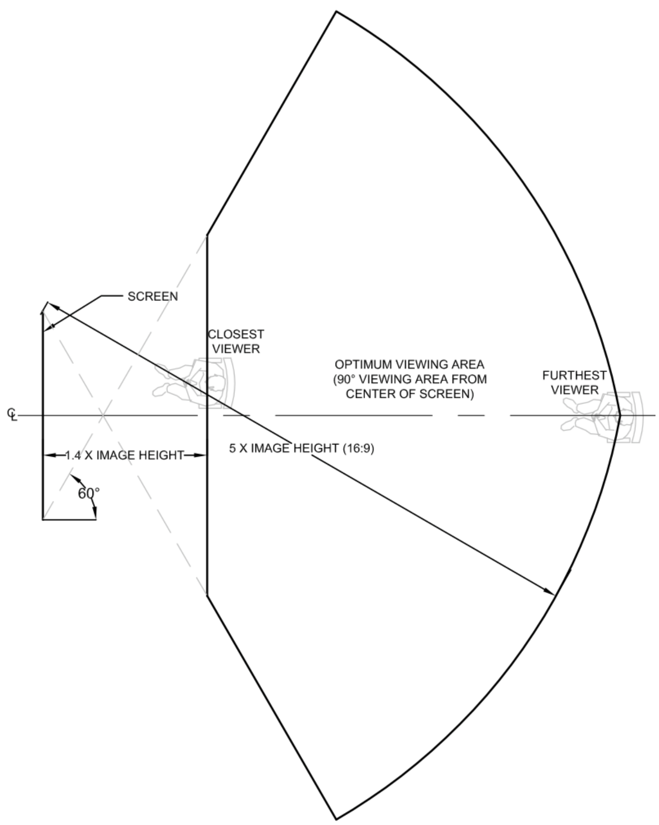


Figure 12.1. Source: Charles M Salter Associates Inc. Reverberation Time Criteria. Chapter 12. Pg 12.14

FIGURE 14.1

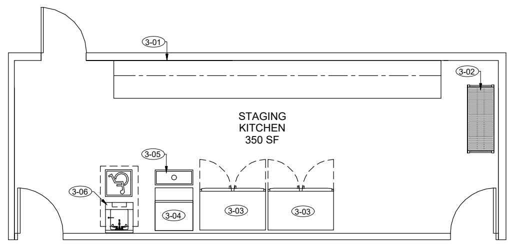


Table 14.1. Source: Webb Food Service Design. Staging Kitchen Sample Plan. Chapter 14. Pg 14.5

FIGURE 14.2

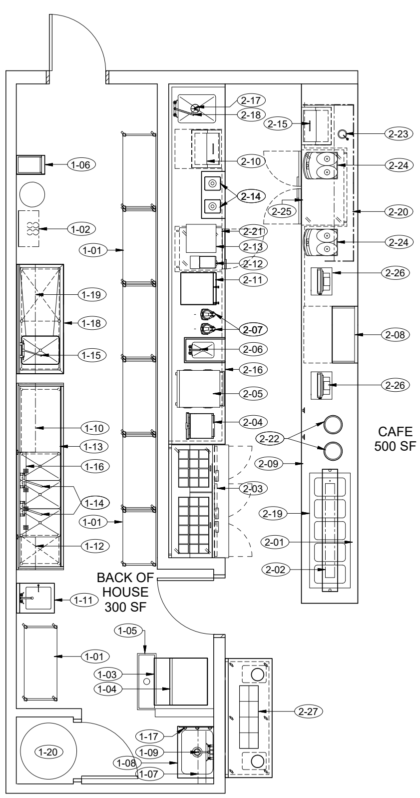


Table 14.2. Source: Webb Food Service Design. Cafe Sample Plan. Chapter 14. Pg 14.7

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