Sonoma County Junior College District

2016 Facilities Master Plan and Guidelines

04

Planning &
Design Guidelines

4.1
Site & Landscape Design

Overview

The purpose of the site and landscape planning and design guidelines is to lay out a cohesive vision for site and landscape design as a district and improve the overall aesthetic character and visual unity of each College teaching site. These guidelines represent the College's commitment to create a more cohesive, attractive, productive, and sustainable campus environment.

The guidelines are the result of a study of the existing landscape spaces and character of each site to give direction for future site and landscape design to integrate with the landscape vernacular in order to create a unified atmosphere.

As a collection of two campuses and three other primary teaching sites, Sonoma County Junior College District encompasses a variety of site and landscape condition types. These guidelines create standards that are cohesive, while embracing the unique characteristics of the individual teaching sites. The site and landscape design guidelines are primarily focused on the Santa Rosa and Petaluma campuses.

The site and landscape design guidelines are organized into the following structure and set to lay out a cohesive vision for site and landscape design as a district:

(A) Site Character

The overall visual and physical quality of each of the five teaching sites' landscape.

(B) Site & Landscape Goals

Five broad, overarching goals for improving campus and landscape quality as future projects are implemented.

(C) Site Systems

The basic components that comprise each teaching site's outdoor realm: circulation networks, service and utility areas, stormwater management elements, and landscape vegetation.

(D) Landscape Spaces

For the Santa Rosa and Petaluma campuses, existing and proposed open spaces are divided into types relating to their size, function, location, and experience.

Site Character

Santa Rosa Campus

The Santa Rosa Campus is the original campus of the College. The landscape character is defined by its park-like setting and pedestrian-scaled curvilinear paths between buildings and signature oak trees - a strong defining landscape element of the campus. Open space is the unifying element of the campus,. Additional site and landscape design seeks to build upon and enhance the traditional character while embracing current and future trends.

Petaluma Campus

The landscape character of the Petaluma Campus follows an axial layout. Dense foliage obstructs the frontage view of Kathleen Doyle Hall and John Jacobs Hall from the main road, Sonoma Mountain Parkway. SCJCD signature Oak trees are scattered around the campus as a unifying element of the college district. Site and landscape design features currently include a sustainable agriculture garden run by students and faculty, a highly-used courtyard area, several smaller courtyard areas, and a capri creek restoration/teaching space/ demonstration path.

The frontage presence seeks to be enhanced to increase visibility and identity of the campus from the road. The goal would be to shift towards a low-maintenance and low water use planting palette.

Santa Rosa Campus.
Photo By: Gensler

Petaluma Campus.
Photo By: Gensler

Southwest Santa Rosa Center

The Southwest Santa Rosa Center landscape character is that of a community center. There is a lack of frontage presence and the planting and design language does not tie in with the rest of the colleges. The lawn along the South Wright Road entry to the campus is in poor condition and needs to be replaced. There is a lack of outdoor seating areas.

The main goal for Southwest Santa Rosa Center is to establish a frontage presence for the campus that ties in with the SCJCD.

Public Safety Training Center

The landscape character is minimal with a military-type environment that suits the training campus. The central parade ground is very well-utilized and is in good condition. There is good visibility of the campus from the road, but the frontage presence could be improved.

There is a good opportunity to incorporate shade structures and outdoor seating areas to watch ongoing training sessions. Planting goals include reducing the water-intensive lawn area, promoting a low-maintenance and low water use native planting palette, and removing the landscape berm around the campus that is overgrown and difficult to maintain.

Shone Farm

Shone Farm is an agricultural setting with an event center. The main goal would be to focus on low-maintenance, low water use, and native planting palette for the campus.

Southwest Santa Rosa Center.
Photo By: Gensler

Public Safety Training Center.
Photo By: Gensler
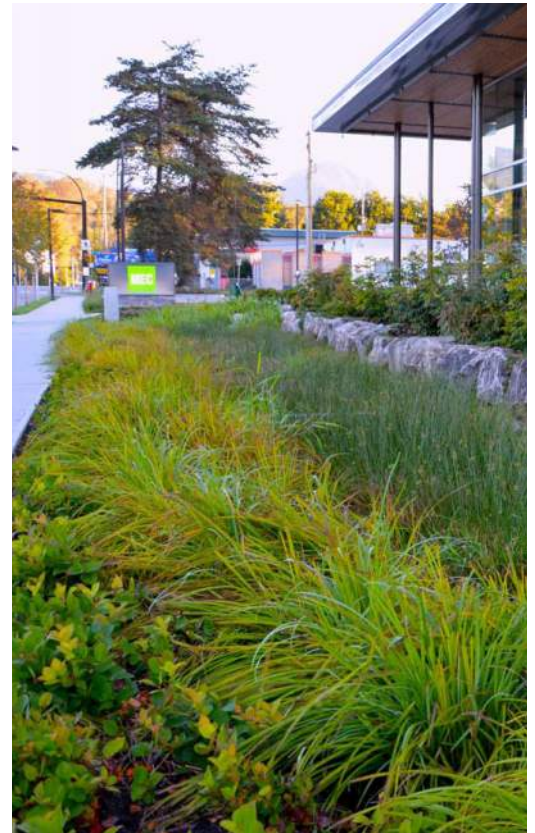
Shone Farm.
Photo By: Gensler

Site & Landscape Goals

Foothill College.
Photo By: Peter Walker Partners

Mountain Equipment Co-Op Store.
Photo By: Bob Matheson
Photography/Randy Sharp

Clarify Site Circulation

- Improve traffic safety for pedestrians, cyclists, and drivers.

- Provide universally accessible routes through campus, per most current ADA Standards.

- Path design and widths shall be appropriate to the level of use, providing a hierarchy of connections throughout the campus.

Conserve Natural Resources

- Reduce the use of potable water for irrigation through implementation of drought-tolerant and native plants and by using recycled / reclaimed water where feasible.

- Capture and treat stormwater onsite and utilize it as an educational opportunity.

- Shift toward carbon neutrality by sourcing local materials, selecting durable materials and plants requiring little maintenance, and by using natural and sustainable materials for site maintenance and improvement.
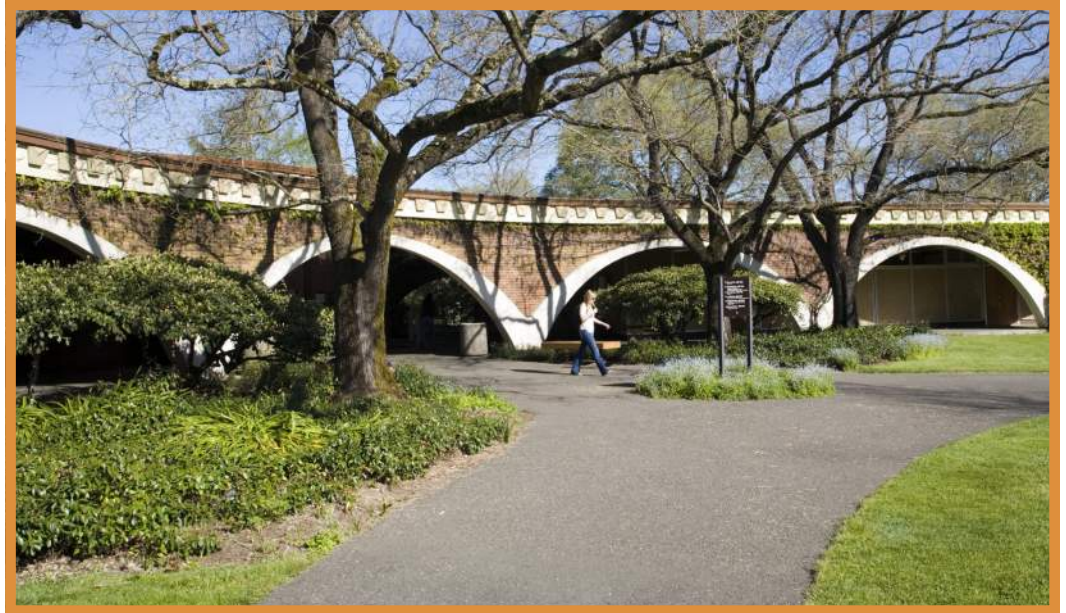
Casis Elementary School.
Photo By: Casey Dunn

Sarah E. Goode STEM Academy.
Photo By: Jacobs/Ryan Associates

Underwood Family Sonoran
Landscape Laboratory, The
University of Arizona.
Photo By: Bill Timmerman

Support Teaching & Educational Programs

- Create outdoor teaching space that sparks intellectual curiosity.

- Establish educational programs that foster a culture of sustainability and environmental stewardship.

- Foster educational environments through incorporating living laboratories that serve as functional landscapes for use by faculty and students.

- Leverage program adjacencies by cultivating landscapes for learning, research, and recreation in proximity to buildings with related programs.

Improve Athletic Facilities

- Ulitilize sustainable and healthy materials that promote physical activity and to support Kinesiology, Athletics, and Dance (KAD) facilities.

- Beautify connective spaces that encourage interactions between activities.

Strengthen Identity

- Highlight the college's historic, cultural, and natural characteristics on the campus and express it in the landscape.

Site Systems

✓ Circulation

✓ Service & Utility Areas

✓ Stormwater Management

✓ Vegetation

Santa Rosa Campus.
Photo By: Santa Rosa Campus

Foothill College.
Photo By: Peter Walker Partners

Piazza Nember.
Photo By: Stradivarie Associated Architects

Pedestrian

In the overall strategy of organizing and prioritizing campus access and creating a well-designed hierarchy of pathways on campus, pedestrian movement should be given priority over all other modes of movement and circulation.

Pedestrian walkways should:
- Be continuous and separate from vehicular roads, service areas, and parking lots as necessary
- Be of appropriate scale

- Be shaded by trees, canopies, arcades, or other architectural devices where possible to enhance the pedestrian experience and reduce urban heat island effect through shading pavements
- Be of a durable material such as cast-in-place concrete, or concrete unit pavers to delineate special areas
- Consider the use of other materials such as gravel, decomposed granite, brick paving, and pervious pavers depending on the use and configuration on campus, as well as a skateboarding deterrent.

UC Davis Bicycle Racks.
Photo By: Eric E Johnson

University of Calgary Health Sciences Centre Secure Bicycle Parking.
Photo By: University of Calgary

Green Roof Cycle Shelter.
Photo By: Green Roof Cycle

Eco-Loc Permeable Paver Parking.
Photo By: Unilock

Raised Crosswalk.
Photo By: National Association of City Transportation Officials

Bicycle

- Where possible, provide a designated bike route to reduce conflicts with pedestrian and vehicular traffic
- Widen paths to improve safety of biking
- Increase secure bike storage facilities and bike racks
- Provide a bike lane system that runs north-south, and east-west

Vehicular

- Use asphalt for all vehicular pathways. Consider pervious paving at parking stalls for stormwater management.
- Provide traffic signals or stop signs
- Utilize traffic calming measures such as speed tables and raised crosswalks at intersections
- Remove/consolidate small parking lots to reduce vehicular routes in campus
- Expand drop off zone

Site Systems

- ✓ Circulation
- ✓ **Service & Utility Areas**
- ✓ **Stormwater Management**
- ✓ Vegetation

Central Energy Plant.
Photo By: Steve Wolfe

Mechanical Screens.
Photo By: Marion Brenner

Privet Screening Hedge.
Photo By: North Park Nursery

Photinia robusta Hedge.
Photo By: Winter Hill Tree Farm

Laurus nobilis Hedge.
Photo By: North Park Nursery

Service & Utility Areas

- The service areas should be screened from view by walls, fences, planting, use of grade separation, or any combination of these.
- Access to service areas should be designed to create a positive interface with adjacent buildings and nearby pedestrian circulation.
- Separate pedestrian and bike circulation from service areas
- Design vehicular access to service areas with clear sight lines and clearances to provide safe interactions between drivers, pedestrians and property.
- Screening of transformers shall be accomplished with evergreen shrubs growing to a mature height as tall as the transformer. Plants shall provide required vegetation clearances as described in current PG&E Greenbook.

Missouri Botanical Garden Parking Lot Swale.
Photo By: Missouri Botanical Garden

Pervious Pavers.
Photo By: LID Wetland Studies Info Website

El Cerrito, California, Rain Garden.
Photo By: Green El Sobrante Organization

Stormwater Management

Stormwater management includes rain gardens, bioretention areas, swales, and pervious paving. These could be incorporated into existing or new landscape designs. They can reduce storm water runoff, increase habitat biodiversity, and enhance learning as an outdoor living lab.
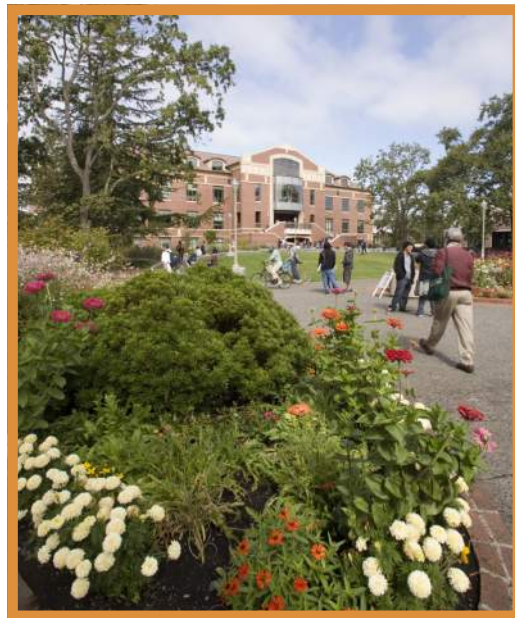
The stormwater gardens should:

• Utilize native, drought-tolerant, and low-maintenance planting

Site Systems

✓ Circulation

✓ Service & Utility Areas

✓ Stormwater Management

✓ **Vegetation**

UC Davis Native Grass Planting.
Photo By: Katie Hetrick

San Francisco Botanic Garden.
Photo By: Saxon Holt

Santa Rosa Campus.
Photo By: Santa Rosa Campus

UC Davis Mrak Hall Circle.
Photo By: UC Davis Arboretum

Aesthetic Considerations

- Space definition
- Informal character
- Institutional scale
- Variety and unity
- Safety

Exceptional Trees / Oak Tree Preservation

The heritage oak trees are the principal element responsible for the character of the Santa Rosa campus landscape. Healthy, large existing trees and tree groupings of exceptional size and form should be protected. Landscape designs should incorporate and celebrate the exceptional and heritage oak trees.

Water Efficient Landscape

- Based on MWELO (Model Water Efficiency Landscape Ordinance)
- Replace non-active lawn with planting and seating to provide gathering spaces and support biodiversity, upgrade irrigation system, and expand coverage of central grounds
- Group planting in hydro-zones
- Prioritize landscape areas for irrigation

Maintenance Priorities

- Utilize plants that are resilient and long lived
- Select plants that will grow to be the correct size for every space
- Match design of each growing zone to APPA maintenance standards for each campus

Mount Tabor Middle School Rain Garden.
Photo By: Kevin Robert Perry

St Louis Citygarden.
Photo By: Nelson Byrd Woltz Landscape Architects

Landscape Spaces

- ✓ **Historic**
- ✓ Frontage & Arrival
- ✓ Event Space
- ✓ Courtyards
- ✓ Educational/ Teaching
- ✓ Connective
- ✓ Natural
- ✓ Streetscape & Parking
- ✓ KAD

Analy Hall in 1979.
Photo By: Janet Sinnicks - SRJC
Digital Archives Collection

Historic Spaces

The historic landscape character of the Santa Rosa Campus is largely influenced by the large heritage oak trees and park-like setting. These trees convey a sense of time and place associated with the campus's history, while remaining dynamic with the construction of new buildings and landscape spaces over time. Where new landscape construction occurs within historical areas, the design shall reinforce the basic visual and park-like characteristics of the area through the scale, form, and materials.

Historic spaces should:

- Preserve and protect existing healthy heritage oak trees.
- Consider primary historic aesthetic of harmony and simplicity in design (e.g lawn or mulch and oak trees - simple, limited palette).
- Planting should adhere to overall aesthetic guidelines that emphasize order, harmony, and unity of the whole. This includes large canopy trees, shrubs, lawn, and groundcover arranged to emphasize the order of the landscape plan. Encourage native planting instead of small-scale, decorative planting with multiple species, except at designated smaller scale garden or courtyard areas.
- Provide for seating opportunities.
- Minimize landscape furnishings that do not serve a function - such as containers, concrete structures, and other elements.

Santa Rosa Campus.
Photo By: Gensler

Santa Rosa Campus.
Photo By: Santa Rosa Campus

Landscape Spaces

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Santa Rosa Campus Arrival.
Photo By: Gensler

Frontage Presence & Arrival Experience

Gateways are an important element of campus and are designed to help create a sense of arrival, place, and identity for students, faculty, staff, and visitors. The current gateway for Santa Rosa Campus is primarily oriented toward vehicles. Consideration should be given to include the arrival experience for pedestrians.

Vehicular Entries / Gateways should:

- Provide orienting views into the campus
- Reinforce campus identity
- Reflect sustainable and educational values
- Have a welcoming and auto-scale design
- Have special paving, planting, signage and lighting

Pedestrian Entries / Gateways should:

- Be welcoming and create a sense of arrival
- Provide direction and hierarchy of circulation corridors
- Have special paving, planting, signage and lighting
- Have appropriately scaled elements; vertical elements should not exceed adjacent building heights
- Reflect sustainable and educational values
- Places for sitting should be developed at key gateways to foster public life

Bicycle Entries / Gateways should:

• Be alongside, but appropriately separated from vehicular and pedestrian paths as appropriate
• Be indicated clearly with appropriate striping
• Allow for crossing signals that can be activated without dismounting

Foothill College.
Photo By: Meyer + Silberberg Land Architects

American University Arboretum and Gardens.
Photo By: American University

Landscape Spaces

- ✓ Historic
- ✓ Frontage & Arrival
- ✓ **Event Space**
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- ✓ KAD

Macquarie University Central Courtyard.
Photo By: Brett Boardman

Event Space

Event spaces are characterized by a large expanse of hardscape or lawn that supports pedestrian traffic and activities. These open-spaces can vary in size to accommodate small to large crowds and various events, promote the uses of adjacent buildings and spaces, and weave together the diverse elements of the campus. The lawn area east of Analy Hall is a significant landscape on campus due to its central location and use for commencement. It is important to maintain this lawn area while allowing for flexibility of programming opportunities. Over time, and in coordination with the Vision Plan, an expansion and reorientation of this space may be possible to better accommodate commencement and other events on campus.

Event space design should:

- Have seating arrangements that promote social interaction as well as quiet studying and people watching
- Include areas of landscape within the expanse of hardscape and along edges
- Provide opportunities for seating and art/sculpture display
- Employ permeable paving for event plazas where possible
- Incorporate shade while maintaining a level of openness through the use of high canopy trees

Larry Bertolini Day Under the Oaks, 2016.
Photo By: Santa Rosa Campus

Analy Hall.
Photo By: Santa Rosa Campus

Northwest Vista College Campus Amphitheater.
Photo By: SWA Group

Landscape Spaces

- ✓ Historic
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Peter T. Paul College of Business and Economics, University of New Hampshire.
Photo By: Anton Grassl/Esto

Courtyards

Courtyards are usually small and intimate outdoor spaces partially enclosed by buildings and/or planting that can vary in size, design, and in use, depending on their location. These open spaces can support departmental programs in adjacent buildings and are natural gathering places that support social interaction.

The objective is to create inviting outdoor spaces that foster social interaction, while introducing ecologically functional practices and low-maintenance native plantings through:

- Having variable seating arrangements that encourage intimate gatherings
- Enhancements with special paving, overhead structures and accents related to adjacent buildings
- Extension of academic uses of adjacent buildings into the design of courtyard spaces, encouraging indoor-outdoor flow and transparency, especially where the courtyard spaces occur in close association with buildings
- Be of a suitable scale for its use, human comfort, and enjoyment
- Utilize planting, using a combination of native plants species, and cultivars of unique colors, textures, and foliage

St. Edward's University in Austin, Texas.
Photo By: Sasaki

UC Davis West Village.
Photo By: SWA Group
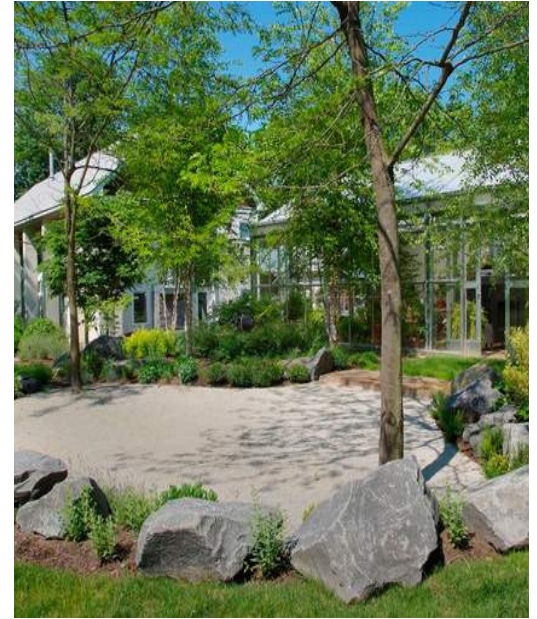
UC Davis West Village.
Photo By: SWA Group

Baker Hall Courtyard.
Photo By: Santa Rosa Junior College

Goldsmith Hall Courtyard, University of Texas, Austin.
Photo By: University of Texas, Austin

Landscape Spaces

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Underwood Family Sonoran Landscape Laboratory.
Photo By: Bill Timmerman

Greenhouse Living.
Photo By: Groundswell Design Group, LLC

Farragut Outdoor Classroom
Photo By: McGill Associates

Outdoor Classrooms

Outdoor classrooms are spaces built into the landscape with enough space for a group of students to congregate and learn. It provides a living laboratory for year-round full-class and small group instruction to maximize opportunity for hands-on learning and teaching. Each outdoor classroom can differ in layout, based on existing site conditions, student group size, and needs. The classes may even incorporate landscape features into the learning curriculum.

Outdoor classrooms should:
- Have informal and formal seating arrangements
- Be protected from the elements with overhead features such as shade sails, trellis or tree canopy
- Have opportunities to showcase classwork and projects
- Be separated from through circulation pathways

Casis Elementary School.
Photo By: Casey Dunn

Mars Science Center Outdoor Classroom, Wheaton College.
Photo By: Wheaton College

Underwood Family Sonoran Landscape Laboratory.
Photo By: Bill Timmerman

UC Davis Fuschia Research.
Photo By: UC Davis

Landscape Spaces

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American Society of Landscape Architects Green Roof.
Photo By: Michael Van Valkenburgh Associates Inc

Roof Gardens

Roof gardens could be incorporated into new buildings and as part of the environmental and life sciences or agricultural programs. Roof gardens are also an important strategy for stormwater management - they can significantly reduce runoff volume and rate, increase habitat biodiversity, and enhance learning as an outdoor living lab.

Roof garden systems can be installed as extensive green roofs with a thin layer of soil usually planted with sedum or similar small plants, or as intensive green roofs with a thick layer of soil that can support a variety of trees, shrubs, and other vegetation. The structural implications of each will need to be considered in conjunction with the architecture of the building.

The roof gardens should:

- Be accessible for all
- Incorporate places for gathering and interaction where possible
- Utilize native, drought-tolerant, and low-maintenance planting

Roseville Library.
Photo By: Damon Farber Landscape Architects

Mount Tabor Middle School Rain Garden.
Photo By: Kevin Robert Perry

Sandy Boulevard Rain Garden.
Photo By: Nevue Ngan Associates

Stormwater Gardens

Stormwater gardens can be incorporated into existing or new landscapes as a design feature. They can reduce storm water runoff, increase habitat biodiversity, and enhance learning as an outdoor living laboratory.

The stormwater gardens should:

* Utilize native, drought-tolerant, and low-maintenance planting
* Utilize educational signage / be an educational resource for the campus
* Be of varying sizes depending on its location and configuration within the campus

Landscape Spaces

- Historic
- Frontage & Arrival
- Event Space
- Courtyards
- **Educational/ Teaching**
- Connective
- Natural
- Streetscape & Parking
- KAD

Nautilus Park.
Photo By: Spurlock Poirier

Medlock Ames.
Photo By: Marion Brenner

Long Meadow.
Photo By: Charles Mayer

Community/ Demonstration Gardens

Community and demonstration gardens can provide landscape interest and diversity, while also serving as an educational resource to showcase landscapes. It would be difficult to treat the entire campus as an arboretum, labeling unique plants in each location. The development of smaller display gardens is a more practical way to achieve landscape diversity and education such as to:

- Promote the use of water efficient native and adapted plants
- Display native and adapted plants in an attractive natural and exhibition setting
- Provide a public venue for inspiration and education

Themed Gardens

The themed gardens are designed to protect, preserve, and showcase Luther Burbank's unique collection of plants, while also serving as an educational resource. It should aim to:

- Display Burbank's plants in an attractive natural and exhibition setting
- Provide a public venue for inspiration and education
- Showcase rare specimens

San Francisco Botanical Garden.
Photo By: Saxon Holt

Roseville Library.
Photo By: Damon Farber

Runnymede Sculpture Farm.
Photo By: Ryan Cummings

San Francisco Botanical Garden.
Photo By: Saxon Holt

Landscape Spaces

- ✓ Historic
- ✓ Frontage & Arrival
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- ✓ **Connective**
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- ✓ KAD

Santa Rosa Campus.
Photo By: Gensler

Walkway.
Photo By: Unknown

Sunnyland Center and Gardens.
Photo By: Dillon Diers

Connective Spaces

These are interstitial and multi-functional spaces that occur between and behind buildings and function as pedestrian corridors, bike parking areas, service spaces, and small planting areas. The primary objective for connective spaces is to facilitate its functional role as a corridor while maintaining a consistent design vocabulary throughout the campus.

Connective spaces should aim to:

- Employ a consistent and limited number of pavement, planting, lighting, and furnishing materials

- Pavement materials should be pedestrian in scale and character
- Include canopy trees to create a comfortable shaded pedestrian environment
- Utilize low to medium height planting in masses for visual effect, habitat value, and low maintenance value
- Be lit by walkway light fixtures that are consistent across the campus and may include emergency telephones where relevant
- Have small scale trash and recycling in convenient, yet non-obtrusive locations
- Maintain sight lines for security reasons
- Replace non-active lawn areas with native ground plane and understory plantings

San Diego State University.
Photo By: Philip J. Erdelsky

Avenues Mermoz et Pinel.
Photo By: Fabian da Costa

ARUP Laboratories Landscape.
Photo By: Landmark Design

Foothill College.
Photo By: Peter Walker Partners

Foothill College.
Photo By: Meyer + Silberberg

Landscape Spaces

- ✓ Historic
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UC Davis - Mrak Hall Circle.
Photo By: UC Davis Arboretum

Arthur L. Menzies Garden of California Native Plants.
Photo By: David Kruse-Pickler

Natural Landscapes

Natural landscapes refer to both natural places on campus but also designed landscapes that evoke a less formal feel. There should be a focus on maintaining the park-like feel of the existing landscape while reducing the area of non-active lawns. This landscape typology can celebrate native California plant collections, but also provide spaces for various types of species, including ornamentals and cultivars.

- Identify areas with healthy historic oaks and retain the park-like landscape character by adding plantings that complement the historic plantings and/or replacing historic plant material that has declined.
- Limit the variety of plantings used in each landscape for visual cohesion.
- Focus on native California, low-water use, and low-maintenance plants.
- Retain enough plant diversity to satisfy educational needs (e.g plant identification classes with signage and programmatic support).
- Identify and save existing historical specimen plants.
- Provide shade through canopy trees along all paths, walkways and roads.

UC Davis Native Grass Planting.
Photo By: Katie Hetrick

Tongva Park, Santa Monica.
Photo By: Lorraine P.

UC Davis West Village.
Photo By: SWA Group

Landscape Spaces

- Historic
- Frontage & Arrival
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- **KAD**

Roseville Library.
Photo By: Damon Farber Landscape Architects

Raised Crosswalk.
Photo By: Transit Utopia

Castro Valley Library, San Leandro Senior Center.
Photo By: Blue-Green Building

UC Davis West Village.
Photo By: SWA Group

Streetscape & Parking

STREETSCAPE

- Incorporate traffic calming measures such as pavement material differentiation, narrowed road sections at crossing points, raised crosswalks, or speed tables
- Incorporate stormwater management
- Provide continuous shaded landscapes that are safe and comfortable for pedestrians, bicycles, and vehicles

PARKING

- Incorporate Photovoltaic (PW) Arrays
- Tree planting and low planting should be employed to mitigate urban heat island and reduce visual impact of vehicles
- Provide safe and clear pedestrian circulation - separate walkways from vehicular travel
- Incorporate stormwater management such as parking filter strips and pervious paving where conditions allow, especially at the parking perimeter landscape areas, and where planter islands divide parking fields
- Incorporate vehicular lighting along drive aisles and walkways spaced regularly and consistently to provide uniform light levels

Sarah E. Goode STEM Academy.
Photo By: Jacobs/Ryan Associates

Sarah E. Goode STEM Academy.
Photo By: Jacobs/Ryan Associates

Kinesiology, Athletics, and Dance (KAD)

Having a separate, dedicated athletic zone on campus is important for isolating noise and large crowds.

KAD zones:
- Should serve as an activity hub for the campus
- Should accommodate visitor use
- Should be an amenity to the neighboring community
- Should incorporate stormwater gardens

Landscape Spaces

- ✓ **Frontage & Arrival**
- ✓ Event Space
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- ✓ Educational/ Teaching
- ✓ Connective
- ✓ Natural
- ✓ Streetscape & Parking

Kathleen Doyle Hall, Petaluma Campus.
Photo By: Santa Rosa Junior College

Frontage Presence + Arrival Experience

Gateways are an important element of campus and are designed to help create a sense of place and identity for students, faculty, staff, and visitors. The Petaluma campus frontage is obstructed by dense foliage that limits the visibility of campus buildings from the main road.

To establish a frontage presence - Vehicular Entries / Gateways should:

- Provide orienting views into the campus
- Reinforce campus identity
- Utilize suitable landscape planting that complements but not obstruct signage and architectural elements

- Have a welcoming and auto-scale design
- Have special paving, planting, signage and lighting

Pedestrian Entries / Gateways should:

- Be welcoming and create a sense of arrival
- Provide direction and hierarchy of circulation corridors
- Have special paving, planting, signage and lighting
- Have appropriately scaled elements; vertical elements should not exceed adjacent building heights
- Reflect sustainable and educational values

San Pedro Senior High School, Olguin Campus.
Photo By: CO Architects

Petaluma Campus Entry Signage.
Photo By: Gensler

Teaching and Research Facility, College of Agriculture, Utah State University.
Photo By: Landmark Design

Landscape Spaces

- ✓ Frontage & Arrival
- ✓ Event Space
- ✓ Courtyards
- ✓ Educational/ Teaching
- ✓ Connective
- ✓ Natural
- ✓ Streetscape & Parking

Lincoln Center Bosque.
Photo By: AirBnB

Outdoor Event Lawn, University of British Columbia.
Photo By: University of British Columbia

Macquarie University Central Courtyard.
Photo By: Brett Boardman

Event Space

Rotary Plaza is well-utilized through the year but the event lawn by Herold Mahoney Library is used mostly during special occasions. Event space design should support pedestrian traffic and activities. It is important to maintain the flexibility of programming opportunities for the space.

Event space design should:
- Have seating arrangements that promote social interaction as well as quiet studying and people watching
- Include areas of landscape within the expanse of hardscape and along edges
- Provide opportunities for seating and art/sculpture display, especially under areas of shade
- Employ permeable paving for event plazas where possible
- Incorporate shade while maintaining a level of openness through the use of high canopy trees

Allied Health and Sciences Center
Photo By: CO Architects

Graduate School of Business, Mills College.
Photo By: Lutsko Associates

Petaluma Campus Herold Mahoney Library
Courtyard.
Photo By: Santa Rosa Junior College

Courtyards

Courtyards are typically small and intimate outdoor spaces partially enclosed by buildings and/or planting that can vary in size, design, and in use. These open spaces are natural gathering places that support social interaction, such as the courtyard outside Herold Mahoney Library on the Petaluma Campus. It is well located with ample seating, but it lacks shade and shelter from elements.

The objective is to create inviting outdoor spaces that foster social interaction, while introducing ecologically functional landscapes and low-maintenance native plantings through:

- Having variable seating arrangements with consistent furnishings that encourage intimate gatherings
- Enhancements with special paving
- Extension of uses of adjacent buildings into the design of courtyard spaces, encouraging indoor-outdoor flow and transparency, especially where the courtyard spaces occur in close association with buildings
- Be of a suitable scale for human comfort and enjoyment
- Utilize planting, especially native plants, of unique colors, textures, and foliage, tailored to the particular microclimate to minimize irrigation and maintenance needs

Landscape Spaces

✓ Frontage & Arrival

✓ Event Space

✓ Courtyards

✓ **Educational/ Teaching**

✓ Connective

✓ Natural

✓ Streetscape & Parking

Petaluma Campus Living Learning Lab.
Photo By: Gensler

Outdoor Classrooms

The Petaluma Campus currently has an outdoor Living Learning Lab garden that is a sustainable agriculture area. It is a great resource that provides a unique, interactive, and instructional outdoor area for small group lessons. However, it has limited seating options and lacks protection from weather elements. Future outdoor classrooms could consider a different layout and location, based on existing site conditions, student group size, and needs.

Outdoor classrooms should:

- Have informal and formal seating arrangements
- Be protected from the elements with good acoustics and overhead features such as shade structures, sails, trellis or canopy
- Have opportunities to showcase classwork and projects
- Utilize surrounding landscape or build in infrastructure that operates as a learning area (e.g rainwater collection tanks, planting beds, etc)
- Be separated from through circulation pathways

Outdoor Learning Center, Mount
Tamalpais School.
Photo By: Integrated Design Studio

Mars Science Center Outdoor Classroom,
Wheaton College.
Photo By: Wheaton College

Farragut Outdoor Classroom
Photo By: McGill Associates

Landscape Spaces

✓ Frontage & Arrival

✓ Event Space

✓ Courtyards

✓ **Educational/ Teaching**

✓ Connective

✓ Natural

✓ Streetscape & Parking

University of Minnesota – Biomedical Discovery District & Cardiovascular & Cancer Research Facility.
Photo By: Damon Farber Landscape Architects

P.S. 41 Green Roof
Photo By: Jessica Bruah

Roof Gardens

Roof gardens could be incorporated into new buildings or as part of the agricultural program. The Petaluma Campus currently has no roof gardens. Roof gardens can significantly reduce storm water runoff, increase habitat biodiversity, and enhance learning as an outdoor living lab.

The roof gardens should:

- Be accessible
- Incorporate places for gathering and interaction where possible
- Utilize native, drought-tolerant, and low-maintenance planting

Kent Hospital Breast Health Center Rain Garden.
Photo By: Tom Benjamin

St Louis Citygarden.
Photo By: Nelson Byrd Woltz Landscape
Architects

Petaluma Campus Rain Garden.
Photo By: Gensler

Stormwater Gardens

The Petaluma Campus currently has several detention basins around the perimeter of its campus buildings. Future stormwater gardens can be incorporated into existing or new landscapes as a design feature. They can reduce storm water runoff, increase habitat biodiversity, and enhance learning as an outdoor living laboratory.

The stormwater gardens should:

- Utilize native, drought-tolerant, and low-maintenance planting
- Be designed as part of the campus landscape aesthetic within the campus core

Landscape Spaces

- ✓ Frontage & Arrival
- ✓ Event Space
- ✓ Courtyards
- ✓ **Educational/ Teaching**
- ✓ Connective
- ✓ Natural
- ✓ Streetscape & Parking

Nautilus Park.
Photo By: Spurlock Poirier

Long Meadow.
Photo By: Charles Mayer

Community/ Demonstration Gardens

Community and demonstration gardens can provide landscape interest and diversity, while also serving as an educational resource to showcase landscapes. The student-run community garden adjacent to the Fitness Building is a great initiative, but there is potential to extend the design qualities of the campus landscape guidelines into its development. The community/ demonstration gardens should:

- Promote the use of water efficient native and adapted plants
- Display native and adapted plants in an attractive natural and exhibition setting
- Provide a public venue for inspiration and education

Themed Gardens

The themed gardens are designed to protect, preserve, and showcase Luther Burbank's unique collection of plants, while also serving as an educational resource. It should aim to:

- Display Burbank's plants in an attractive natural and exhibition setting
- Provide a public venue for inspiration and education
- Showcase rare specimens

San Francisco Botanical Garden.
Photo By: Saxon Holt

Roseville Library.
Photo By: Damon Farber

Utah State University Botanical Center.
Photo By: Utah Botanical Center Organization

Runnymede Sculpture Farm.
Photo By: Ryan Cummings

Purdue University Horticulture Garden.
Photo By: Andy West

Landscape Spaces

- Frontage & Arrival
- Event Space
- Courtyards
- Educational/ Teaching
- **Connective**
- Natural
- Streetscape & Parking

Sunnyland Center and Gardens.
Photo By: Dillon Diers

UC Davis.
Photo By: SWA

Connective Spaces

These are interstitial and multi-functional spaces that occur between and behind buildings and function as pedestrian corridors, bike parking areas, service spaces, and small planting areas. The primary objective for connective spaces is to facilitate its functional role as a corridor while maintaining a consistent design vocabulary throughout the campus.

Connective spaces should aim to:
- Employ a limited number of pavement, planting, and furnishing materials
- Pavement materials should be pedestrian in scale and character

- Include canopy trees to create a comfortable shaded pedestrian environment
- Utilize low to medium height planting in masses for visual effect, habitat value, and low maintenance value
- Be lit by walkway light fixtures and may include emergency telephones where relevant
- Have small scale trash and recycling in convenient, yet non-obtrusive locations
- Maintain sight lines for security reasons (e.g Ceanothus and acacia bushes are too dense at Petaluma campus)

Belo Center for New Media, The University of Texas, Austin
Photo By: Ten Eyck Landscape Architects

Duke University.
Photo By: Olin

Graduate School of Business, Mills College.
Photo By: Lutsko Associates

Landscape Spaces

- ✓ Frontage & Arrival
- ✓ Event Space
- ✓ Courtyards
- ✓ Educational/ Teaching
- ✓ Connective
- ✓ **Natural**
- ✓ Streetscape & Parking

Petaluma Campus.
Photo By: Gensler

UC Davis - Mrak Hall Circle.
Photo By: UC Davis Arboretum

UC Davis Native Grass Planting.
Photo By: Katie Hetrick

Natural Landscapes

There should also be a focus on maintaining the park-like feel of the existing landscape while reducing the area of non-active lawns. The landscape typology can celebrate native California plant collections, but also provide spaces for various types of species, including ornamentals and cultivars.

- Identify areas with healthy historic oaks and retain the park-like landscape character by adding plants to complement the historic plantings and/or replacing historic plant material that has declined.
- Keep the majority of the campus park-like and simple, limiting the variety of plantings used in each landscape and matching the plantings in the surrounding landscapes.
- Focus on native California, low-water use, and low-maintenance plants.
- Retain enough plant diversity to satisfy educational needs, such as plant identification classes with signage and programmatic support.
- Identify and save existing historical specimen plants and chose new plantings to complement the existing landscape features.
- Provide shade through canopy trees along all paths, walkways and roads.

San Francisco Botanical Garden.
Photo By: Saxon Holt

UC Davis Putah Creek Lodge.
Photo By: UC Davis

Arthur L. Menzies Garden of California Native
Plants.
Photo By: David Kruse-Pickler

Landscape Spaces

- ✓ Frontage & Arrival
- ✓ Event Space
- ✓ Courtyards
- ✓ Educational/ Teaching
- ✓ Connective
- ✓ Natural
- ✓ **Streetscape & Parking**

Raised Crosswalk.
Photo By: Transit Utopia

Roseville Library.
Photo By: Damon Farber Landscape Architects

Mountain Equipment Co-Op Store.
Photo By: Bob Matheson Photography/Randy Sharp

Streetscape & Parking

STREETSCAPE

- Incorporate traffic calming measures such as pavement material differentiation, narrowed road sections at crossing points, raised crosswalks, or speed tables
- Incorporate stormwater management
- Provide continuous shaded landscapes that are safe and comfortable for pedestrians, bicycles, and vehicles

PARKING

- Incorporate Photovoltaic (PW) Arrays
- Tree planting and low planting should be employed to mitigate urban heat island and reduce visual impact of vehicles
- Provide safe and clear pedestrian circulation - separate walkways from vehicular travel
- Incorporate stormwater management such as parking filter strips and pervious paving where conditions allow, especially at the parking perimeter landscape areas, and where planter islands divide parking fields
- Incorporate vehicular lighting along drive aisles and walkways spaced regularly and consistently to provide uniform light levels

4.2
Architecture

"Always design things by considering them in the next larger context."

-Eleil Saarinen

Overview

The goal of the architectural planning and design guidelines is to improve the overall aesthetic character and visual unity of each College teaching site. They represent the College's commitment for future buildings to create a more cohesive, attractive, productive and sustainable campus environment.

The guidelines are the result of a study of the existing aesthetics and style of buildings at each site to give direction for future buildings to integrate with, but not mimic, the architectural vernacular in order to create a unified atmosphere.

As a collection of two campuses and three other primary sites, Sonoma County Junior College District encompasses a variety of architectural strategies. These guidelines create standards that are cohesive, while embracing the unique characteristics of the individual teaching sites. The goals of the architectural guidelines are:
- Strengthen the identity and brand of each campus
- Increase campus connectivity and collaboration
- Embrace site individuality while further developing District cohesion
- Promote design excellence

Santa Rosa Campus

Founded in 1918, the Santa Rosa Campus is the original campus of the College and is the tenth oldest of California's publicly funded two-year colleges. The traditional character of the campus' original buildings is it's strongest defining architectural element, with additional phases of development building upon this traditional character in various ways. Future development on the campus seeks to respect the traditional architecture while embracing the future.

Petaluma Campus

The majority of the Petaluma Campus was built in two phases, with the first phase completed in 1993 and the second phase completed in 2006. The campus consists of a mix of one and two story buildings of a similar architectural character. Future projects are intended to complement the existing character while creating a more collegiate experience.

Southwest Center

The Southwest Center property is currently owned by Santa Rosa City Schools and leased by SCJCD. The existing buildings are largely in poor condition. If SCJCD acquires the property, there are significant opportunities for upgrading the architectural character of the campus to reflect its importance as a community asset. The guidelines presented are intended to focus that potential.

Public Safety Training Center

The Public Safety Training Center serves a unique function for the Sonoma County community, providing specialized public safety training opportunities. The existing architecture does not fully embody the importance and character of the programs that the site houses and these guidelines provide direction to incrementally develop that character.

Shone Farm

Shone Farm is a 365-acre self-supporting, agriculturally focused training facility and farm. The existing site is in an idyllic location with exceptional views and siting. The goal for future buildings is to retain the rural aesthetic while embracing a modern twist and more durable construction.

The guidelines for each campus are to be organized to address all of the following architectural elements:

(A) Campus Character

The overall feeling created by the campus architecture, including how the campus architecture creates spaces and contributes to the campus identity.

(B) Building Scale & Massing

Size and massing of buildings, including goals for height, roof form, setbacks, view planes, and scale in relation to outdoor areas.

(C) Building Components

Distinct components of buildings critical to the user experience, including entries, vertical circulation, and terraces.

(D) Exterior Finishes & Openings

The exterior envelope of buildings, including roof finishes, exterior wall finishes, curtain wall, windows, and doors.

(E) Interior Finishes & Feel

Elements that contribute to the interior experience of buildings, including: interior partition styles and wall finishes, floor finishes, ceilings, lighting, and furniture.

(F) Colors

Finish color standards for paint and integral color materials.

Santa Rosa Cast Logo
Photo By: SCJCD

Photos of SCJCD Buildings are highlighted by a gold border throughout this document.

Campus Character

The Santa Rosa Campus has a deep history and strong architectural character embedded in its original early 20th Century buildings. Additions to the campus have taken various forms, each relating to the original architectural style in different ways. The campus has a traditional collegiate feeling that is reinforced by a strong finish palette, connection between buildings and open spaces, and meandering pathways.

Respect the traditional collegiate feel:
- Strong materials palette.
- Strong connection between buildings and quads.
- Reinforced axes juxtaposed with meandering pathways.

Architecture reinforces location:
- Heritage plaza defines a strong core with new design opportunities outside of this core.
- New buildings within Heritage Plaza should be respectful of the context and existing architecture, reinforcing the character defining elements of this part of the campus.
- New buildings outside of Heritage Plaza should be respectful of this tradition, but should also embrace contemporary, forward-looking design strategies appropriate to the building program and context.
- Buildings should be designed and sited to reinforce a cohesive campus experience and assist with wayfinding.

HERITAGE PLAZA
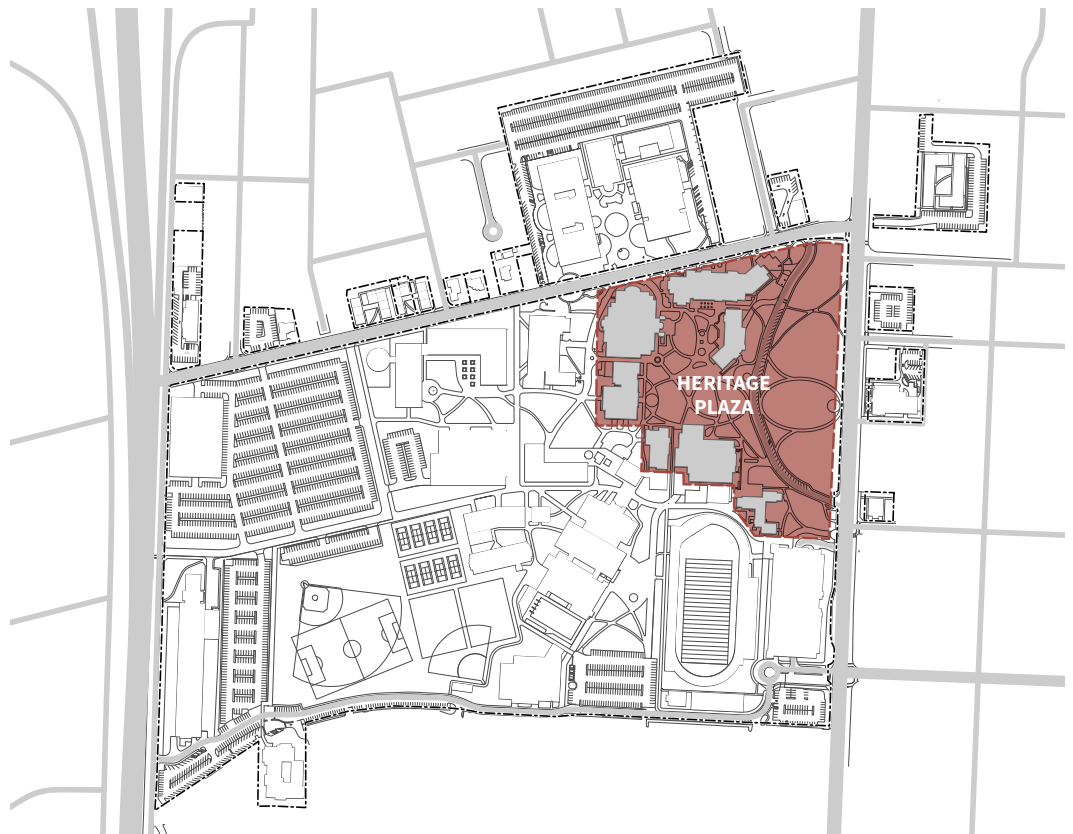
RESPECTFUL. HARMONIOUS. FORWARD-LOOKING.

Santa Rosa Doyle Library
Photo By: SCJCD

Hamilton College Taylor Science
Center
Photo By: EYP Architects

Santa Rosa Tauzer Hall
Photo By: SCJCD

Santa Rosa Campus
Photo By: SCJCD

Building Scale & Massing

Santa Rosa Campus
Photo By: SCJCD

Massing and building forms on the Santa Rosa Campus should maintain the welcoming, pedestrian-friendly scale on campus, while retaining its collegiate feel.

- Create meaningful spatial interactions between interior and exterior environments to enrich building occupants' experience.
- Densify in a way that reinforces outdoor spaces without creating buildings of an intimidating scale.
- Pedestrian circulation paths should be bordered by lower scale elevations, while new quads and bike circulation can be bordered by larger elevations.
- Building forms should be given volumetric depth and offsets to prevent large monolithic building elevations.

- Finishes and forms should be high quality and enduring.
- Buildings should be strongly connected to the site, the natural soundings, and the community

ROOF FORMS

- Strong symmetry within Heritage Plaza
- Dynamic roof forms that integrate with the volumetric building design are encouraged.
- In the historic core, parapet roofs and low-slope forms are discouraged. Eave expression and overhangs are encouraged.

INSPIRED. ENDURING. CONNECTED.

Kenyon College Middle Path.
Photo By: Unknown

Yellow Jacket Union University of Wisconsin - Superior.
Photo By: Workshop Architects

Piri Reis Maritime University.
Photo By: Yercekim Photography - Omer Kanipak

Building Components

- ✓ Entries
- ✓ Stairs & Vertical Circulation
- ✓ Terraces & Covered Areas

Santa Rosa Campus
Photo By: SCJCD

Entries

Building entrances help orient students and visitors to the campus and should thus be clearly marked and visible from a distance. Many buildings in Santa Rosa's historic core already have strong, clear entry points. New developments should continue that vocabulary, enhancing the pedestrian experience around the building threshold through changes in massing, materiality, transparency, and scale at the ground floor in a welcoming manner. Additionally, building entries should p**rovide a protected, fluid transition between interior and exterior, and incorporate strategies to support healthy indoor air quality including walk-off mats and vestibules.**

Entries should reach out, actively engaging and connecting to outdoor space, similar to Analy Hall and Doyle Library.

- Align entries along major pathways
- Create a depth of experience and gradated transition between indoor and outdoor.
- Limit entries where possible to focus traffic and promote interaction.
- Signify the entry location along the exterior through architectural features.
- **Create clear, compelling entry experiences.**
- Create architectural features that differentiate between primary and secondary entrances.

Baton Rouge Magnet High School.
Photo By: Sean Calamia

University of Utah - Carolyn Tanner Irish
Humanities Building
Photo By: IEA Architects

Building Components

- ✓ Entries
- ✓ Stairs & Vertical Circulation
- ✓ Terraces & Covered Areas

Santa Rosa Campus
Photo By: SCJCD

Hellerup School.
Photo By: Arkitema Architects

Physical Sciences + Engineering Center.
Photo By: David Wakely

Adobe Utah Campus.
Photo By: Tim Griffith

Stairs & Vertical Circulation

- Incorporate places for formal gathering and casual interaction where possible.
- Incorporate windows and glazing where possible to connect to the outdoors.
- **Create enjoyable circulation areas to encourage walking and stair use.**
- Express circulation on the exteriors at new buildings outside of Heritage Plaza.
- Provide visual continuity and accessibility between floors, where appropriate, through using open connective stairs.

Terraces & Covered Areas

- Incorporate terraces and outdoor covered areas where possible to connect buildings to the campus surroundings.
- Connect to main circulation elements and campus quads.
- Integrate into the design of collaborative program areas.
- **Provide a variety of scaled spaces to accommodate for formal and informal gathering.**

Exterior Appearance

✓ Finishes + Color Palette

✓ Roofs

✓ Doors + Windows

Santa Rosa Campus
Photo By: SCJCD

Finishes + Color Palette

Existing buildings use a simple color palette of natural, warm colors. New development should incorporate color and material finishes complementary to the overall context of the campus.

- Durable and easy to maintain.
- Finishes should be of a quality appropriate to an institution of higher learning.
- Develop layered facades and spaces that mediate between interior and exterior.
- Create depth and provide for solar angle appropriate shading are encouraged.
- Wood screening should be incorporated selectively and only if it is determined to be easy to maintain.
- The use of cement plaster is discouraged.

Buildings in Heritage Plaza core should reinforce existing building color and texture. Example materials, in addition to brick, include:

- Terra Cotta Rain Screen
- Concrete
- Ceramic Tile

Buildings located outside of Heritage Plaza should use a wider array of more contemporary materials, while also incorporating those materials listed above:

- Metal Panels / Screens
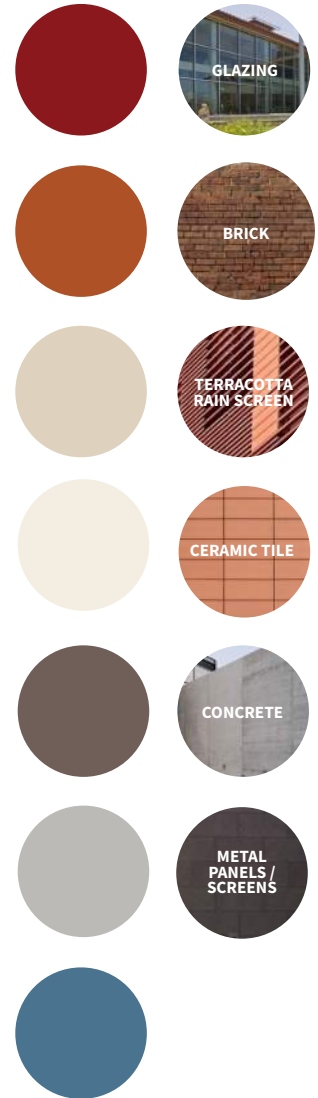- Glazing / Curtain Wall
- Concrete Masonry

🍃 GLAZING:

- Glazing use should appropriate to function, considering glare and solar exposure.
- Provide shading as appropriate for solar angle, and engage daylight for occupant well-being.

Color + Materials

GLAZING

BRICK

TERRACOTTA RAIN SCREEN

CERAMIC TILE

CONCRETE

METAL PANELS / SCREENS

Roofs

- Roof materials should be highly durable and contribute to the overall character of the building.
- Cool roofing should be used to minimize heat island effect.
- Concrete tile is recommended for roofs in the historic core.
- Slow slope / parapet roofs are recommended outside of the historic core, using single ply roofing materials.
- Metal roofing is discouraged.
- Gutters and downspouts should be internal or carefully integrated into the design.

Doors + Windows

The existing steel windows in the Heritage Buildings are an integral part of the collegiate feel of the campus. The quality and design of new doors and windows should reinforce this aesthetic. Door and window systems should be:

- Heavy-Duty Commercial grade aluminum, minimum.
- Steel windows where feasible at additions to Heritage Buildings.
- Outside of Heritage Plaza, curtain wall and continuous glass systems are preferred over punched openings.
- Durable and easily maintained finishes.

University of California, Berkeley, Blum Center for Developing Economies.
Photo By: Gensler

EMS Nest.
Photo By: Ema Peter

Interior Finishes & Experience

Doyle Hall Art Gallery
Photo By: Unknown

Yellow Jacket Union University of
Wisconsin - Superior.
Photo By: Workshop Architects

Neuehouse Office.
Photo By: Gensler

FLEXIBLE. ENGAGING. DYNAMIC.

Dwight Englewood School Hajjar
STEM Center.
Photo By: Gensler

Interior environments conducive to learning are an essential part of the campus vision. Interiors should strive to **inspire innovation and cultivate the intellectual and social growth of students, faculty, and staff**, but still remain **flexible and diverse** enough to accommodate a variety of uses and programs.

Interior spaces should feel **welcoming and socially vibrant while balancing other spaces for retreat and focus.**

- Sophisticated without feeling excessive.
- Durable and easy to clean / repair.
- Lighting and controls should be efficient, easy to use, and contribute to an engaging learning environment and user experience.
- Maximize use of natural daylight whenever possible to promote an indoor / outdoor connection.
- Integrated, flexible furniture.

Campus Character

Mahoney Library
Photo By: TLCD Architecture

As a newer campus, built in two large phases in close succession, Petaluma is still developing its campus character.

The current architecture has created a **unified campus feel** that has some strong experiential moments, while new projects on the campus provide an opportunity to **increase the indoor/outdoor connections and create a more collegiate feel**.

The next phase of development on the campus provides an opportunity to set the aesthetic direction for the future.

OPEN. INTEGRATED. COLLEGIATE.

ASU Polytechnic Campus.
Photo By: Bill Timmerman

ASU Polytechnic Campus Screen.
Photo By: Bill Timmerman

Petaluma Campus.
Photo By: SCJCD

Building Scale & Massing

Petaluma Campus
Photo By: SCJCD

The consistency of architectural style is one of the strengths of the Petaluma campus. However, while the current architecture has served to create a unified campus feel that has some strong experiential moments, including the main campus entry and the transparent stairwells, new projects on the campus provide even greater **opportunity to increase the indoor/outdoor connections and create a more sophisticated and collegiate feel.** Like Santa Rosa, Petaluma buildings should retain their relatable human scale.

Criteria for new buildings and additions include:

▪ Less massive, lighter feeling structures

▪ **Roof forms** should relate to the existing hip roofs, but use of shed roofs, or even selective flat roofs or parapet areas is encouraged to add variability

▪ Layered façades incorporating shading devices

▪ Articulation of building elements to create more human scale experiences by increasing texture

COMFORTABLE. LIGHT. LAYERED.

Crown Woods
Photo By: Nicholas Hare

University of California, Berkeley,
Blum Center for Developing
Economies.
Photo By: Gensler

St. John's College Levan Hall.
Photo By: Lake|Flato

Building Components

Mahoney Library
Photo By: TLCD Architecture

The Petaluma campus has an existing vocabulary of visually and physically blended interior and exterior environments. Strategic placement of glazing in the library lets in large amounts of natural sunlight and makes the space feel highly connected to its natural environment. The campus' covered walkways between buildings experience high levels of traffic daily and provide other semi-open zones that promote student interaction. **Deep entry awnings, covered walkways, and expressed vertical circulation** are all elements of the existing campus architecture that should be carried into new project designs, **promoting greater connection and openness between different environments.**
New buildings and additions should include:

- Strong indoor/outdoor connections, including glass at vertical circulation to match the Phase 2 stair cores: Use of glass and solid walls as formal elements, using punched openings selectively
- Vertically connected interior public spaces, following the example of the Library.
- Sun protection for entries and outdoor walkways.

University of Connecticut Social
Sciences and Classroom Buildings.
Photo By: Bill Timmerman

University of Connecticut Social
Sciences and Classroom Buildings.
Photo By: Anton Grassl/Esto

Petaluma Campus
Photo By: SCJCD

Finishes and Feel

Petaluma Campus
Photo By: SCJCD

Exterior

- Maintain a warm, inviting, pedestrian-friendly campus atmosphere through material and color choices.
- The existing clay tile, cement plaster, and warm colors contribute to a **strong Mediterranean-like campus aesthetic.** New buildings should build upon this aesthetic while **integrating related, modern finishes.**
- Expression of materials and articulation of structural elements to create more human scale experiences.
- Burnt red accent should be integrated to match existing buildings.

- Materials / Colors: Cement Plaster, Colored Spandrel Glass / Paneling, Clay Tile Roof, Wood Screen / Ceiling

Interior

- Create meaningful and highly connected spatial experiences between interior and exterior environments.
- Maximize access to natural daylight and ventilation whenever possible.
- Promote vertically connected interior public spaces

WARM. CONNECTED. SOPHISTICATED.

Color + Materials

GLAZING

BRICK

TERRACOTTA RAIN SCREEN

CERAMIC TILE

CONCRETE

METAL PANELS/ SCREENS
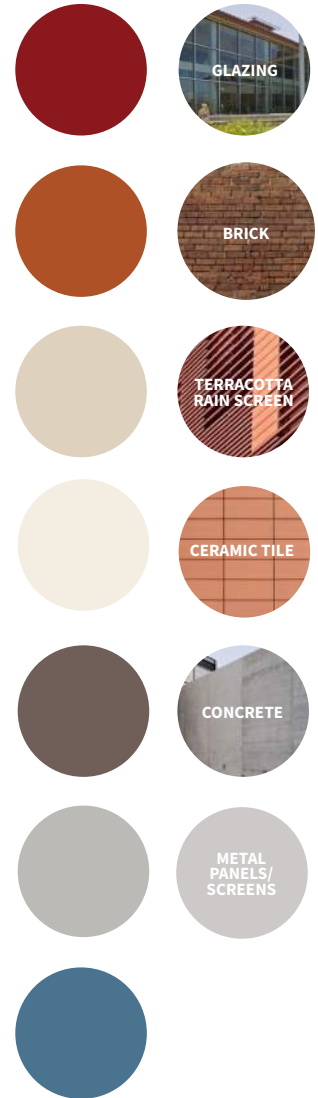
Texas Hillel: The Topfer Center for Jewish Life.
Photo By: Paul Bardagjy Photography

Tozzer Anthropology Building.
Photo By: John Horner

ASU Polytechnic Campus.
Photo By: Bill Timmerman

Campus Character Building Components

INVITING. TEXTURED. LASTING.

Southwest Center
Photo By: Gensler

New buildings at the Southwest Center provide an opportunity to transform the nature of this campus.

- Existing buildings on the campus do not have a strong architectural character. **The site serves as an important community resource and the architecture should reflect and reinforce this role.**
- **Encourage creativity, community interaction, and well-being** through exterior and interior architectural features.

Future campus development should:

- Respect the residential scale and character of the surrounding neighborhood
- Create a sense of place and identity
- Provide for controlled access and a secure facility while also maintaining a connection

Finishes and Feel

Color + Materials

GLAZING

BRICK

TERRACOTTA RAIN SCREEN

CERAMIC TILE

CONCRETE

METAL PANELS/ SCREENS
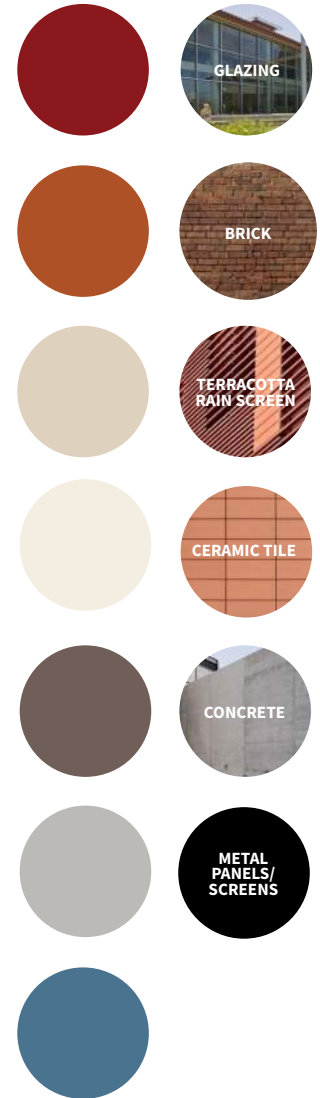
While it's important that the level of finish is not excessive, carefully selected accent materials and colors can add to the character of the campus. For consistency across sites, new development at Southwest Center should be similar to new development at the Petaluma Campus.

- Colors and materials relating to other District facilities
- Warm, well-lit interiors
- Durable, flexible furniture that can be arranged in a variety of ways to accommodate a broad range of applications as needed

Rowlock Residence.
Photo By: bureau^proberts

Walkerville Civic & Community Centre.
Photo By: Lyndon Stacy

Red Mountain Campus Mesa Community College.
Photo By: Smith Group

Campus Character Building Components

PROFESSIONAL. DIGNIFIED. STRONG.

PSTC
Photo by: SCJCD

Kenmore Library.
Photo By: Lara Swimmer

Existing buildings on the Public Safety Training Center site **have a strong aesthetic that is distinct from its use.** However, new development at the Center can help transform the campus to **evoke the professional character of the training being undertaken and contribute to a campus identity that speaks to its purpose.** While relating to the existing campus is important, future buildings provide an opportunity to rethink the architecture to define the future style campus character.

- Strong forms with an institutional scale and presence
- Flat roofs and prominent entrances
- Clear hierarchy between primary forms and secondary building elements
- Articulated connections between buildings

Finishes and Feel

Color + Materials

GLAZING

STONE / MASONRY

CONCRETE / CONCRETE MASONRY

CERAMIC TILE

WOOD

STUCCO

METAL PANELS/ SCREENS
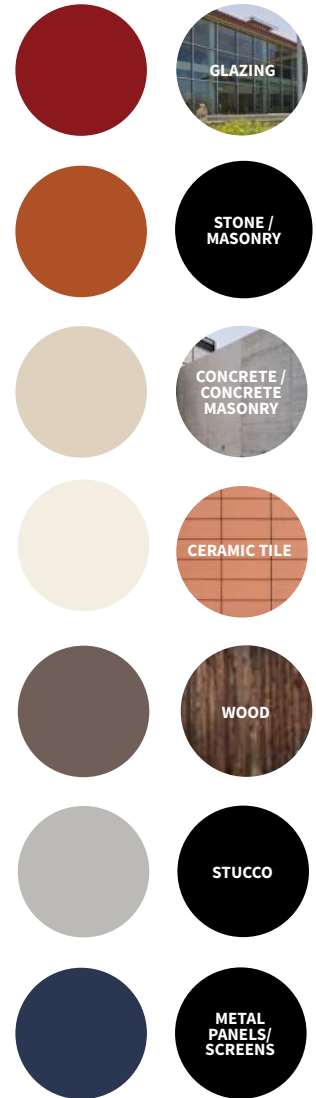
- Durable finishes, including solid wall panels and masonry
- Warm colors that relate to other District facilities, moving away from pinks and greens

Los Angeles Valley College Health & Sciences Center.
Photo By: CO Arch

Crown Woods College.
Photo By: Paul Durant

UC Merced Student Services Building.
Photo By: CO Arch

Campus Character Building Components

RURAL. FUNCTIONAL. CONTEMPORARY.

Shone Farm
Photo by: Gensler

Clayton Park School Hall and Administration.
Photo By: Paul McCredie

Shone Farm is characterized by its idyllic and bucolic Sonoma County hills setting. Buildings are subservient to the views and natural landscape. While the character of the existing architecture echoes the surrounding rural architecture and landscape, new development provides some opportunities at the site:

- Continue the rural aesthetic, but move from Rustic to Contemporary
- Create durable, institutional quality buildings
- Use gabled roofs and vernacular building forms
- Create a centralized campus organization and focus with room for expansion

Finishes and Feel

Color + Materials

GLAZING

STONE / MASONRY

CONCRETE / CONCRETE MASONRY

WOOD

STUCCO

METAL PANELS/ SCREENS

Create a stronger architectural style on site, using natural materials accented with mostly contemporary details which complement the surrounding natural environment. Continue the rural aesthetic, but move toward more durable, easy to maintain materials:

- Heavy base materials (stone, masonry) with lighter wall materials (wood, metal)
- Corrugated metal roof
- Dark earth-tone colors with selective use of "barn red"
- Bright, airy interiors

West Coast Modern.
Photo By: Blackwell Architecture

Sagamore Farm.
Photo By: Blackburn Architects

Doe Run Estate.
Photo By: Nuno R P Cruz

4.3
Sustainability

Sustainability Guidelines

Purpose

Knowing that public institutions of higher education have the ability to influence the ideals and principles of our future decision makers, Sonoma County Junior College District (SCJCD) holds an important role in promoting sustainability. SCJCD is passionate about our responsibility to strive for the highest achievable sustainability standards to encourage positive change through example. The district is also driven to provide continued leadership in sustainability. From a campus-wide level to individual classrooms, our aim is to model a living laboratory from which everyone can learn.

These Sustainability Guidelines are a key component to the District's overall sustainable performance; helping the District and its constituents align and implement the goals of the SCJCD Sustainability Action Plan that are germane to campus building projects.

These guidelines are intended to inform both the day to day operations at all SCJCD sites as well as all upcoming construction activities including new buildings, renovations and infrastructure projects. SCJCD regards capital projects as an important opportunity to demonstrate through action our commitment to sustainable design and construction.

For all new capital projects, these guidelines should be used in conjunction with the relevant project performance criteria described in Section 5: Technical Standards - Sustainability.

Ten Guiding Principles

To truly embrace the value of sustainability, equal consideration must be given to environmental, social, and economic excellence. Specifically in support of the District's Strategic Plan Goal E: "The establishment of a culture of sustainability," we require the thorough assessment and analysis of environmental stewardship, social equity, and economic management for all projects. The ten guiding principles listed below and described in this section should be taken into account for all day to day operations as well as when designing and constructing capital projects for SCJCD.

1. Use an Integrated Approach to Building Design, Construction and Operations
2. Implement an Ecological Site Design Methodology
3. Reduce Fossil Fuel Reliance and Related Energy Costs
4. Manage Water Carefully
5. Source Materials and Services Responsibly
6. Optimize Occupant Comfort , Health and Well Being
7. Reduce Waste
8. Use the Built Environment as a Teaching Tool
9. Facilitate Sustainable Management of Campus Operations
10. Showcase Sustainability Leadership

1.1 Use an Integrated Approach to Building Design, Construction and Operations

The best buildings result from continual, organized collaboration among all players. The college should engage in a collaborative and integrated design process for active and continuing participation of users, facilities operators, and design and construction members in SCJCD building projects.

1. In the formative programming phase, identify sustainability priorities and key milestones in the project time-line.
2. Engage facility maintenance and operations personnel as well as other key SCJCD stakeholders throughout the design development and construction process.
3. Provide a project relevant (20-50 year) Life Cycle Cost Analysis/Total Cost of Ownership assessment for all major building envelope elements and systems as well as value engineering proposals.

1.2 Implement an Ecological Site Design Methodology

Land is a crucial component of the built environment. Ecological approaches to site design should be employed to minimize negative environmental impacts and support healthy and natural ecological processes while also ensuring that site and building design fit the campus aesthetic and create a unique sense of place.

1. Integrate landscape and people with living processes occurring on its campuses.
2. Maintain and restore climate appropriate landscaping.
3. Follow SCJCD Guidelines on tree protection, to minimize all disturbances and damage to District trees.
4. Design buildings to make use of climate resources, such as solar income, wind income, water income from rain and ground water, and work to design buildings that embody the ecological culture of Sonoma County.
5. Strive to be a permaculture rich college, connecting students, faculty and the community through experiential garden based ecological learning and practice.
6. Implement landscape based integrated stormwater capture including use of bioswales, french drains, mulched basins, pervious pavement and bioretention basins.

FIGURE 1 Traditional Process vs. Integrated Building Design

The traditional process is fairly linear. **SOURCE:** REBEKKAH ALDRICH

Traditional Process		Integrated Building Design
Linear	➡	Whole Systems Approach
Team members involved only when necessary	➡	Team members included throughout
More decisions made by fewer people	➡	More decisions made in teams, iteratively
Emphasis on up-front costs	➡	Emphasis on full life-cycle costs and benefits
Systems considered in isolation	➡	Systems considered in relationship to others, allowing for full optimization
Less time, energy, and collaboration exhibited in early stages	➡	Front-loaded—time and energy invested early

SOURCE: U.S. DEPARTMENT OF ENERGY

**1.3 Reduce Fossil Fuel Reliance and Related Energy Costs**

Implementing strategies to save energy and utilizing renewable energy sources will lower greenhouse gas (GHG) emissions, reduce operating costs, and minimize the district's reliance on fossil fuels.

SCJCD has the goal of becoming a Zero Net Energy (ZNE) District by 2030. In pursuing this goal, the district recognizes a design pathway that focuses first on conservation, followed by maximizing energy efficiency, lowering power demand, and finally generating power on-site, for example with rooftop and carport solar (PV) arrays.

1. All new buildings and major renovations shall be modeled to determine what the target Energy Use Intensity (EUI) is for the project to achieve ZNE (Source) performance.
2. All new buildings and major renovations shall be at least 15% more energy efficient than required by current California Title 24 energy requirements.
3. Passive design strategies (eg natural daylight, operable windows, correct solar orientation) shall be the primary focus in order to lower buildings loads as much as possible before active systems are designed.
4. All new buildings and existing buildings must be benchmarked on EPA's Portfolio Manager. New buildings shall be designed to result in an EnergyStar rating of 95 or higher.
5. All new buildings and deep retrofits to existing buildings must be designed to accommodate roof top renewable energy systems (eg PV, CSP or solar hot water) or green roofs/terraces for at least 75% of the available roof surface. Alternatively, provision is to be made to procure energy from some other on-site renewable source.
6. Bacnet IP native/compatible Energy Metering and Energy Management Systems shall be implemented in all existing buildings, new building construction and renovation projects as well as campus systems and landscape projects. HVAC, lighting and occupancy sensoring are also to be integrated.
7. New construction and all retrofit/renovation projects shall research and apply for all available utility incentives, assist in grant applications, and ensure follow through with all applicable programs including PG&E's Savings by Design and any other new offerings.
8. Provide preferred parking for alternative fuel vehicles and carpooling
9. Provide electric vehicle charging stations powered by on-site PV.
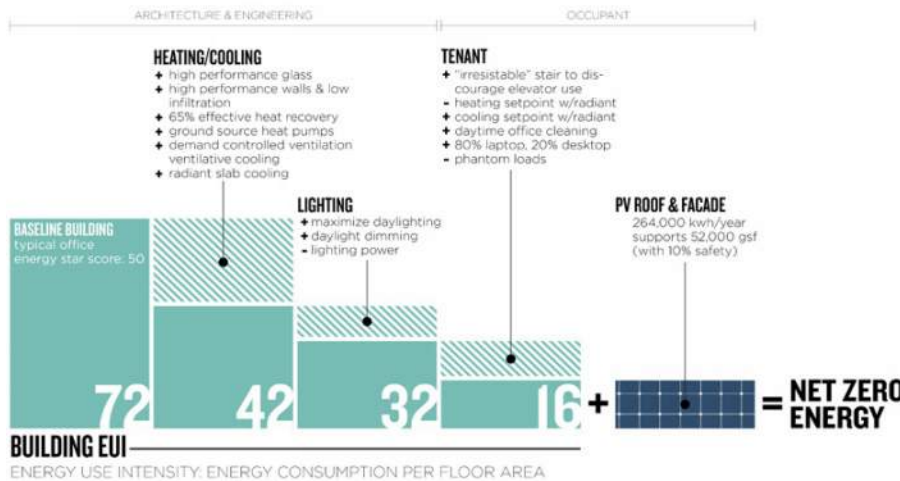
THE PATH TO NET ZERO ENERGY

1.4 Manage Water Carefully

Water is a valuable resource fundamental to our health, the economy and the environment. In California, water is precious and conservation is critical. SCJCD plans to manage water on its campuses responsibly and conserve wherever possible.

1. All new buildings, surrounding pathways and roads must be designed to integrate with the campus stormwater management system, which is to capture 100% stormwater on site from a 10 year magnitude storm.
2. All new building projects, deep retrofits to existing buildings, and site infrastructure projects must include dual plumbed piping to accommodate secondary water for use in toilets, cooling towers, irrigation and other non potable uses.
3. Provide water bottle filling stations in all buildings.
4. All new buildings and existing building renovations must include sub-metering infrastructure that separates out Domestic usage from Irrigation usage and connects to an IP platform that is approved by the Information Technology Department.

1.5 Source Materials and Services Responsibly

Responsible sourcing of goods and services requires a holistic approach to supply chain management, product selection, and procurement criteria transparency. SCJCD aims to increase efforts to procure goods and services that encompass responsible management across social, economic and environmental dimensions.

1. Select materials that meet the District's new Environmentally Preferred Purchasing (EPP)Policy, including recycled content, FSC certified wood and low-emitting materials.
2. Prefer materials and services that are sourced locally, using local labor and resources.
3. Require publicly available product environmental and ingredient transparency (Environmental Product Declarations and Health Product Declarations/Ingredient Disclosure)
4. Prefer materials that have low embodied energy and carbon footprints.
5. Require EnergyStar and WaterSense compliant appliances and fixtures for all new buildings and facility renovations.
6. Require that all computers (including desktops, laptops and monitors) meet EPEAT Gold standard.

SUSTAINABILITY

## 1.6 Optimize Occupant Comfort, Health and Well Being

People spend a majority of their time indoors and therefore, the indoor environment has a significant influence on their health, well-being, and productivity. Student, faculty, and employee's health and comfort directly impacts ability to learn and work productively.

1. All regularly occupied space must have operable windows that give access to fresh air and sunlight. Unless it does not comply with District safety and energy standards.
2. Include measures for monitoring Indoor Environmental Quality and thermal comfort
3. Design buildings to promote walking, healthy movement, and exercise whenever possible
4. Include considerations of biophilic design, including access to nature, safety, texture and color.
5. Provide building occupants control over their environment (eg open windows, move chairs, sit or stand while working).
6. Implement green cleaning practices
7. Provide water bottling filling/hydration stations on every floor of each building
8. Provide an occupant oriented sustainability hub at each site that includes: bike repair station, solar powered docking station, water bottle filling station, covered seating, recycle and compost center, covered bike parking and video surveillance.
9. Work continually to improve public transit and alternative forms of access to district sites.

1.7 Reduce Waste

Construction and demolition generate enormous quantities of solid waste and reducing waste as well as diverting waste from the landfill provides financial savings in addition to environmental benefits. SCJCD aspires to reduce waste all of its construction projects and ensure adequate recycling and composting facilities are designed in their new facilities.

1. Promote source reduction in all aspects of facility design, construction and operations.
2. Exceed statewide landfill diversion goal of 75% by 2020
3. Include building and campus infrastructure for collection and storage of recyclables, trash and on-site composting, including appropriate signage.
4. Provide at least on recycling and one composting collection bin in every 2000 sf of building space.
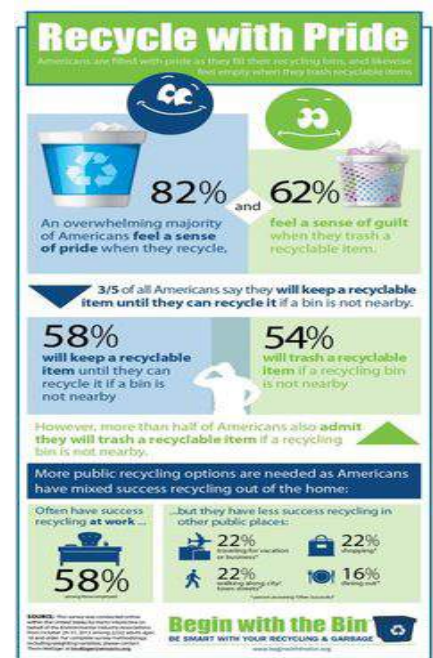
1.8 Use the Built Environment as a Teaching Tool

SCJCD should be a model educational institution for sustainability practice and education, especially in Sonoma County.

Showcasing green building and site elements provides experiential learning opportunities and positively influences the campus community to champion sustainability. SCJCD desires the campus to be a teaching tool in order to raise awareness of sustainability issues and efforts to positively influence the behaviors of all campus community members.

1. Create opportunities for learning in the built environment by giving design consideration to how building spaces and systems can be used as a real time teaching tool.
2. Provide educational signage and real time dashboards to highlight green building strategies.
3. Provide a detailed list and user's guide to the building's green attributes

1.9 Facilitate Sustainable Management of Campus Operations

Regardless of how sustainable a building may have been in its design and construction, it can only remain so if it is operated responsibly and maintained properly. SCJCD is committed to ongoing monitoring of their facilities and operation for continuous improvement opportunities.

1. Install water, gas, electricity and flow BTU meters. Install meters at appropriate locations to monitor ongoing operations.
2. Provide on-going commissioning and operational training.
3. Require 3 year service contracts for all new HVAC systems and large appliances.
4. Include language in RFPs/RFQs requiring the

training of facilities staff for operation use of advance high performance building systems.
5. Provide regular reports to District leadership on the energy, water, waste, carbon and other sustainability metrics
6. Implement a district wide sustainability dashboard, available for viewing at select site locations and on the district's web site. This dashboard should provide real time as well as trending analyses of the sustainable performance of the district - as a whole and on a site by site basis. Energy consumption, renewable energy generation, recycling and composting diversion rates, water (potable and other) consumption and GHG emissions are just some of the sustainability insights that can be reported on the dashboard.

1.10 Showcase Sustainability Leadership

While all elements should be considered, every project will need to prioritize its own specific sustainability goals. When it makes sense, the District shall direct its consultants and contractors to pursue external recognition and/or design to external criteria such as:

1. EnergyStar Better Buildings Challenge
2. Savings By Design (PG&E)
3. Leadership in Energy and Environmental Design (LEED) Silver or higher
4. Zero Net Energy Recognition (New Building Institute or Living Future Institute)

4.4
Accessibility /
Universal Design

Universal Access (UA) Guidelines Manual

Sally Swanson Architects, Inc. (SSA) is honored to present this Progress Report to the Sonoma County Junior College District (SCJCD) for review and comment. Evidenced through its efforts, the SCJCD is profoundly committed to furthering Universal Design (UD) and encourages its architects to integrate UD concepts into their work. The Manual concisely presents the most common UD principles and offers simple, straightforward examples of these principles either present or missing in SCJCD projects. Upon its completion, the manual will provide the basis for implementing UD standards across all five SCJCD campuses.

The Universal Access Guidelines Manual is not an Access Compliance Manual. While much has been written about UD, it is often equated with Access Compliance; the two concepts are, however, very different. The purpose of accessibility laws is to eliminate barriers in the built environment for use by persons with disabilities. UD, on the other hand, provides improved usability and safety for all members of the community. The goal of UD is to extend the benefits of accessible design to everyone and recognize that improved usability enhances the value of the built environment for all users.

The UA Standards cited in this Progress Report were developed in part by funding from the Global Universal Design Commission, Inc. (GUDC) and the National Institute on Disability and Rehabilitation Research (NIDRR), through the Rehabilitation Engineering Research Center on Universal Design and the Built Environment (RERCUD). Sally Swanson is a member of the GUDC Standards Development Committees.

We are available to answer any questions. Please call or email:

Sally Swanson, Principal-in-Charge
p. 415.445.3045 ext. 101
sswanson@swanarch.com

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Santa Rosa Campus
Photo by: SSA

ACCESSIBILITY & UNIVERSAL DESIGN

Campus Online Survey Results

Santa Rosa Campus
Photos by: SSA

What does accessibility mean to you?

"Use by a variety of individuals regardless of accessibility needs"

"Access to programs, facilities, and services"

"Participation without being limited due to physical or technological barriers"

"Ability to move around campus with ease"

"Equal access for all in the physical and curricular environment including campus website"

"Thoughtful design that's sensitive and inclusive"

What is Santa Rosa Junior College doing well for accessibility?

"Barriers are identified, removed and/or corrected"

"District Accessibility Committee (DAC) is proactive toward campus accessibility"

"DAC has an open dialog about accessibility"

"Disability Resources Department (DRD) ensures accessibility needs are being met"

How can Santa Rosa Junior College improve its accessibility?

"Provide restroom and shower access for transgender campus community"

"Better signage throughout campus, especially maps"

"Better access to: Tauzer, Doyle, Plover, Burbank, Pioneer, Analy, and Bailey"

"More support for closed captioning and faculty training on issues of accessibility"

"Beacons to help the visually impaired"

"Meet the needs of students with limited English or visual impairments"

"Dedicated bike/skateboard routes outside of pedestrian paths"

What would the perfect accessible environment look like?

"Campus without barriers"

"Locker rooms and private showers for transgender community"

"Evening lighting that illuminates pathways"

"Legible signage throughout campus"

"Access to assistive technologies on demand, including campus website"

"Improved Braille signage, drinking fountains, ADA push buttons for doors and adequate time to navigate through doorway"

"Thoughtful , sensitive and inclusive design"

ACCESSIBILITY & UNIVERSAL DESIGN

Elements of Universal Design

Shone Farm
Photo by: SSA

Southwest Santa Rosa Center
Photo by: SSA

Petaluma Campus
Photo by: SSA

Elements of Universal Design

Body Fit
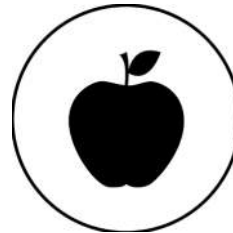
Wellness

Comfort
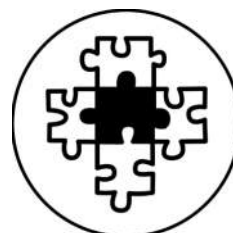
Social Integration

Awareness
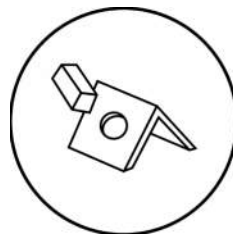
Personalization

Understanding

Contextual Appropriateness

Body Fit

- Accommodates a wide range of body sizes and abilities

- Supports various sizes and functions of the body

- Addresses differences in space clearances needed to accomplish tasks, including space for assistive devices

- Supports differences in fields of view
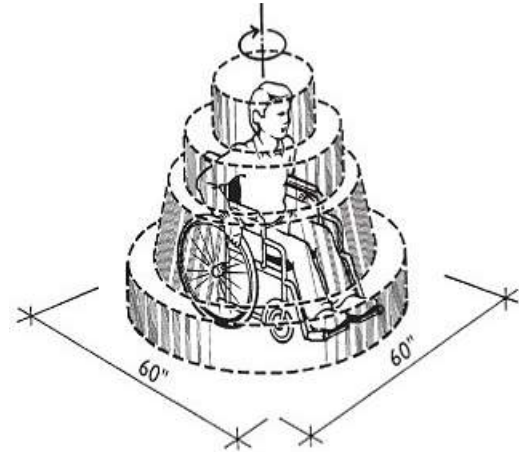
Photo by: US Department of Justice
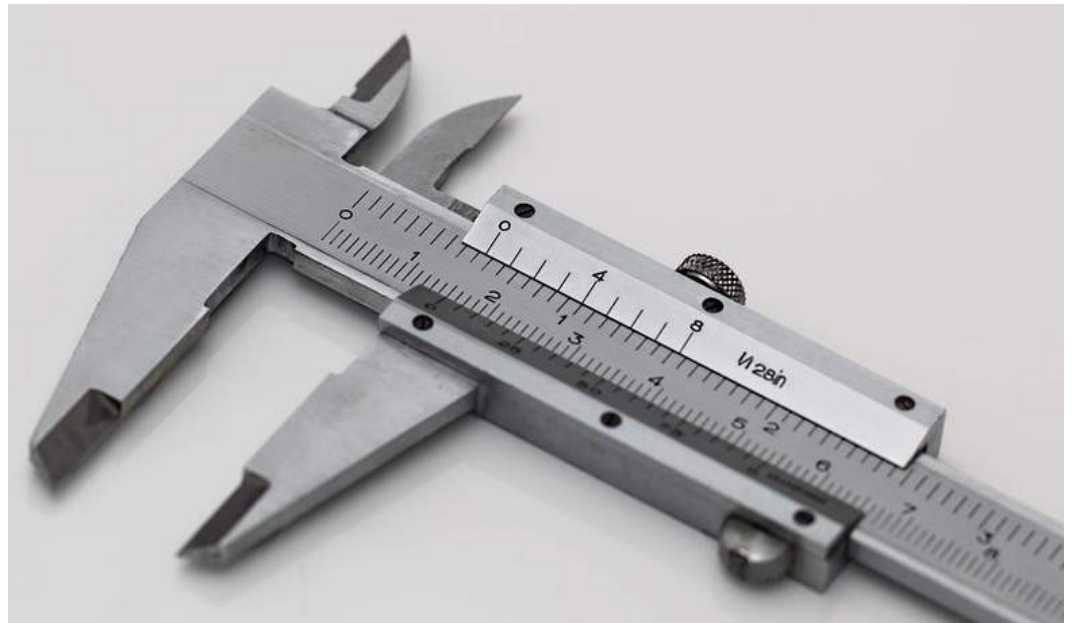
Accessibility is measured in inches, so attention to detail can make the difference between access and injuring someone
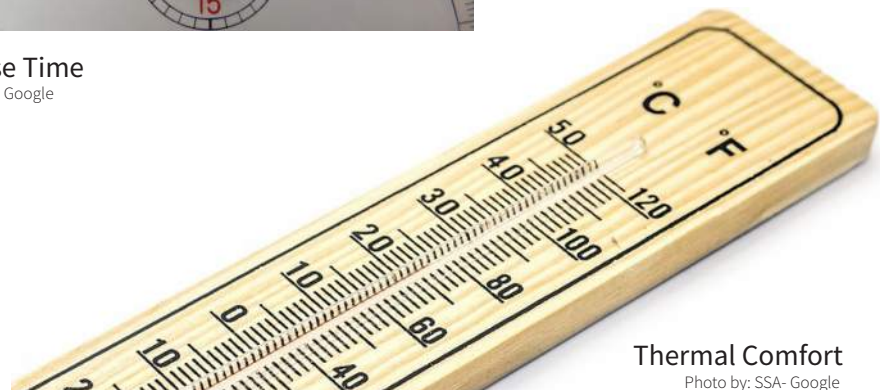
Photo by: SSA- Google

Comfort

- Supports desirable limits of body function and perception

- Addresses a user's ability to exert initial force, repetitive motion, and/or stamina

- Considers reaction and response time

- Supports maintenance of thermal equilibrium

Initial Force Applied
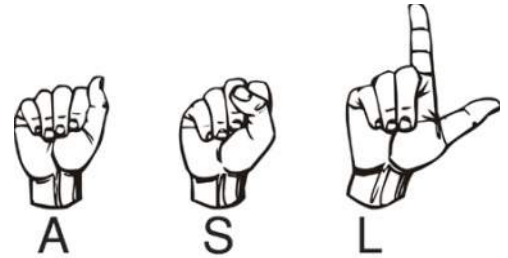Photo by: SSA- Google

Response Time
Photo by: SSA- Google

Thermal Comfort
Photo by: SSA- Google

Awareness

- Addresses differences in perceptual abilities

- Provides fail-safe features to protect against errors and mistakes

- Supports compatibility with assistive devices (e.g. hearing aids, white canes)

- Addresses the desired level of sound compared to the level of background noise

American Sign Language
Photo by: SSA- Google

Assistive Signage
Photo by: SSA- Google

Truncated Domes
Photo by: SSA- Google

Understanding

- Addresses complexity in operations or information

- Prioritizes information needed for implementation of actions

- Communicates safety and risk features

- Focuses on literacy and language skills

Pedestrian Walk Symbol
Photo by: SSA- Google

Photo by: SSA- Google

Access Push Button
Photo by: SSA- Google

Pedestrian Push Button
Photo by: SSA- Google

Wellness

- Provides proper hygiene in areas associated with risk of contamination

- Provides for rapid assistance in an emergency; protection from safety/security risk

- Supports choices for active and healthy living

- Protects from environmental hazards

Automatic Touchless Paper Dispenser
Photo by: SSA- Google

Automatic Faucet
Photo by: SSA- Google

Social Integration

- Equally accessible by everyone

- Individual's use of a building shall be the same (e.g. providing accessible entries to buildings)

- Shall not isolate or stigmatize any user; supports cultural attitudes and values

- Shall not privilege one group over another

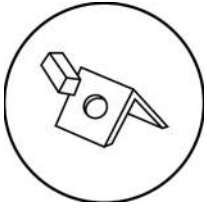- Options for multiple languages are provided

Photo by: SSA- Google

Empowerment
Photo by: SSA - Google

Personalization

- Supports the provision of choices and alternatives

- Addresses user control over the environment

- Supports user independence to minimize inconvenience

- Control over exposure and personal information

Petaluma Campus
Photo by: SSA

Choices and Alternatives
Photo by: SSA- Google

Contextual Appropriateness

- Supports valued traditions and culturally based interpretations

- Fits within and/or improves upon the local physical context

- Acknowledges diversity and ensures usability by all

- Provides adequate space necessary to enable equal use

Santa Rosa Campus
Photo by: SSA

Open Space
Photo by: SSA- Google

Cultural Context
Photo by: SSA- Google

Physical Context
Photo by: SSA- Google

ACCESSIBILITY & UNIVERSAL DESIGN

Compliance Guidelines

Universal Access Guidelines

This section provides general guidelines designed to expand the usability of campus buildings, its site, and amenities. These guidelines will shape the planning, design and management of campus accessibility for all users.

Compliance with accessibility regulations is not the same as Universal Design. Anti-discrimination laws like the Americans with Disabilities Act (ADA) provide the basis of Universal Design (e.g. eliminating discrimination in obtaining goods and services, and in social participation caused by the physical environment).

Universal Design takes a broad stroke at recognizing that the provisions of accessibility regulations are the minimum factors to consider towards ensuring campus access for all users. Many Universal Design features cost little to nothing. In fact, some features can save money and even increase income.

For example, a main entrance with no level change into a vestibule eliminates the need for stairs and ramps. Automated doors increase comfort for users while decreasing damage to door frames, and related injuries as well as relieve congestion in bad weather.

Petaluma Campus
Photo by: SSA

Table of Contents

ACCESSIBILITY & UNIVERSAL DESIGN

Site Elements

- **Site Entrances and Exits**
- **Site Circulation**
- **Transit and Parking**
- **Building Relationships**
- **Outdoor Amenities**

ACCESSIBILITY & UNIVERSAL DESIGN

Site Entrances and Exits

- Locations

- Approach

- Street Crossing

- Curb Ramps

- Site Access Point Information

- Temporary Pedestrian Access Routes

Locations

1. Site entrances/exits are conveniently located and distinguishable from their surroundings

2. Signs identify all site access points and path of travel choices at campus nodes

3. If construction projects limit access to entrances and exits, provide information signs to alternative routes

4. Landmarks, landscape features, graphics, and architectural elements distinguish entrances and exits

5. Entrances are visible from vehicular, pedestrian, and bicycle approach paths


4
Photo by: SSA

3
Photo by: SSA

1
Photo by: SSA

Approach

1. Primary approach routes are safe, convenient and provide users with choices

2. Warnings are provided for drivers when approaching pedestrian and bicycle crossing zones

3. Turning lanes are provided for vehicles to disengage from through traffic

4. Accessible routes begin and end at the same points as other pedestrian routes

5. Loading and unloading zones are separate from traffic flow

6. Loading and unloading zones are sheltered from weather conditions

7. Transitional or compatible illumination, audible, and tactile conditions between off-site and onsite conditions are available

8. Extra space is given at gathering zones, campus quads, and/ or queues where crowding is expected
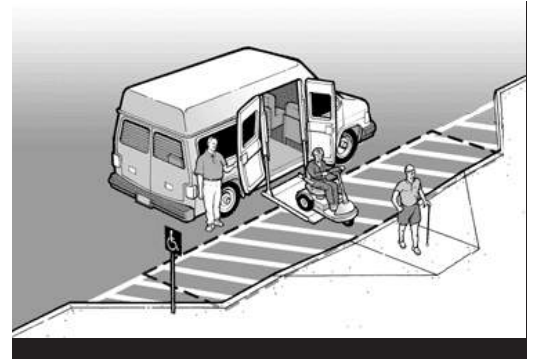
5
Photo by: Google

6
Photo by: CDH Partners Architects

7
Photo by: SSA

Street Crossing

1. Street crossings protect pedestrians from conflicts with vehicular traffic

2. Curb ramps adjacent to crosswalks are wide enough to avoid "bottlenecks"

3. Pedestrian signals with walk/ don't walk displays include both audible and visual communications

4. Pedestrian signals with countdown displays for walk/ don't walk include both audible and visual communications

5. Pedestrian crossing cycles are long enough for a slow-moving pedestrian to cross safely

6. Pedestrian crossing distance is minimized through safety islands

7. Protective devices, such as bollards, prevent vehicles from entering pedestrian safety islands

8. Pedestrian and bicycle routes are separated from vehicular traffic

9. Boundaries of safe crossing zones use both contrasting color striping and truncated domes

10. Proper drainage diverts water away from pedestrian crossing zones and curb ramps

1
Photo by: Google

4
Photo by: Google

Curb Ramps

1. Curb ramps should provide a smooth transition at level changes (e.g., pedestrian crossings, loading and unloading zones)

2. Changes in pavement treatment are provided to help all users identify the beginning of the curb ramp (e.g., colored truncated domes)

3. Lips at the bottom of curb ramps are avoided to ensure that they blend easily with the road surface

4. Warning grooves are used along edges of curb ramps to indicate a change in level

5. Landings at the tops of curb ramps are provided

6. Curb ramps are best located outside the main flow of pedestrian traffic

4
Photo by: Google

5
Photo by: Google

1
Photo by: Google

Site Access
Point Information

1. Visitors to the site have access to all necessary information at site access points to learn about resources available and where they are located

2. Information about entrance and exit locations, including construction conditions, alternate routes, and schedules is available on an accessible website in a variety of formats

3. Information signs provide directions to major site destinations, routes to facilities or dense complexes (e.g. general parking, campus buildings, campus police, student center, key entries and services)

4. Electronic message boards provide information on current and future events

3
Photo by: NNSA Campus

4
Photo by: Wikipedia

4
Photo by: SSA

Temporary Pedestrian Access Routes (TPAR)

1. An alternate route is provided when current pedestrian facilities are disrupted within temporary traffic control (TTC) zones

2. Safe navigation around areas under construction is provided

3. There is signage for pedestrians leading to an accessible pedestrian route

4. All paths of travel (POT) connectivity to each structure from parking lots and all transportation nodes (e.g., bus stops, drop off points, etc.) are identified

5. Maps showing accessible pedestrian routes to accessible campus building entries, information nodes, restrooms, ramps, and parking are provided

6. Maps that are needed for projects under construction, projects immediately planned for construction, and any holding up DSA certification are provided

7. Pedestrian POTs that are in areas with mainline traffic throughout or near the worksite are avoided

1
Photo by: SSA - Google

2
Photo by: SSA - Google
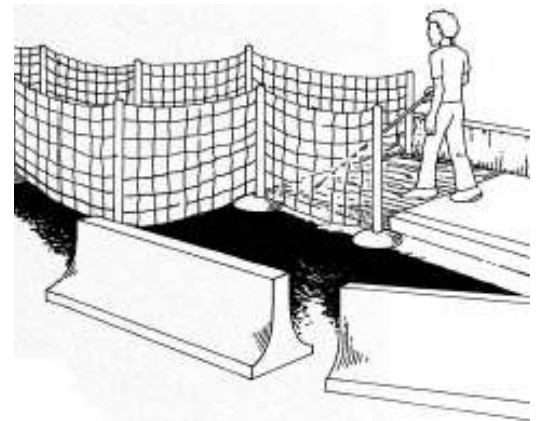
ACCESSIBILITY & UNIVERSAL DESIGN

Site Circulation

- Pathway Network

- Pathway Edges

- Pathway Surfaces

- Pathway Illumination

- Stairs and Ramps

- Rest Areas

- Pathway Security

Pathway Network

1. Pathway network reduces exposure to obstacles and accidents

2. Pedestrian traffic is separated from vehicular traffic by marked pathways, separate routes or changes in level

3. Reserved bicycle lanes are separated from vehicular traffic by marked pathways, separate routes or changes in level

4. Zones shared by pedestrians, motor vehicles and bicycles are marked by distinct colors and/or boundary markings

5. All pedestrian pathways on site are connected to provide a continuous network of accessible pathways free of grates, cracks, and overhead obstructions (e.g. tree limbs, signage, and architectural elements)

6. Bicycle routes on site are connected to provide a continuous network

7. Major access routes are free of ramps and stairs

8. Pathways are wide enough for all wheeled mobility devices

1
Photo by: Prixabay

6
Photo by: Pixabay

Pathway Edges

1. Pathways have clearly marked boundaries and protect pedestrians from vehicular traffic

2. Contrasting textures and colors are placed between circulation edges

3. Curbs are provided at unprotected edges of pathways

4. Curb ramps and flares have minimal slope in all directions

5. Bollards, walls, or planted areas provide protected and detectable edge along pathways

6. Integrated electronic guidance systems, audible, and tactile cues create detectable edges where pedestrian zones abut vehicular zones

7. Street crossing is raised close to sidewalk elevation to provide curbless intersection

8. Curbless intersections are marked by contrasting colored truncated domes detectable by cane users

9. Drainage at street crossings eliminates water and ice from collecting at base of curb ramps or along edges of curbless intersections

2
Photo by: SSA

5
Photo by: SSA- Google

8
Photo by: ADA Solutions, Inc.

Pathway Surfaces

1. Pathway surfaces are smooth, firm, stable, slip-resistant, free of cracks, clear of obstacles, and are suitable for wheeled mobility devices

2. Overhanging objects do not protrude into the path of travel

3. Surfaces have low reflectance

4. Surface texture and materials reduce slipping and tripping

5. Pathways are wide enough to accommodate expected flow of traffic

6. Overflow areas are provided along pathways where crowding may occur periodically at peak times

7. Pathways have sufficient cross slope to avoid standing water and divert water away from the path

8. Permeable pavement reduces water collection on path surfaces

5
Photo by: Prixabay

1
Photo by: Prixabay

5
Photo by: SSA

Pathway Illumination

1. Pathway illumination enhances perception, orientation, security, and is continuous without hotspots or glare

2. Increased illumination levels at information nodes and major nodes is provided

3. No strong shadows on pathway surfaces are present

4. Smart lighting systems automatically activate when movement is detected, adjusts for the amount of natural illumination available, and can activate audible information for the hearing impaired

2
Photo by: 34th Street Partnership

1
Photo by: TLCD Today

Stairs and Ramps

1. Stairs and/or ramps are only used due to unavoidable conditions

2. Stairs and/or ramps are compliant and convenient for all users

3. Pathway width is maintained on stairs and/or ramps

4. Riser and tread proportions reduce falling and support comfortable stepping

5. Stairways have a minimum height between landings

6. Stairway locations are marked by a significant texture change at the top and bottom

7. At intermediate landings, resting areas do not disrupt traffic flow

8. Ramp slope is as minimum as possible

9. Ramps run in the direction of travel wherever possible

10. Non-abrasive wall surfaces are specified next to railings

11. Railing shape provides grip that facilitates grasping when falling

12. Tactile cues on rails indicate upcoming landing

13. Handrails and treads are evenly illuminated

14. Strong shadows are not cast on stair treads during daylight or evening hours

15. Contrasting color is used to help identify stair nosing

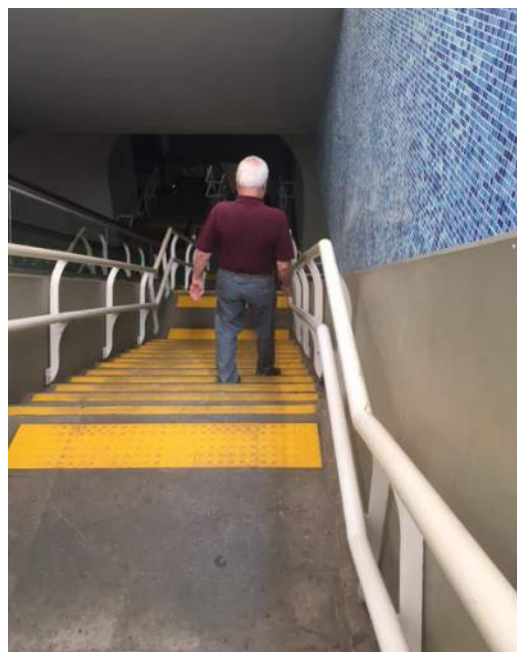16. Outdoor lifts and elevators are located in climate protected areas

15

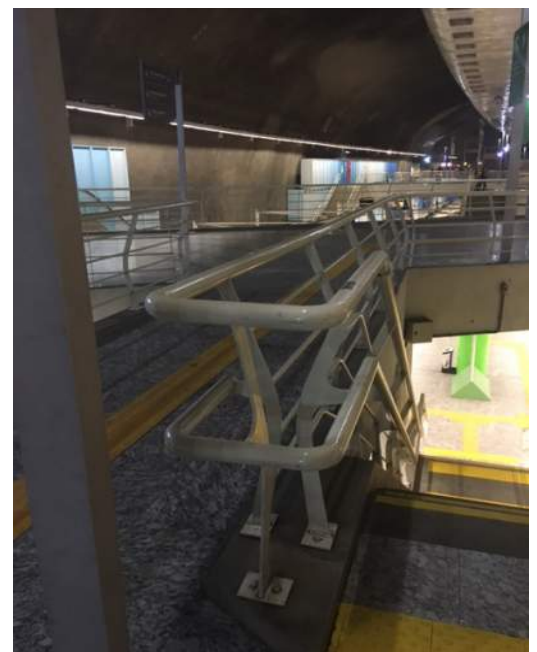Photo by: SSA- Google

2
Photo by: SSA

6
Photo by: SSA

11
Photo by: SSA

Rest Areas

1. Rest areas are available along steep or long pathways

2. Rest areas are provided out of the circulation path

3. Seating and clear floor space is available for wheeled mobility devices

4. A variety of seating options is available to accommodate all users

3
Photo by: Getty Images

1
Photo by: Wikiwand

Pathway Security

1. Site circulation is safe for all users

2. Two-way emergency communication equipment is provided at strategic locations, wherever potential security threats might exist, and is accessible to all users

3. Video surveillance is incorporated as a deterrent in dangerous areas

4. Surveillance/protection is enhanced by the presence of a nearby manned security station and campus police

5. Personal device activates audible information by proximity (e.g. app or beacon system)

4
Photo by: LA Times

2
Photo by: San Diego Mesa College

ACCESSIBILITY & UNIVERSAL DESIGN
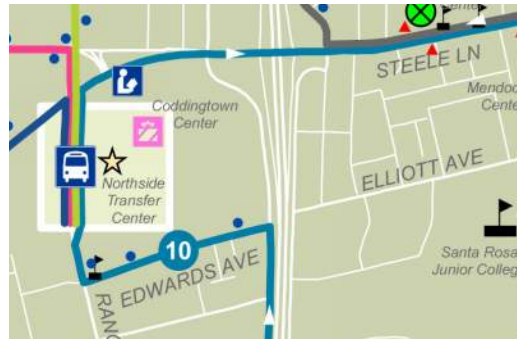
Transit and Parking

- Transit Stops

- Transit Shelters

- Circulation in Parking

- Parking

- Parking Payment Systems

- Loading and Waiting Areas

- Microclimate in Parking Lots

Transit Stops

1. Transit stops support use of transit by all users

2. Transit stops are located near major building entrances

3. Multiple stops are within five minutes of pedestrian travel from one another

4. Stops are separated from other vehicular loading and unloading zones

5. Stops are clearly marked with routes served

6. Vehicles can be boarded with a ramp at a level and direct platform

7. Seating, standing areas, and clear floor space for wheeled mobility devices are available to accommodate the expected traffic

8. Stops are located in an area protected from weather and other obstacles

9. Route map, schedule information, and arrival times are available in print form, online or by phone

10. Shelter enclosure blocks prevailing winds and splashing from roadway

11. Stops are in direct view of oncoming transit vehicles from interior

12. Transparent enclosure is provided to deter anti-social behavior and illuminated at night

13. Enclosure design prevents litter accumulation

Photo by: Android Applications

9

5
Photo by: SSA- Google

6
Photo by: SSA

12
Photo by: Wikimedia

Transit Shelters

1. Located at or very near building entrances

2. Resting stations/areas permit the paths to continue on through the site

3. Designated parking location/ facilities are provided

4. Bicycle parking areas do not obstruct the main circulation path

5. Secure storage is provided for bicycles

6. Weather protection for bicycle parking areas is provided

2
Photo by: SSA - Google

6
Photo by: SSA - Google

Circulation in Parking

1. Adequate safety and security is provided for pedestrians in parking areas

2. Manned security service and/or video monitoring is available

3. Well-lit lots to pedestrian pathways are provided

4. Emergency phones are marked with special lighting or signage

5. Speed limits are clearly posted

6. Traffic calming devices (e.g. speed bumps, stop signs, yield signs) are near pedestrian pathways

7. Vehicular paths are separated from pedestrian routes in lots

8. Protected pedestrian pathways/ islands are provided (e.g. landscaped area with a sidewalk)

3
Photo by: Albern Energy Solutions

2
Photo by: soselectronics

7
Photo by: Cal State Fullerton

Parking

1. Designated priority parking areas close to building entrances are available for all users (people with disabilities, seniors, children and families, short-term users, etc.)

2. Designated parking area is provided for buses and other larger vehicles close to main entrances

3. Parking spaces are clearly marked or striped

4. Shuttle service is available for large parking lots or lots located far away from a building entrance

5. On street parking contributes to available parking spots where applicable

6. Adequate, convenient, and alternate parking is available in clearly marked areas

1
Photo by: William M. Holl. AIA

3
Photo by: Reliable Shuttle

6
Photo by: SSA - SSA

Parking Payment Systems

1. Simple, convenient, and efficient parking systems are used

2. Payment can be made prior to leaving vehicle

3. Online payment can be made to pre-purchase or extend time

4. Payment machines are located on the pedestrian path of travel to destinations

5. Returning to a vehicle after payment is not required

6. Prices of parking are clearly displayed

7. Payment can be made by cell phone remotely

1
Photo by: City of Kingston

4
Photo by: SSA - Google

7
Photo by: CIO

Pedestrian Loading and Waiting Areas

1. Safe and convenient locations are provided for loading and waiting

2. Designated loading and waiting areas with adequate seating are provided

3. Separate areas for different transportation modes (e.g. automobiles, transit, etc.) are provided

4. Areas are distinguished by signs, pavement markings, paving materials, etc.

5. Pull-offs for loading and waiting do not interfere with through traffic

6. Physical protections are provided between vehicular and pedestrian areas (i.e., bollards, planters, etc.)

5
Photo by: Federal Highway Administration

6
Photo by: Federal Highway Administration

2
Photo by: NM News

Microclimate
in Parking Lots

1. Islands with trees and planting provide shaded parking

2. Vegetation and permeable paving are used to reduce standing water and sloped paving

3. Deciduous trees are selected to afford sunlight in winter months

4. Light-colored environment is provided to reduce seasonal affective disorder

1
Photo by: Klarup Kindergarten

2
Photo by: Butler University Parking Landscaping

5
Photo by: Local Ecologist

ACCESSIBILITY & UNIVERSAL DESIGN

Building Relationships

- Site Relationships

Site Relationship

1. Users can locate and access buildings safely and conveniently

2. Building entrances are within sight of public transportation stops, parking areas and nearby roads

3. Designated pedestrian paths of travel connect all buildings without crossing parking lots or major vehicular traffic routes

4. Pedestrian circulation on the site is smoothly integrated with local pedestrian routes, or the project includes strategies to enhance the existing network
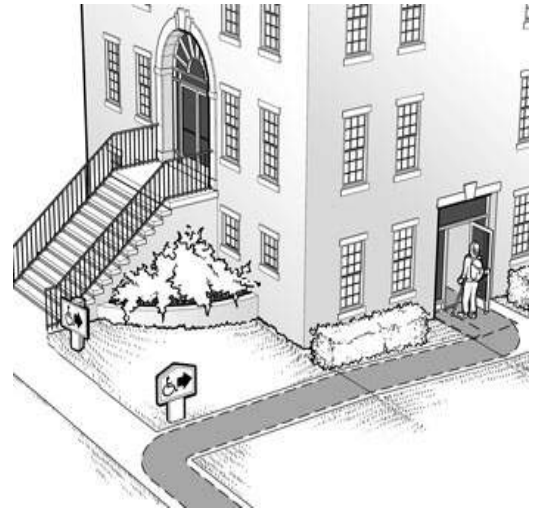
1
Photo by: US Department of Justice

2
Photo by: US Department of Justice

Mission College
Access Master Plan Future

Legend:
- Existing Buildings
- New Buildings
- Restrooms
- Bus Stop
- Bus Route
- Non-accessible Path of Travel
- Accessible Path of Travel
- Accessible Parking
- Site Entry Points
- Construction Zone

3
Photo by: SSA

CAMPUS ADA ACCESSIBLE PATHWAYS
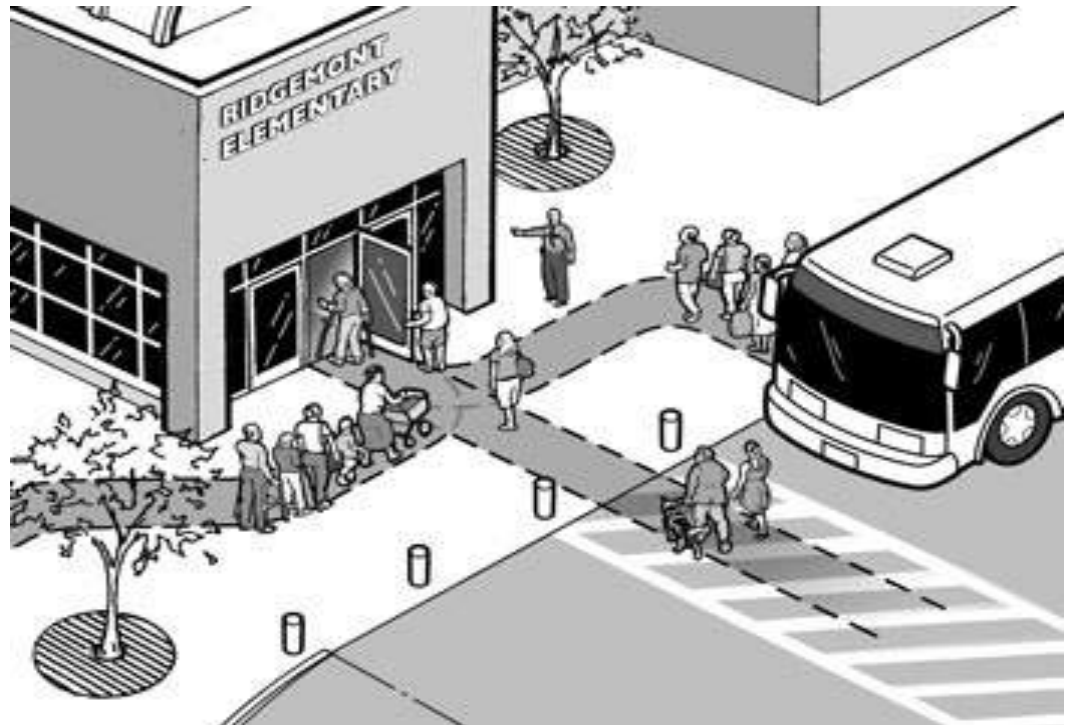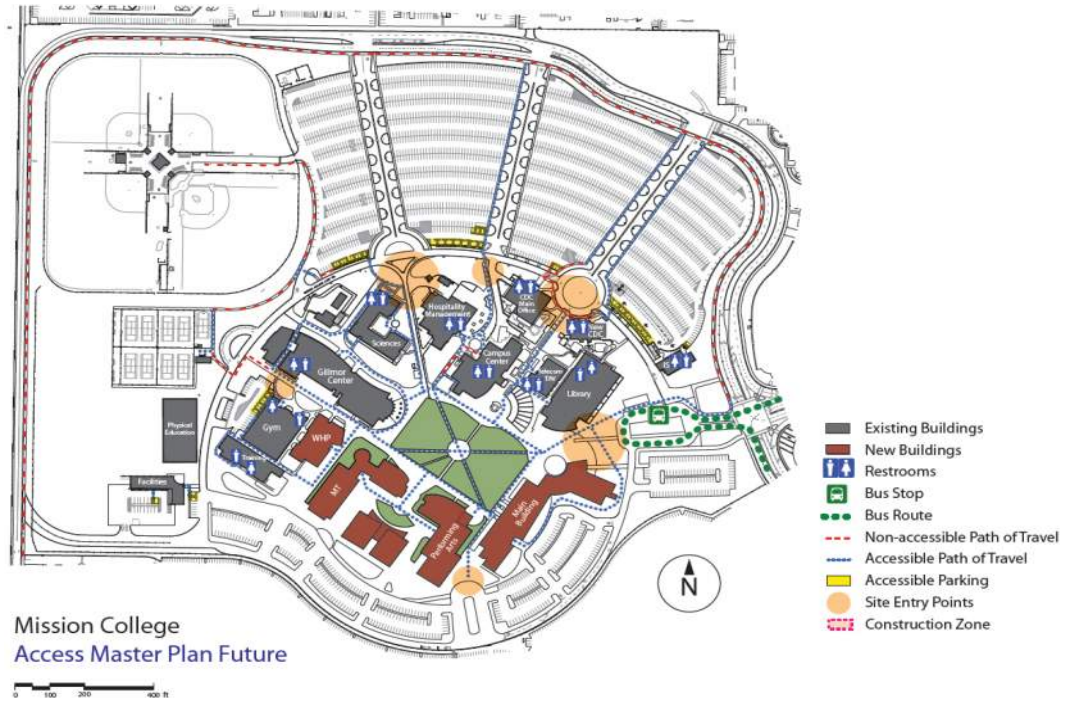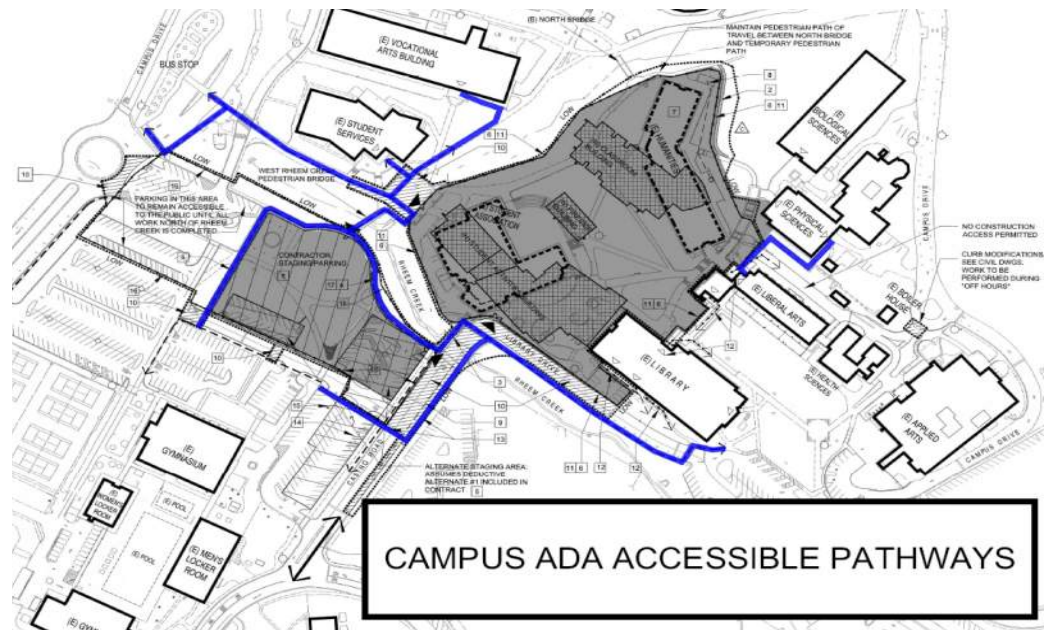
4
Photo by: SSA

ACCESSIBILITY & UNIVERSAL DESIGN

Outdoor Amenities

- Location

- Water Fountains

- Seating Areas

- Public Information Displays

- Waste Receptacles

- Plantings

- Animal Care

Location

1. Amenities are located in safe and convenient locations

2. Amenities are located within sight of primary circulation paths, entrances or gathering places

3. Amenities can be identified by a distinctive form, color and/or signs

4. Amenities are located in well-lit public places, where users are not isolated or at risk

5. Amenities are grouped together by function

3
Photo by: SSA

Diablo Valley College
Existing Site Access Analysis
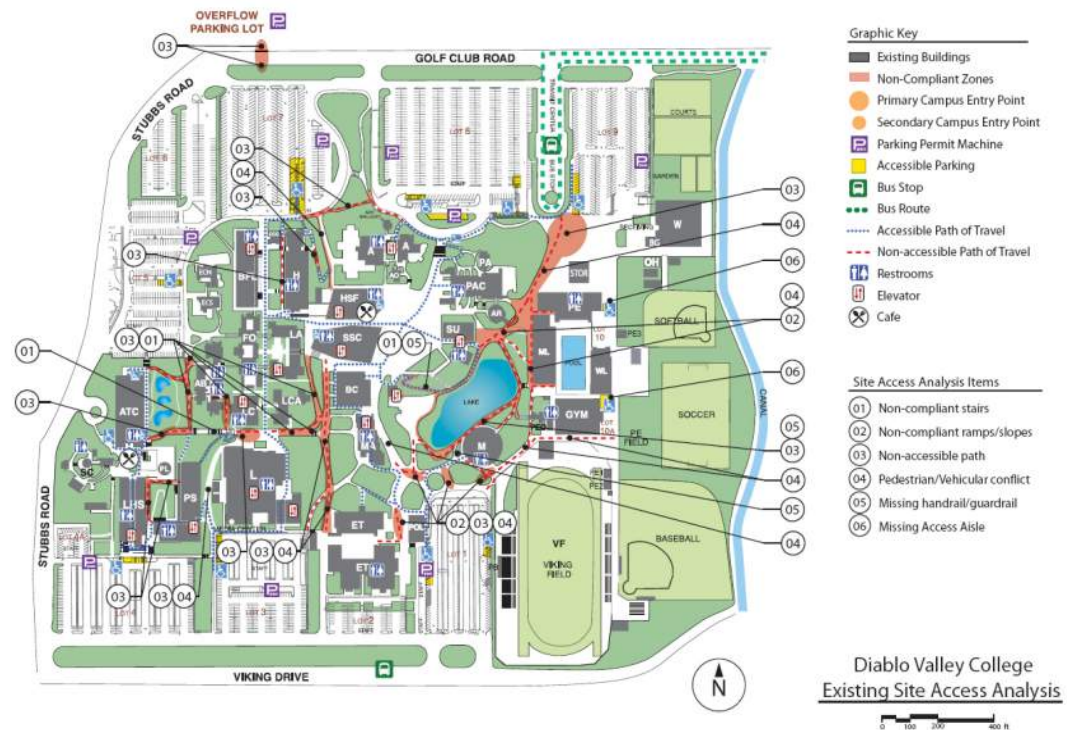
5
Photo by: SSA

Water Fountains

1. Water fountains in a wide range of sizes are available and usable for all persons

2. At least two heights for spigots are provided at any location (e.g. wheeled mobility devices, standing adults)

3. Facility for filling up personal water containers is available

4. Activation feature requires little effort

5. Facility for service animal drinking water is provided

2
Photo by: Elkay Drinking Solutions

3
Photo by: Elkay Drinking Solutions

5
Photo by: Elkay Drinking Solutions

Seating Areas

1. Site furniture is accessible (e.g. clear floor space for wheeled mobility devices), conveniently located and comfortable

2. Areas are adjacent to an accessible path of travel

3. Different types of seating are available, including seating with accessible clear floor space

4. Lightweight, movable furniture is given where security allows

5. Seating clusters facilitate face-to-face conversation without twisting bodies

6. Tables provide knee and toe clearance on at least one side

7. Seating is located and oriented to protect users from wind and provide thermal comfort in all seasons

8. Choices are provided for different diurnal and seasonal conditions (e.g. shade as well as sun, and different activities and social groups)

9. Temporary shading, and/or mechanical misters and/or mechanical ventilation in hot climates is available

10. Seating areas are protected from splashing, odors and noise of traffic

11. Landscape walls incorporate informal seating opportunities

1
Photo by: SSA- Google

5
Photo by: SSA- Google

6
Photo by: SSA-Google
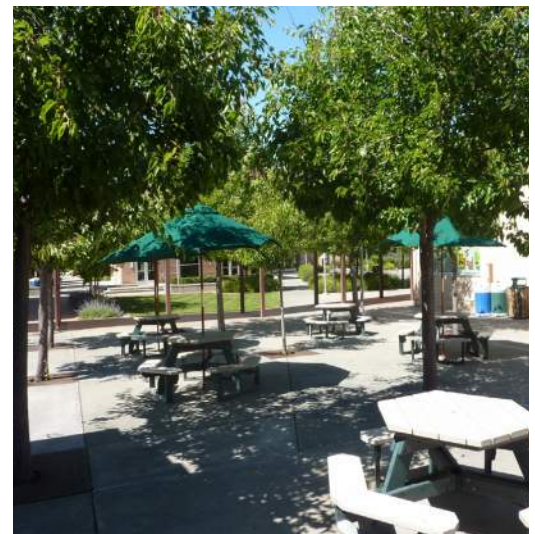
9
Photo by: SSA

Public Information Displays

1. Public information displays are available and provide access to all users (e.g. visually impaired, hearing impaired, etc.)

2. Text is large enough to read at the expected viewing distance

3. Text and pictograms have high contrast

4. Surfaces are free from glare from the expected viewing location

5. Alternatives to text are available (e.g. audible and/or tactile modes)

6. Volume adjustment is provided for audible displays

7. Illumination or backlighting is given for readability at night

8. Personal device activates audible information by proximity (e.g. app or beacon system)

1
Photo by:SSA- Google

7
Photo by: SSA

Waste Receptacles

1. Waste receptacles are convenient for all users

2. Recycling containers are provided wherever garbage receptacles are located

3. Recycling receptacles are marked with colors, tactile markings, or signage to distinguish them from garbage receptacles

4. Receptacles are usable with only one hand (e.g. open tops, slots and push doors)

5. Receptacles are located on or adjacent to accessible path of travel

4
Photo by: SSA

3
Photo by: SSA-Google Away Solutions

Vegetation

1. Planting and landscaping present no danger to any visitor

2. Poisonous plants are eliminated from places within reach of any person

3. Plants that shed leaves and fruit are located in places where they will not create slipping hazards

1
Photo by: SSA- Google

3
Photo by: SSA

Service Animal Care

1. Specific places on site are provided to take care of service animals

2. Signs prohibit curbing service animals without collecting and disposing of waste

3. Designated area on site is provided for service animal care

4. Service animal care area is on an accessible path of travel and close to a building entry

5. Water trough or basin for service animals is provided

6. Waste disposal facilities are provided

6
Photo by: Pet Waste Eliminator

5
Photo by: SSA- Google

2
Photo by: Diplo Monkey

1
Photo by: SSA- Google

ACCESSIBILITY & UNIVERSAL DESIGN

Building Elements

- Building Entrances and Exits
- Building Circulation Systems
- Space Relationships
- Assembly Spaces
- Restrooms
- Bookstore Product Displays
- Bookstore Transaction Kiosks
- Work Stations
- Indoor Amenities
- Foodservice Facilities

ACCESSIBILITY & UNIVERSAL DESIGN

Building Entrances and Exits

- Building Entrances and Exits

- Approach to Building Entrances and Exits

- Passing Through Building Entrances and Exits

Finding Building Entrances/Exits

1. Building entrances/exits are easy to locate

2. Entrances/exits are distinguishable from their surroundings

3. Entrances and exits are consistent with cultural expectation

4. Prominent signs identify entrances/exits at all building access points

5. Information about entrance/exit locations are available on the internet, including construction conditions and alternate routes

6. Similar but different graphics are used to identify each class of entrances/exits (i.e. number or color system)

7. Separate pedestrian and service entrances/exits are provided

8. Landmarks at each major entrance/exit are provided

9. Entrances/exits are visible from likely vehicular, pedestrian and bicycle approach paths

10. The shortest and most direct route to key destinations in the building is identified

11. Entrances/ exits are located on the side of the building where they would be expected, in relationship to the street and parking areas

12. Architectural details highlight the location of entrances

1
Photo by: SSA-Google

4
Photo by: SSA- Google

11
Photo by: SSA

12
Photo by: Collin College

Approach to Building Entrances/Exits

1. Visitors do not confront any obstacles approaching entrances/exits of buildings

2. All entries are free of steps, including service and employee entries

3. Drainage diverts water away from landings and access ways

4. Automatic doors/gates are provided in approach areas

5. Alternative accessible paths to the closest accessible entry are available from every inaccessible entry

6. Excessive background noise is controlled

7. Excessive wind is controlled by barriers or building/entrance orientations

8. Transitional zones increase illumination near entries

9. Areas to pause or wait without impeding circulation are available

1
Photo by: SSA

2
Photo by: SSA

9
Photo by: SSA

Passing through Building Entrances/Exits

1. Visitors do not confront any obstacles passing through entrances/exits of buildings

2. Sensors activate the entrance/exit for visitors

3. Sensors prevent an automatic door from closing if someone or something is in the path of the door

4. Doors/gates are automatic and do not require use of hands

5. Automatic doors/gates are manually activated

6. Width of entrances and exits accommodates the expected traffic volume

7. Width of entrances and exits accommodates the largest wheeled mobility devices

8. Entrances are stepless and have zero thresholds

9. Where an entrance has two sets of entrances separated by a vestibule, the two entrances have an equal number of doors that are aligned

10. Illumination is provided at both sides of every door

11. Increased illumination is given where doors have locks and/or other security devices

4
Photo by: SSA- Google

5
Photo by: Arkansas Automatic Doors

# ACCESSIBILITY & UNIVERSAL DESIGN

Building Circulation Systems

- Space Planning

- Hallways and Corridors

- Ramps

- Stairs

- Mechanical Circulation Systems

- Building Circulation Safety

Space Planning

1. The location and distribution of program spaces and services reduces travel time and distance to a minimum

2. Rooms that have closely related activities are located in close proximity to each other

3. Indoor spaces that have related outdoor activities have a means of direct access to the outdoor facilities for those activities

4. Related services are grouped together

5. Direct access to the key spaces used by visitors to the building is provided

6. Staff travel time during everyday work activities is reduced by the location and distribution of program spaces

7. Informal social interaction spaces are located at strategic positions in the floor plan

8. Electronic wayfinding for large or complex buildings (e.g. app or beacon system) is available

9. Visitors comprehend the overall circulation plan of the building

10. Diagrammatic floor plans or navigational aids for unusual circulation plans are available

11. Circulation plans are posted near directories and at main entries

12. Circulation system is visible from main entry locations

13. Similar circulation plans are used on each floor

14. Room numbering system is clear, intuitive and presented in multiple formats (i.e. large font, high contrast, Braille, etc.)

8

Photo by: Sign Media
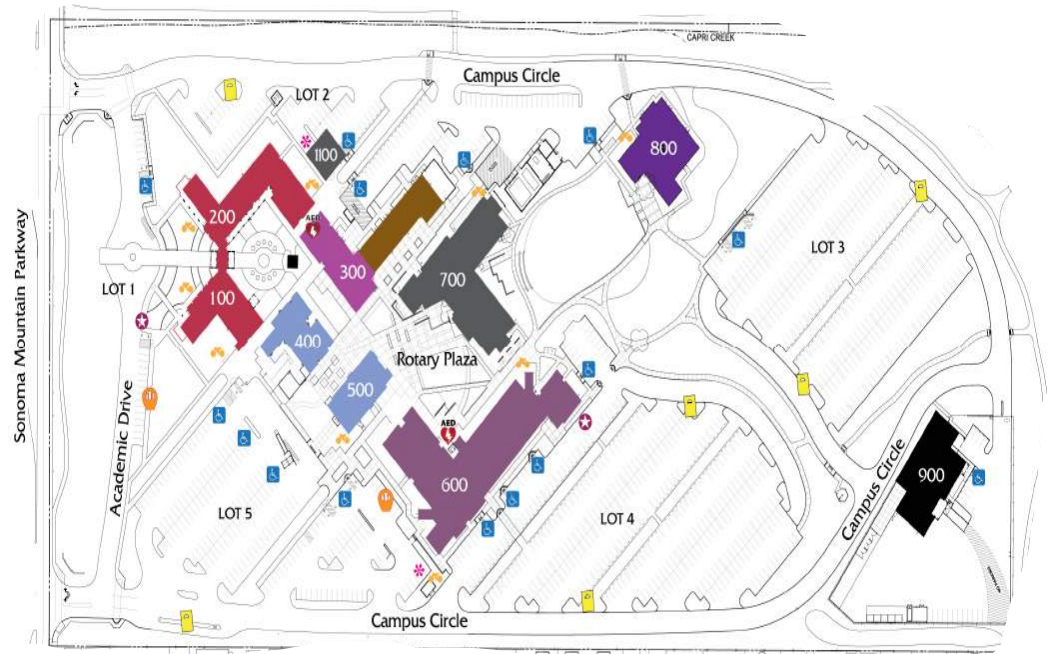
4
Photo by: SCJCD

11
Photo by: SSA

Hallways and Corridors

1. Visitors can travel on a continuous path with no obstacles from any point in the building to any other point

2. Slopes are minimized on major access routes

3. Enough space for two people to pass each other anywhere is given

4. Where stairs, ramps or escalators are provided, an elevator or lift provides an alternative route nearby that connects to the same spaces as the other vertical circulation elements

5. Changes in texture, color, illumination, ceiling height and configuration of space is used to indicate intersections and changes in direction

6. Main paths of travel are differentiated with material, floor textures or color to assist in orientation and ease of circulation

7. Floor materials have low reflectance and are slip-resistant

8. Surface textures and patterns are free from illusions that can mislead and/or distort perception of the space

9. Hallway and corridor lighting enhances orientation and safety

10. Gradual transitions are provided from dark to bright spaces, especially when there is a high level of natural illumination in one space and not the other

11. Hallways and corridors are free from lighting hot spots or glare in the field of view

12. Major nodes are illuminated

13. Strong shadows, that may cause confusion and make details of the surroundings difficult to perceive, are eliminated

14. Resting areas are provided to reduce fatigue

15. Resting areas are placed at intervals out of the circulation path

16. Open space and seating is provided at resting areas

16

Photo by: Norridge Gardens

1
Photo by: SSA- Google

2
Photo by: Grinnell College

1
Photo by: Getty Images

Ramps

1. Ramps are free from obstacles and minimize the level of effort required

2. Ramps are designed for all to use rather than as special accommodations for wheelchair users

3. General pathway width is maintained on ramps

4. Ramps have the lowest slope feasible

5. Ramps run in the direction of normal travel wherever possible

6. Extra space is provided on landings for rest areas that do not disrupt traffic flow on intermediate landings

7. Ramps are perceivable for all users

8. Tactile, visual, and/or auditory cues indicate changes of direction, top and bottom of run

9. Surfaces and edges of non-slip materials are free of glare

10. Ramp surfaces are evenly illuminated without strong shadow

11. Handrails are designed to prevent falls

12. Continuous railings are along both sides of all ramps

13. Handrail extensions are turned down or into walls

14. Handrails are evenly illuminated

15. Railing shape provides grip that facilitates grasping when falling

16. Tactile cues on rails indicate upcoming landing

2

Photo by: Bowen Collins and Associates

1
Photo by: SSA

11
Photo by: SSA

12
Photo by: SSA

Stairs

1. Stairs are free from obstacles and minimize the level of effort required

2. General pathway width is maintained on stairs

3. Minimal risers in any stairway run between landings

4. Riser and tread proportions reduce falling and support comfortable gait

5. Winder stairway plans are avoided

6. Stairways are located out of direct path of travel in order to allow through travel on the floor

7. Extra space is provided on landings for resting areas that do not disrupt traffic flow on intermediate landings

8. Stairways are perceivable for all users

9. Detectable walking surfaces are placed at the top of stair runs

10. Tactile, visual, and/or auditory cues indicate changes of direction, top and bottom of run

11. Underside of stairway runs are free of overhanging hazards and cane detection to prevent overhead collision

12. Surfaces and edges of non-slip materials are free of glare

13. Edges of stair treads contrast well with the stair tread below

14. Stair treads and handrails are evenly illuminated without strong shadow

15. Strong shadows are not cast on stair treads during daylight or evening hours

16. Handrails are designed to prevent falls

17. Continuous railings along both sides of all stairs are provided

18. Where there are large crowds expected, intermediate railings are used to separate traffic streams on stairways with two-directional traffic

19. Handrail extensions are turned down or into walls

20. Handrails are evenly illuminated

21. Railing shape provides grip that facilitates grasping when falling

22. Tactile cues on rails indicate upcoming landing

9
Photo by: SSA

13
Photo by: Vision Austrailia

Mechanical Circulation Systems

1. Mechanical circulation systems provide convenient travel for all users

2. Mechanical circulation systems are integrated into the main pattern of building circulation

3. Location of elevators, escalators and platform lifts is identifiable from building entrances or main lobbies

4. Waiting area is out of the flow of traffic provided in front of elevators, escalators, and platform lifts

5. Sufficient space to use mechanical circulation systems without unnecessary crowding is provided

6. Elevator lobbies have sufficient space for waiting in relation to the number of people typically queuing

7. Elevator floor surfaces have enough space for wheeled mobility devices to enter, turn around, and exit

8. Moving walkways accommodate wheeled mobility devices

9. Lifts are located where they can be monitored by an employee who can provide assistance if needed

10. Mechanical circulation systems have multi-sensory information to provide feedback and warnings

11. Detectable walking surfaces are placed at approaches to escalators and moving walkways

12. Audible warnings are provided prior to the beginning and end of escalators and moving walkways

13. Audible announcements are given of up and down and floor arrivals in elevators

14. Standard keypad layout in elevators to 'dial up' the desired floor is provided

15. Elevator controls are intuitive to use and maneuver and are available in multiple formats (i.e. Braille, high contrast, raised letters, etc.)

16. Destination-oriented elevator systems have a simple and understandable method of use

17. Elevator information displays indicate which floors have been selected by riders (i.e. visual, audible and tactile)
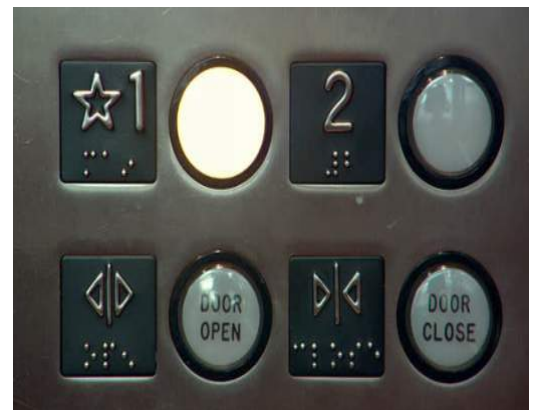
11
Photo by: SSA

1
Photo by: Forms+Surfaces

7
Photo by: Affiliated Customer Service Inc.

15
Photo by: SGetty Images

Building Circulation Safety

1. Buildings provide safe egress and refuge for all users

2. All accessible entrances are also part of a means of egress

3. A total building sprinkler system is installed

4. Elevators are designed for emergency egress

5. One stairway is reserved for fire service access

6. Emergency place of refuge is provided on each floor and multiples are provided for larger buildings within travel time/distance afforded fully able persons

7. Communication systems alert building monitors and keep occupants informed of safety issues

8. Evacuation plan is in place for people who cannot get out of a building on their own in an emergency

9. Information about the evacuation plan available is provided in both visual and audible formats

10. Public address system is available to guide users during emergency situations

11. Illuminated directional and exit signs are placed near the floor level

12. Two-way emergency communications equipment is provided at strategic locations wherever potential security or safety threats might exist

13. Video surveillance is used as a deterrent in high risk areas

14. Automated emergency systems provide visual and verbal cues for evacuation

15. Smart lighting systems automatically activate if movement is detected

16. Recognition systems automatically alert emergency services to dangerous conditions
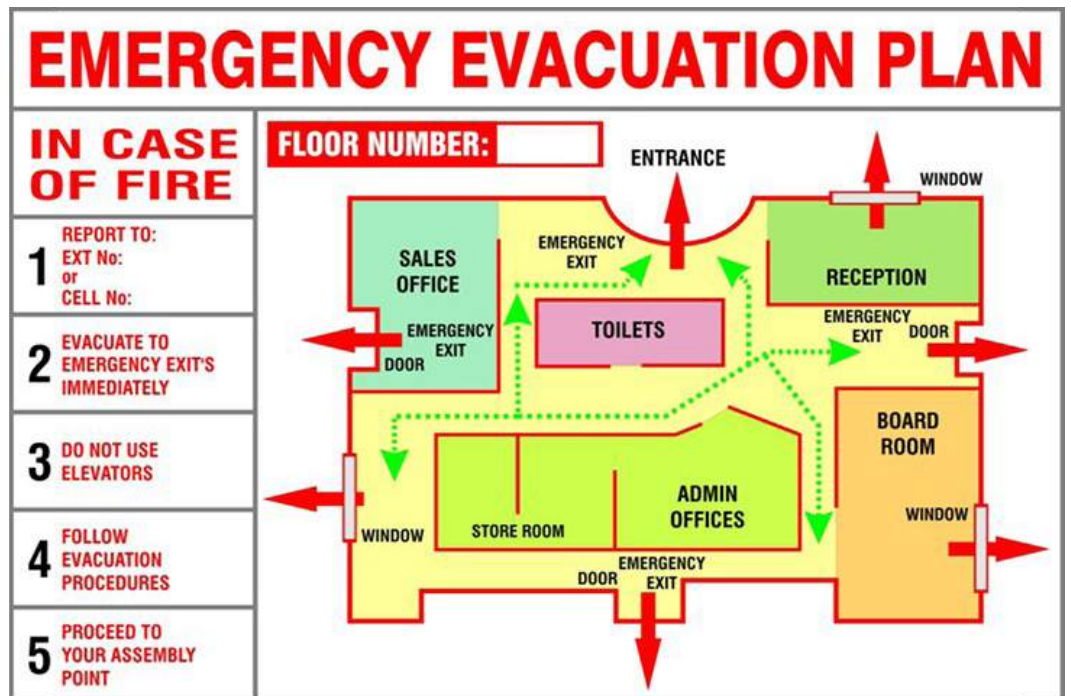

Photo by: SSA-Google

3

5
Photo by: My Door Signs

13
Photo by: PI Now

8
Photo by: Supersound Security

ACCESSIBILITY & UNIVERSAL DESIGN

Space Relationships

- Reception, Ticketing and Waiting Areas

- Spatial Organizations

- Finding Destinations

Reception, Ticketing and Waiting Areas

1. A designated area is provided for people waiting for service

2. The expected size of queues during regular conditions is accommodated by the floor area

3. An overflow area is available nearby to accommodate peak crowds

4. Conflicts between individuals waiting and those already being served is eliminated by the layout of waiting areas

5. Individuals waiting are protected from adverse weather

6. Alternative waiting strategies are available to reduce congestion at ticketing areas (e.g. self-service kiosks, paging devices, internet reservations)

7. Seating for peak crowds is provided at both the regular and overflow waiting areas

8. Visual and audible information is available on the length of wait

1
Photo by: SSA- Google

3
Photo by: Mean Green Map

6
Photo by: Daily Mail

Spatial Organization

1. Different uses of the building do not conflict with one another

2. Rooms with closely related uses are in close proximity to each other

3. Flexible spaces can be customized to accommodate a range of events or activities

4. Spaces for noisy activities are located where they will not disrupt use of spaces for quiet activities

5. Acoustic controls reduce unwanted background noise

6. Appropriate open space is provided for related outdoor events during warm weather

7. Spaces for social interaction are strategically located at points of frequent use by occupants (e.g. water fountain, vending area, kitchen, mailboxes)

4
Photo by: Stadiums USA

6
Photo by: SSA


7
Photo by: Huffington Post

Finding Destinations

1. Rooms and spaces all have numbers

2. Directories list room numbers of departments and building occupants are provided

3. Graphics assist in finding destinations

4. Repetitive building features and services like restrooms, drinking fountains, elevators, and emergency exits are located in the same place on each floor in multi-story buildings

5. Visual and tactile maps of the circulation system are located at all primary nodes

6. Architectural features define "districts" or "zones" based on types of spaces (e.g. services vs. support)

7. Locked doors or signs identify restricted areas (e.g. staff only, mechanical, electrical, utility, etc.)

8. High ceilings are in place for greater visibility in long corridors or very large rooms

9. Availability of multiple floorplans enhances orientation and visibility of the overall building plan

10. Views (e.g. windows, apertures, openings) for orientation, important exterior features and local context are provided

11. Wireless wayfinding aids are available for navigating complex buildings

12. Wireless navigation systems that make use of cell phones and Wi-Fi equipped personal computing devices are provided

13. Interactive multi-sensory building maps allow people to explore the building through vision and touch with output available in both visual and audible modes

1

Photo by: Raider Signage
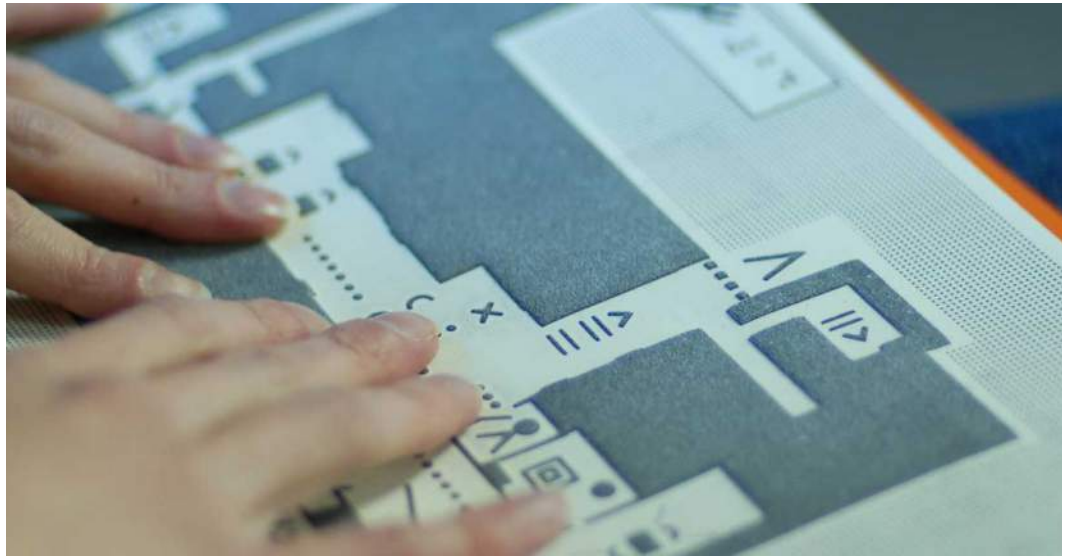
5
Photo by: SSA- Google

13
Photo by: SSA- Google

ACCESSIBILITY & UNIVERSAL DESIGN

Assembly Spaces

- Entrances and Exits

- Aisles

- Seating

- Illumination

- Acoustics

- Thermal Comfort

Entrances and Exits

1. Entrances and exits to assembly spaces are easy to find and use without disturbing occupants

2. Higher level lighting is used at entrances/exits

3. Entrances and exits are clearly labeled in all conditions (i.e. low light, smoke/fog, temporary decorations, etc.)

4. The number and locations of entrances/exits allow visitors to get to them without obstructing the view of others

5. Distinctive architectural features are present at main entrance

6. Automated doors with touch panel activation or presence sensors are used

7. Swinging doors open in either direction

8. Doors are designated as either "entry" or "exit"

9. Maze entries or vestibules that control ambient light and sound are provided

10. Waiting area adjacent to the entry allows people to congregate whether they arrive early or late for an event

5
Photo by: SSA

6
Photo by: SSA

8
Photo by: Safe Glass for Schools

Aisles

1. Aisles provide safe and easy circulation

2. Aisles inside public assembly areas accommodate peak volume without long delays

3. Feeder and cross aisles accommodate the largest wheeled mobility devices

4. Edges of aisles are defined with contrasting floor textures or color

5. Floor surfaces do not impede the mobility of wheelchairs, strollers, and other wheeled devices (i.e. low slopes, no steps, minimal level changes)

6. Lighting illuminates floors along main aisles and stairs without distracting occupants of the seating area

7. Wayfinding is available for visually impaired persons in large assembly spaces

1
Photo by: Convergence Design LLC

3
Photo by: Cultural Work Bilingual

5
Photo by: Queens College

Seating

1. Seating is easy to locate and usable by all occupants

2. Maps and/or floor plans of fixed seating areas are posted in the lobby

3. Audible descriptions of the seating areas are available on request

4. Tactile maps of the seating areas are available on request

5. Signage is provided to direct patrons to seating areas throughout the building

6. Aisle and seat labels in fixed seating areas are marked and visible in the dark

7. When purchasing, seating price levels are coded by color

8. Seating arrangements can adapt to different types of programs or events

9. Seats have upper back and lumbar support

10. Leg room accommodates all patrons

11. There is enough room in the aisles to pass a seated person without more than incidental body contact

12. All seats have good sight lines

13. Accessible seating is provided in every price category and in every type of seating arrangement

14. In sports stadia, seating for people unable to stand are in locations where sight lines are not obscured when other patrons stand up at critical times

15. Seating for people who use wheeled mobility devices is available at the same level and through the same access aisles as others in the same seating area

2
Photo by: Palace Sports and Entertainment

15
Photo by: SSA

Illumination

1. An illumination system supports different programs or events with good visibility at all times

2. Flexible lighting systems accommodate different programs within each space (e.g. very low-level lighting during performances, high levels during entry and exit)

3. Natural lighting is available when high levels of lighting are needed during daylight hours

4. Natural light is distributed evenly using light shelves, clerestories, skylights and other devices

5. Adjustable blinds, screens, drapes and shades control natural illumination levels

6. Blinds automatically adjust to the amount of daylight and time of day

7. Diffusers or indirect lighting eliminate direct glare from artificial lighting

8. Gradual transitions are provided from dark to bright spaces

9. Low reflectance surfaces reduce glare

1
Photo by: Creativity Rulz

3
Photo by: Design Boom

Acoustics

1. Reverberation is reduced and intelligibility is increased

2. Acoustics are optimized for the most common room use

3. Wall and/or ceiling surfaces can be adjusted to optimize acoustics for different kinds of performances (e.g. music, speech, opera, etc.)

4. Background noise from adjoining spaces and HVAC equipment is controlled

5. Floor materials reduce noise and increase safety but do not compromise maintainability
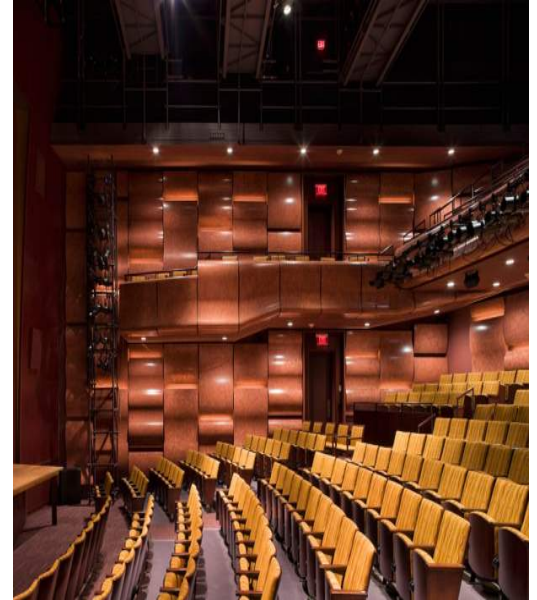
1

Photo by: Kieran Timberlake

3

Photo by: Kerf Kore Company

Thermal Comfort

1. Heating, ventilating, and cooling (HVAC) produce comfortable environments

2. Controls are accessible to the room users to adjust the temperature as needed

3. Controls are secured to avoid misuse; a limited degree of adjustment is provided

4. Systems are sized and zoned to accommodate varying internal loads

5. HVAC system provides even and stable temperatures and eliminates drafts

6. Natural ventilation and passive solar heating options are utilized to reduce reliance on mechanical heating and cooling

2
Photo by: Sameday Comfort

5
Photo by: National Energy Tech

6
Photo by: US Department of Energy

ACCESSIBILITY & UNIVERSAL DESIGN

Restrooms

- Entry
- Number of Fixtures
- Circulation
- Floors
- Lavatory and Grooming Areas
- Toilets and Grab Bars
- Urinals
- Waste Disposal
- Illumination
- Acoustics
- Indoor Air Quality
- Gender Neutral Restroom
- Companion Care Restroom

Entry

1. Restrooms are entered easily, conveniently

2. Maze entries without doors are provided when appropriate

3. Automated doors and locks with touch panel activation or presence sensor and emergency power are provided

4. Separate entrances from exits are preferred

5. Clearances accommodate two people passing each other

6. Entries accommodate the largest wheeled mobility devices

7. If multiple entries are present, they are similar in style and use the same hardware

1
Photo by: SSA- Google

7
Photo by: Azlan Kashoh

Number of Fixtures

1. Enough fixtures are provided to eliminate long waiting times

2. Typically the number and ratio of fixtures is determined on peak building occupancy during 90 percent of the days of the year

3. Parity between all gender toilet rooms is provided (refer to local standards and requirements for required number of accessible fixtures)

4. Additional single user occupancy rooms are available to accommodate peak demand

5. Surge area with fixtures that can be open to restroom area during periods of peak demand is provided

4
Photo by: My Door Sign

1
Photo by: Pixabay

Circulation

1. Circulation throughout the toilet room provides access to all fixtures and equipment without unnecessary congestion

2. Clearances in circulation areas can accommodate two people passing each other

3. The space provided accommodates the largest wheeled mobility devices

4. Waiting lines do not crossover major circulation routes

5. Hand-drying equipment and waste disposal are located in the direction exiting from the sink area and are within a comfortable reach range

2
Photo by: Pinterest

5
Photo by: SSA- Google

1
Photo by: Archi Expo

Floors

1. Floor surfaces eliminate or reduce slipping hazards

2. Materials are fast drying and slip resistant when wet

3. Floor drain is provided to facilitate frequent maintenance

4. Floor drains are placed near all wet fixtures

2
Photo by: Architecture and Design

3
Photo by: Universal Plumbing Co

Lavatory and Grooming Area

1. Clearances to accommodate a wide range of users are provided

2. Space is provided at hand dryers and accommodates parallel left- or right-handed approach by wheeled mobility devices

3. Lavatory or counter heights are available at two different heights or are adjustable for all users

4. At least one lavatory has knee and toe space for front approach for the largest wheeled mobility devices

5. At least one lavatory accommodates front (or forward) approach by largest wheeled mobility devices

6. Equipment is effortless to operate

7. Automated water flow, soap dispensing, paper dispensing and hand drying is available

8. Dispensing parts of spigots and soap dispensers are within convenient reach from each lavatory for people of small stature and wheeled mobility devices

9. Electronic controls adjust water temperature as well as flow

10. Areas are provided to place and protect personal articles

11. Shelf or counter space is available adjacent to lavatories to rest packages, briefcases, purses and backpacks where they will not get wet, and that is within reach for a wide variety of users

12. Security measures and designs are implemented for safeguarding personal articles

13. Facilities support good grooming and hygiene for all users

14. Full length mirror is provided in the bathroom

15. Clearance in front of mirror accommodates the largest wheeled mobility devices

16. Smart fixtures that notify staff when maintenance and supplies are needed are needed

17. Child care area with changing area, baby wipes and toilet paper or tissues is available

18. Hygiene supplies/dispensers (i.e., sanitary napkins, condoms, sanitizing lotions, etc.) are available

4
Photo by: SSA - Google

17
Photo by: SSA - Plumbing Supply

Multiple Accommodation Restrooms

1. All toilet stalls accommodate a wide range of body sizes, personal articles and hygiene needs

2. Regular stall width and length to meet state and federal requirements

3. Shelf within reach of people of short stature

4. Coat hook within reach of people of short stature

5. Stalls in women's and all-gender restrooms have sanitary napkin waste storage

6. Smart fixtures that notify staff when maintenance and supplies are needed

1
Photo by: SSA-Google

Single Accommodation Restrooms

1. Stalls in women's and all-gender restrooms have sanitary napkin waste storage

2. In single user and companion restrooms, smart logic for automated door that locks the door automatically upon entering

3. In single user and companion restrooms, sign or device that indicates whether the room is occupied or vacant

4. At least one accessible stall or a companion restroom in the building provides enough space to meet state and federal requirements

5. Space for access by scooters, wheelchairs and strollers is provided

6. Side clearance to water closet is given

7. Turnaround space for wheelchairs and scooters is provided

8. All guidelines in "Toilet Stalls" section can be applied to accessible toilet stalls, as well

5
Photo by:Potty Spots

13
Photo by: SSA-Google

Toilets and Grab Bars

1. Flushing should be effortless and hands free

2. Automated flushing is activated by presence sensors with manual override

3. Toilet seats are at comfortable heights and grab bars provide additional assistance

4. Different height options are available for people of small, medium and large stature

5. Adjustable toilet seat height can be used without the use of removable risers

6. All water closets are equipped with grab bars

7. Grab bars in horizontal directions for assisted transfers (accessible and companion restrooms)

8. The seat can easily be maintained in a sanitary condition

9. Seat protectors are available in a dispenser mounted in front of the toilet

10. Optional automated seat cleaning devices can be available

1
Photo by: SSA-Google

3
Photo by: ADA Restroom Trailers

Urinals

1. Flushing should be effortless and hands free

2. Fixtures are waterless with no manual operation required

3. Automated flushing is activated by presence sensors with manual override

4. Fixtures accommodate a range of statures and abilities

5. At least two different urinal heights are available

6. Clear floor area in front of urinal accommodates largest wheeled mobility devices

7. Clear width is present between modesty panels to accommodate people of large stature and large mobility device

8. Grab bars are provided for additional support

9. Privacy is provided for all users

10. Modesty panels are placed between urinals

11. Modesty panel is placed at the end of a row of urinals

12. Urinals are located in an alcove outside the main circulation area

13. Location of urinals is not visible from outside toilet room when doors are open, either directly or through reflections in mirrors

1
Photo by: ASF Automatic Flusher

6
Photo by: Flickr

Waste Disposal

1. Waste receptacles are conveniently located and require little effort to operate

2. If paper towel dispensers are used, waste receptacles are located immediately next to the dispenser

3. An additional waste receptacle is located close to exit door and out of maneuvering clearances

4. Waste receptacles are sized to accommodate maintenance schedule

5. Paperless hand-drying equipment is provided

6. Antiseptic gel dispensers with no running water are available

7. Waste paper products can be disposed using one hand only

8. Disposal of health-related equipment and supplies can be done safely and with ease

9. Dedicated floor drain in accessible stalls to facilitate frequent maintenance is provided

10. Disposal receptacles for single-use waste bags are provided

2
Photo by: SSA- Google

5
Photo by: Sears

Illumination

1. Illumination level is automatically controlled, supports good hygiene and grooming, and increases safety

2. Lighting is controlled by presence/motion sensor

3. If a motion sensor is used, a gross movement of hand, shoulder or elbow anywhere in the room can activate sensor

4. Inactivity period for sensors is adjustable

5. Diffusers or indirect lighting eliminate direct glare

6. Windows are obscured to ensure privacy while still permitting daylight

7. Direct glare from windows is controlled with window treatments, light shelves, sunscreens, diffused glass, plantings or other methods

8. Reduced reflected glare is achieved through the use of low reflectance surfaces

9. Light level adjusts automatically to the amount of daylight

10. Daylighting is sufficient to identify dangerous conditions and support good grooming

1
Photo by: SSA

6
Photo by: Depot Kitchen

Acoustics

1. Privacy is maintained and background noise levels are controlled

2. Low acoustic reverberation exists within restrooms

3. Low-noise toilet fixtures and hand-drying equipment is provided

4. Transmission of unwanted noise between restrooms and surrounding spaces is reduced to non-obtrusive levels

5. Sound transmission from stall to stall is controlled to reasonable levels

6. HVAC noise is kept to a minimum

7. Electronically produced sound masking or music is provided

8. Floor materials that reduce noise and increase safety but do not compromise maintainability are provided

3
Photo by: Xlerator Hand Dryer

5
Photo by: SSA- Google

Indoor
Air Quality

1. Environmental controls maintain comfort and an appealing atmosphere

2. Natural ventilation option is provided

3. Floor and fixture surfaces are designed for easy maintenance with mild chemicals or water only

4. Proper air flow per hour to cycle fresh air in is provided

5. Automatic air freshener equipment is available

6. Deodorizing system is hypoallergenic

7. Allergen filtering on outdoor air intake is provided

2
Photo by: Pinterest

1
Photo by: Bath Select

Companion Care Restroom

1. At least one restroom is provided to accommodate a group of two or more people of similar or mixed gender, one of whom may be a child

2. Information posted next to doorway indicates that the toilet room is available for use by all genders, or for assisting children and other adults

3. Toilet transfer space is on one side and at front of toilet

4. Horizontal grab bars are mounted on the rear wall and the sidewall next to the accessible toilet

5. Changing table with knee and toe clearance underneath is provided

6. Adjacent garbage receptacle for diapers and cleaning supplies is provided

7. All guidelines in the Restroom section should be applied to the Companion Care Restroom

5
Photo by: A Maintenance Supply Company, Inc

3
Photo by: SSA

1
Photo by: SSA- Google

Gender Neutral Signal Accommodation Restroom

1. All guidelines in the "Companion Care Restroom" section can be applied to the Gender Neutral Restroom

2. Information posted next to doorway indicates that the toilet room is available for use by any person, regardless of identity or expression

3. Disclaimer note: proper compliant signage has not yet been identified. It will be at local agencies' (district, state, federal) discretion to determine what gender neutral signage meets current standards and requirements

2
Photo by: ADA Sign Depot

2
Photo by: My Door Sign

ACCESSIBILITY & UNIVERSAL DESIGN

Bookstore Product Displays

- Aisles

- Wayfinding

- Signage

- Self Service Areas

Aisles

1. Aisles provide enough space for all users

2. The layout optimizes exposure of goods to the individual

3. Cashiers and individuals have high visual exposure to one another

4. Clearances accommodate two people passing each other in primary circulation and strategic places (e.g., end of aisles, in the middle of long aisles)

5. Enough space is provided at dead ends to turn a wheeled mobility device 180 degrees

6. The path of travel is free of obstructions and hazardous objects

7. Floor surfaces are slip resistant

8. Floor surfaces are free of glare

9. Floor surfaces do not produce unnecessary resistance (i.e., rattling or bumps) to walking or mobility devices

10. Seating is provided in adjacent areas for people who cannot stand for long periods of time

11. Clearances for largest wheeled mobility devices are provided in front of at least one side of all displays

12. Path of approach to all display areas has minimum wheeled mobility clearances for the largest wheeled mobility device

11
Photo by: SSA- Google

1
Photo by: Getaway Brigade

2
Photo by:Barnes and Noble

Wayfinding

1. It is easy to understand store layout and find products

2. The primary circulation aisles (leading to departments) and secondary pathways (serving departments) have obvious differences in design (e.g., width, color coding, lighting, etc.)

3. Interior design features, like flooring material, lighting systems, ceiling heights, color and sign systems, reinforce the organization of goods and services

4. Merchandise is organized in easily understandable patterns (e.g., publisher, author, edition, etc.)

5. Consistent text, graphic style and location of signage is prominent throughout a building, site or display

6. Familiar or easy-to-learn pictograms are provided to reinforce text and reduce dependence on language

7. Multiple languages are used in all signage

1
Photo by: Students How

2
Photo by: SSA- Tricarico

Signage

1. Signs provide support for locating products

2. Aisle contents are listed on overhead signs, projecting into aisles perpendicular to the path of travel or at the ends of aisles

3. Signs can be changed easily and inexpensively as merchandise is relocated

4. Signs are not blocked by building elements or advertising

1
Photo by: The Visual Scholar


2
Photo by: Blue Ridge CTC

Self-Service Areas

1. Products in displays are easy to access and retrieve by all shoppers

2. Shelving is not obstructed by displays or product

3. Most popular products are displayed within a comfortable reach range

4. Heavier items are located at a lower height for easier retrieval

5. Featured products or those on sale are located at points of high exposure (e.g., at the front of an aisle, near checkout areas, in designated areas, etc.)

6. Storage systems can be adjusted to support consumer preferences

7. Fixtures can be moved easily to provide larger clearances or locate items in more convenient places

8. Display systems organize merchandise into categories

9. A step is placed at the bottom of shelving systems to help people of short stature reach high items

1
Photo by: Colleague and Forex
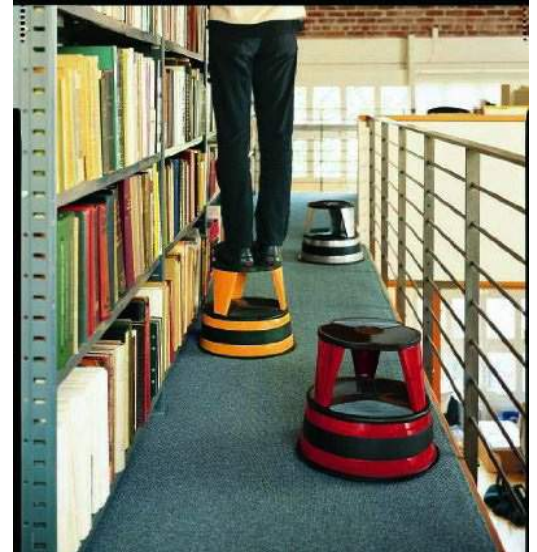
9
Photo by: Franklin and Marshall

Pricing and Product Information

1. Accurate product and price information is available for all self-service merchandise

2. Prices on shelf face are aligned under products

3. Prices and product information is printed in Braille on shelf face and aligned under products

4. Digital price displays with automatic price updating is provided audibly for people with sight impairments

5. Scanners are provided for shoppers to check prices and/or obtain product information

6. Scanners provide visual and audible price and/or product information

7. Scales and automatic label printing for self-service bulk merchandise is available

1
Photo by: Inside Hired

4
Photo by: SSA- Google

5
Photo by: Ebay

Information Services

1. Assistance is readily available to help users obtain information

2. Interactive kiosks are available to look up information and find locations

3. Information service telephones or intercoms or service desks are available in or near each department

4. Employees retrieve merchandise for individuals when an aisle is blocked for restocking or when a consumer cannot reach or gain access to a product

5. Mobile wireless devices can access database to find products

6. Databases provide information on product features and functions

7. Electronic systems for persons who are sight impaired

1
Photo by: Meramec Bookstore

2
Photo by: ProDisplay

4
Photo by: UCI

Illumination

1. Illumination helps people find products and read packaging

2. More intense and dramatic lighting is focused on special product displays

3. Diffusers or indirect lighting eliminate direct glare

4. Products are displayed in front of neutral backgrounds

1
Photo by: Grocery Headquarters

4
Photo by: Gordon College Bookstore

ACCESSIBILITY & UNIVERSAL DESIGN

Bookstore Transaction Kiosks

- Space Clearances

- Interface

- Controls

- Information Displays

- Instructions and Feedback

- Privacy and Security

- Support Services

Space Clearances

1. Enough space to approach and use the station is provided

2. Clearances for scooter access is provided

3. Space for forward approach for the largest wheeled mobility device is provided

4. Space for left- and right-handed use is available

5. Knee clearance for seated users is given

6. Shelf or counter for trays and packages is available

7. Space for a waiting queue is provided
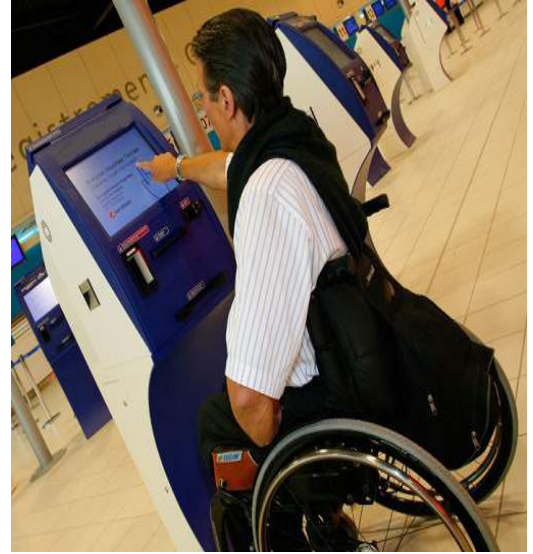
1
Photo by: US Department of Transportation

6
Photo by: BCA Universal Design

Interface

1. Enough space to approach and use the station is provided

2. The user interface is simple and intuitive

3. Adjustable angle and/or height for display screen is available

4. Short cuts are provided for experienced users

5. Each screen provides a minimum of choices

6. Many types of payment are accepted

7. Back-up, review and/or cancel modes allow correction of entry errors or changes in selection before finalizing transaction

8. Cancellation or back-up does not erase data already submitted

9. Smart card or device systems eliminate the need for using cards or cash

10. Software defaults to user's last transaction or most common transaction

11. Refreshable displays augment visual and audible modes

12. Touch screen displays with feedback are provided

2

Photo by: Shenzhen Screenage Electronics Co., Ltd

Controls

1. Controls are easy to use and require little effort

2. Visual, audible or tactile feedback for control activation is available

3. Prompts guide user through all processes

4. Controls for similar functions are grouped together and organized to reflect the sequence of steps

5. Position of controls is adjustable

6. Function keys are color- and tactile-coded

7. Controls and dispensing areas are located within a comfortable reach range from seated and standing position

8. Controls are operable by multiple modes (i.e., using a closed fist, open hand or finger push)

9. Input slots are wide and funnel shaped to guide insertion of money or cards

10. Machine dispensing has eject trays to afford easy product retrieval

1
Photo by: SSA- Google

2
Photo by: eKisosk

Information Displays

1. Information display modes facilitate perception and comprehension by all users

2. Screen designs are simple and uncluttered

3. Choices of visual, audible or tactile mode are available

4. Size and contrast of text is adjustable

5. Volume of audible output is adjustable

6. Options for languages are provided

1
Photo by: Imaginique

2
Photo by: SSA- Google

5
Photo by: SSA- Google

Instructions and Feedback

1. Instructions and feedback are available for operations initiated by user

2. Visual, tactile and audible feedback is provided for all actions

3. Feedback communicates successful and failed actions

4. Audible feedback is loud enough to be heard over background noise
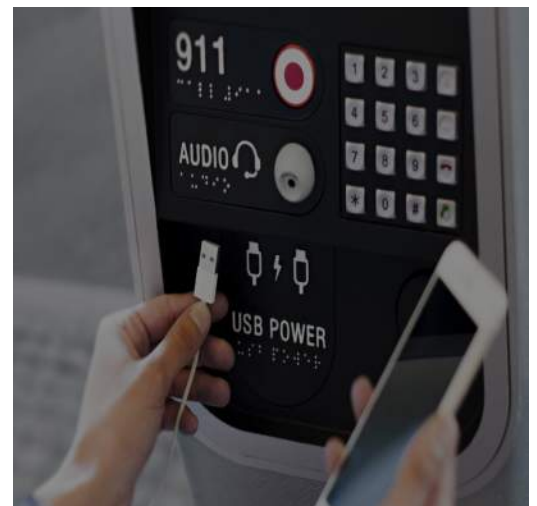

1
Photo by: SSA-Google

2
Photo by: SSA- Google

2
Photo by: SSA-Google

Illumination

1. Adequate lighting at information transaction kiosks is provided

2. All displays and controls are free from glare

3. Illumination level is adjustable

1
Photo by: SSA-Google

2
Photo by: Loby Mill Library

Privacy and Security

1. The surroundings and installation provide a secure and private space

2. Privacy screens prevent observation of behavior

3. Designated waiting area is provided at a distance affording visual observation security

4. Surroundings are well-lit

5. Emergency call service is available to staff

6. Plug for headphones is provided

5
Photo by: Cornell

1
Photo by: Pinterest

Support Services

1. Services are available to provide additional support and assistance

2. Information about how to access technical support and service is posted on the information display

3. Technical support and service is in close proximity to transaction station

1
Photo by: UVF Airport

3
Photo by: SSA- Google

**ACCESSIBILITY & UNIVERSAL DESIGN**

Workstations

- Access to Resources

- Workstation Configuration

- Work Surfaces

- Storage

- Technology

- Illumination

- Acoustics

- Ventilation

Access to Resources

1. Accessible paths of travel are provided throughout work spaces

2. Accessible path of travel to entries of all team member workstations is provided

3. Accessible path of travel to common spaces used in the worksite (e.g., IT facilities, break rooms, and any space necessary for work functions) are available

4. Accessible path of travel to meeting spaces where the entire team gathers and one of each kind of meeting space is provided

5. Accessible path of travel to restrooms is provided

2
Photo by: Campus Technology

5
Photo by: SSA- Google
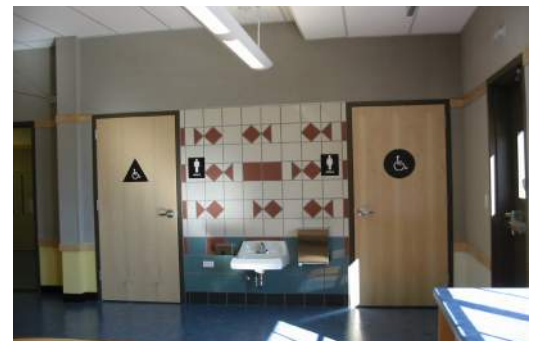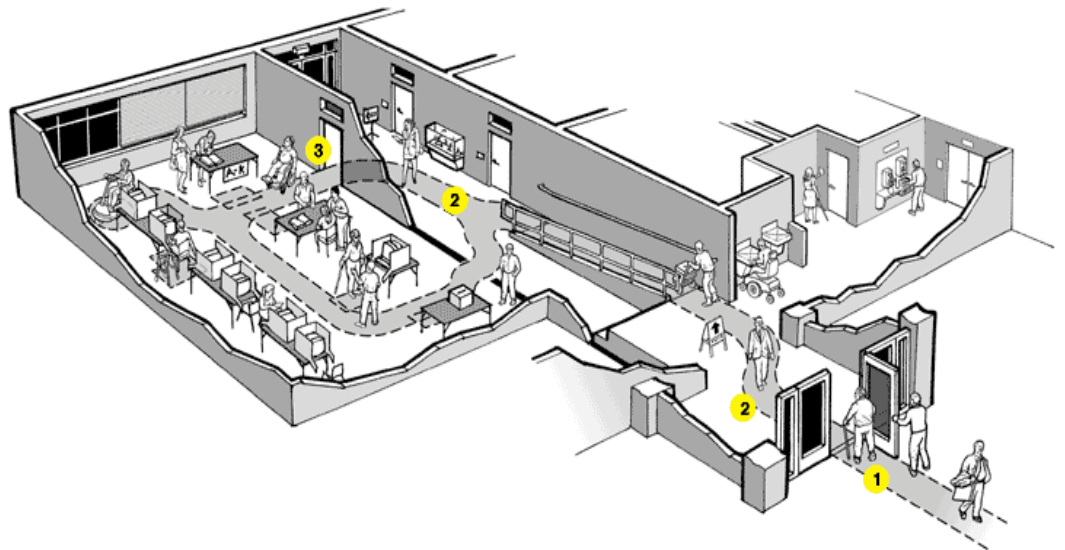
1
Photo by: SSA- Google

Workstation Configuration

1. Workstations can be personalized for each individual

2. Height of chairs and work surfaces are adjustable

3. Knee clearance beneath work surfaces meets minimum federal, state, and district requirements

4. Options to adjust and reconfigure the workstation are available

5. Sit and stand options are available

6. Ergonomic fitting of workstation and seating is suited to each individual's needs

7. Alternative work areas (i.e. game rooms, lounge areas) are available for creative brainstorming and other work activities

5
Photo by: Stand Up Desk Store

7
Photo by: Perdue University

Work Surfaces

1. Work surfaces have appropriate space for expected activities

2. Space for planned tasks is provided

3. Extra space for unplanned tasks is available

4. Space for equipment needed to complete tasks (e.g., computer monitor, telephone, etc.) is provided

5. Adjustable keyboard tray for computer work areas is available

6. Controls and equipment can be positioned for both right-handed and left-handed people, and ergonomic positioning for all functions

1
Photo by: Perdue University

4
Photo by: Computer Comforts

6
Photo by: SSA- Google

Storage

1. Users have enough secure and convenient personal storage space

2. Lockable storage systems are available

3. Storage for a variety of different materials, including documents, and supplies is provided

4. Storage system is on wheels to move to other meeting rooms/ spaces

5. Options for storing goods at different reach ranges are available

6. Automated storage systems to increase accessible volume are available

5
Photo by: SSA- Google

2
Photo by: SSA- Google

Technology

1. Technology provided requires minimal mental and physical demands

2. Adjustable height and view distance for computer monitors is provided

3. Wire management system reduces clutter

4. Wireless systems are available to increase flexibility of workstation layout

5. Connections to electrical power are available throughout the workplace

6. Connections to IT network are available throughout the workplace

7. Switches are organized in a similar pattern as the spatial layout of the lighting fixtures they control

8. Shared technology (i.e., printers, fax machines) are in a central location on an accessible path of travel
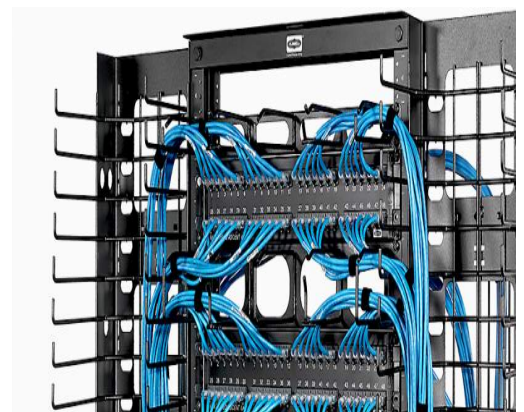

1
Photo by: SSA- Google

2
Photo by: ERG International

3
Photo by: SSA- Google

Illumination

1. Lighting supports intensive work activities and provides opportunities for stress reduction

2. Non-reflective surfaces are provided

3. Natural light and artificial light are evenly distributed without glare

4. Glare from artificial and natural light sources is controlled

5. Adjustable light levels for task lighting are available

6. Light color mimics natural lighting

7. Automatic blinds adjust according to season, daylighting, and time

8. Sunlight is preferred instead of artificial general lighting

7
Photo by: AJW Aviation Offices

8
Photo by: SSA- Google

1
Photo by: SSA- Google

Acoustics

1. The acoustic environment supports confidentiality, privacy and productivity

2. Sound is controlled in meeting spaces

3. Sound transmission from individual workstations is controlled

4. Distractions from ambient noise are eliminated

5. Equipment that generates noise while in use is isolated from work spaces

6. A range of settings is available for solitary and interactive activities

7. Quiet zone is available for relief in noisy work environments

3
Photo by: SSA- Google

7
Photo by: SSA- Google

2
Photo by: Pinterest

Ventilation

1. Air handling registers discharge away from workstations

2. Natural ventilation is available in all work spaces

3. Personal ventilation and supplementary heating and cooling are provided at each workstation

4. HVAC is designed to reduce hot and cold spots so supplementary heating/cooling personal equipment is not generally necessary

2
Photo by: SSA- Google

4
Photo by: SSA- Google
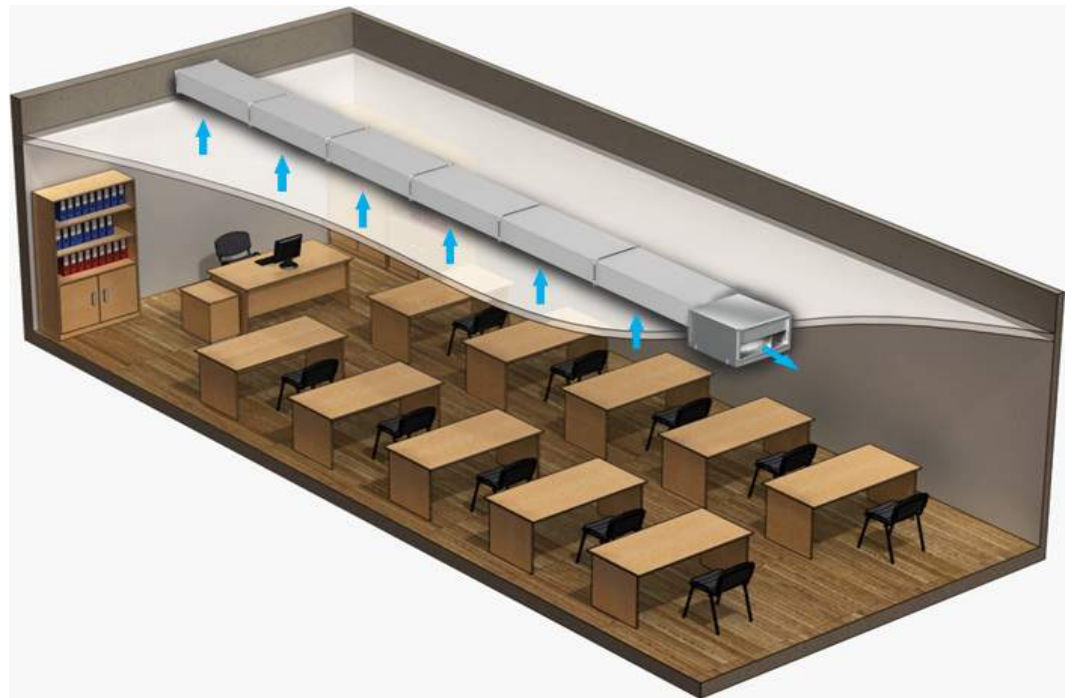
ACCESSIBILITY & UNIVERSAL DESIGN

Indoor Amenities

- Location

- Water Fountains

- Public Information Displays

- Seating Areas

- Waste Receptacles

- Plantings

- Vending

Location

1. Amenities are located where all users can find and access them

2. Amenities are located within sight of primary circulation paths and close to entrances or gathering places

3. Amenities are identifiable by a distinctive form, color and/or signs

4. Location of amenities does not cause users to be isolated or at risk

5. Amenities are grouped together by function

3
Photo by: SSA
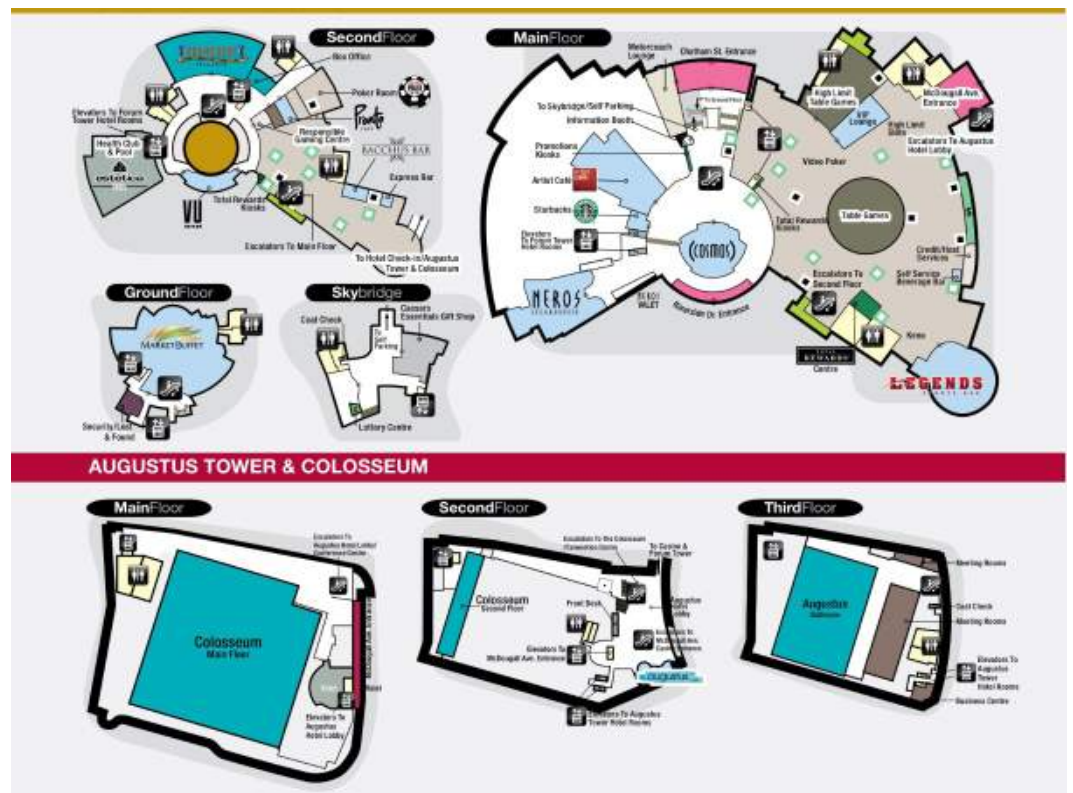
5
Photo by: SSA- Google

Water Fountains

1. Users of all sizes are provided access to water fountains

2. At least two spout heights are available

3. Facility for filling up personal water containers is provided

4. Intuitive and obvious activation for drinking is provided

1
Photo by: Haws Co

2
Photo by: Pinterest

5
Photo by:Because Water

Public Information Displays

1. All public information provides access to users with a wide range of abilities

2. Information is organized so it is noticeable and comprehensible

3. Information is available in large format

4. Information is available in multiple languages

5. Alternatives to text are available (e.g. audible or tactile modes)

6. Volume is adjustable for audible displays

2
Photo by: Mobility Lab

4
Photo by: Architype Review

Seating Areas

1. Furniture is located and usable by persons with a wide variety of body sizes and abilities

2. Seating areas are located out of the main circulation path, but near an accessible path of travel

3. Maneuvering clearance is present between all furniture

4. Different types of seating accommodate children, adults and the elderly

5. Lightweight, movable furniture is provided

6. Armrests on chairs are available

7. Space clearance under seat to facilitate exiting the seat is present

8. Seating clusters facilitate face-to-face conversation

9. All tables have knee and toe clearance on at least one side

10. Choices are provided for different activities and social groups

11. Seating faces views and activity areas

3
Photo by: SSA- Google

5
Photo by: Penn State University

8
Photo by: Saint Paul College

Waste Receptacles

1. Waste receptacles are convenient for all users

2. Recycling containers are located wherever garbage receptacles are provided

3. Recycling containers are marked with distinctive features compared to garbage receptacles

4. Containers and receptacles have push doors without springs or mechanical resistance and are usable with one hand only (e.g. open tops, slots and push doors)

4
Photo by: SSA- Google

3
Photo by: Peterson Furniture International, Inc.

Plantings

1. Plantings do not present a danger to any occupant

2. Poisonous plants are eliminated from places within reach of any person

3. Plants that shed leaves and fruit that could be a slipping hazard are not used indoors

4. Tree branches do not protrude into the path of travel

5. Plants with sharp thorns or leaves are located out of reach and far away from public spaces

6. A maintenance strategy for indoor plant care is implemented

6
Photo by: SSA- Plantscape Inc

4
Photo by: Calgary

1
Photo by: Pinterest

ACCESSIBILITY & UNIVERSAL DESIGN

Vending

1. Vending machines are convenient to use by all occupants

2. Cash cards, smart cards, and credit cards can be used for payment

3. Users can retrieve items with one hand

4. Enough space to approach and use the vending machine is provided

5. Clearances are provided for scooter access

6. Space for forward approach for the largest wheeled mobility devices is provided

7. Space for left- and right-handed use is available

8. Controls and dispensing areas are within a comfortable reach range from seated and standing position

9. Space for a waiting queue is provided

10. The user interface is simple and intuitive

11. Adjustable angle and/or height for display screen is provided

12. Many types of payment are accepted

13. Smart card or device systems eliminate the need for using cards or cash

14. Refreshable vibrotactile displays augment visual and audible modes

15. Touch screen displays include vibrotactile feedback

16. Controls are easy to use and require little effort

17. Vending has visual, audible or tactile control activation

18. Display prompts guide user through all processes

19. Controls are operable by multiple modes (i.e. using a closed fist, open hand or finger push)

20. Input slots are wide and funnel shaped to guide insertion of money or cards

21. Machine dispensing has eject trays to afford easy product retrieval

22. Information display modes facilitate perception and comprehension by all users

23. Screen designs are simple and uncluttered

24. Choices of visual, audible or tactile mode are provided

25. Size and contrast of text is adjustable

26. Volume of audible output is adjustable

27. Instructions and feedback are available for operations initiated by user

28. Visual, tactile and audible feedback is provided for all actions

29. Feedback communicates successful and failed actions

30. Audible feedback is loud enough to be heard over background noise

31. A "cancel" or "go back" option is available to undo incorrect user input

11
Photo by: Metro

19
Photo by: SSA-Google

24
Photo by: SSA- Google

ACCESSIBILITY & UNIVERSAL DESIGN

Food Service Facilities

- Circulation Space

- Waiting and Queuing Areas

- Counters and Tables

- Information Display

- Illumination

- Acoustics

- Thermal Comfort

Circulation Space

1. Circulation space provides all individuals access to all services without differences in quality

2. All types of foodservice facilities in the establishment are accessible to wheeled mobility users based on largest wheeled mobility device

3. Accessible paths of travel are provided to all tables in accessible seating areas with only minimal adjustment of furniture

2
Photo by: US Department of Justice

1
Photo by: The Labrador Retriever Club

Waiting and Queuing Areas

1. Waiting and queuing areas are available and provide a convenient and comfortable place to wait for food pickup or table seating

2. Queuing areas are out of the circulation path

3. Seating is available for all individuals

4. Area is protected from climate extremes, noise and security threats

2
Photo by: SSA- Google

1
Photo by: Identita Golose

Counters and Tables

1. Counters and tables are usable by persons with a wide variety of body sizes and shapes

2. Takeout service, cashier counters and condiment counters are low enough to accommodate children, adults of short stature and wheeled mobility users

3. Takeout service, cashier counters and condiment counters are provided at multiple heights

4. All objects on counters are within reach of individuals

5. Dining tables are available at multiple heights

6. Maneuvering clearance is provided between dining tables

4
Photo by: Odyssey

5
Photo by: Her Campus

2
Photo by: SSA- Google

Information Display

1. Information on services and options available is communicated effectively in many modalities

2. Current menus and services are available on the internet

3. Menus are available in multiple languages

4. Special diet choices are clearly identified (e.g. vegetarian, healthy choices, gluten free, etc.)

5. Health information is available on all choices (e.g. calories, trans fat, etc.)

6. Specials not on the regular menu are described in printed handouts or on message boards (e.g. blackboards, electronic message boards, etc.)

7. Text messages and email communications are confirmed immediately

8. Tactile and audible electronic menus are available

2
Photo by: Dream Dining Hall
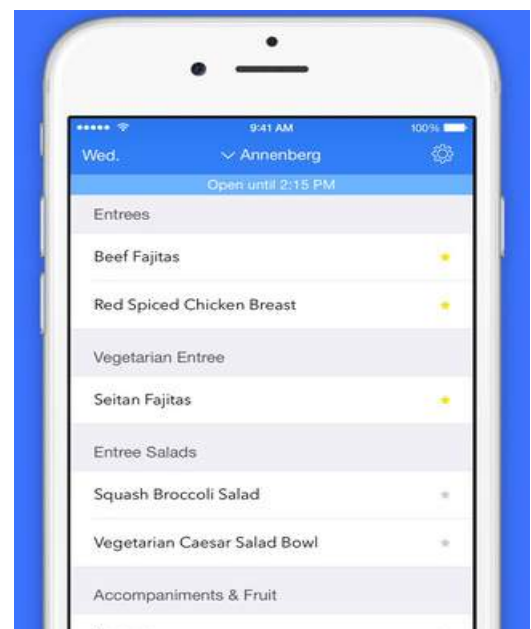
7
Photo by: College Menus App

Illumination

1. The illuminated environment supports reading and conversation for persons of different visual abilities

2. Sufficient and even illumination levels allow reading and perceiving the facial features of staff and companions

3. Sufficient and even illumination is supplied for reading menu items

4. Direct light from windows, skylights, fixtures and reflections is controlled to prevent disabling glare

5. Window treatments next to seating areas and foreground lighting ensure that no individual has their face in deep shadow

6. Light level in each seating area is adjustable independently

1
Photo by: SSA

4
Photo by: SSA

Acoustics

1. Acoustic controls support conversation and hearing comfort

2. Background noise levels are low enough to hear and understand speech across the distance of a table at conversational volume

3. Quiet areas are available for seating

4. Policy on quiet areas is communicated to all patrons through signs or information at the table

5. Background music is kept at minimum volume and can be adjusted independently by staff in each seating area

6. Assistive listening systems are available for patrons who need them to hear others in their party

2
Photo by: University of Massachusetts

5
Photo by: College of Southern Idaho

7
Photo by: SSA- Google

Thermal Comfort

1. The thermal environment protects individuals from extremes of temperature and provides a supportive micro-climate

2. HVAC systems maintain stable thermal comfort

3. Shading devices and ventilation at skylight areas and sunrooms control excessive heat build up

4. Drafts are eliminated or controlled through vestibules, screenwalls, heat distribution and reduction of building envelope areas with rapid heat loss (e.g. large expanses of low R-value windows or skylights, uninsulated floors, etc.)

5. Exterior dining areas are equipped with supplementary heating and temporary enclosures for unusual variation in temperature

6. Prevailing winds are blocked at exterior dining areas by building orientation, screen walls or planting

7. Passive solar and cooling strategies reduce reliance on air conditioning

5
Photo by: SSA Google

7
Photo by: SSA-Google

4
Photo by: Google- SSA

5
Photo by: Google- SSA

ACCESSIBILITY & UNIVERSAL DESIGN

Support and Educational Services

- Educational Service Areas

- Campus Web Presence

- Telephone Service

- Access to Instructional Material

Educational Service Areas

1. Educational service areas (e.g., desks, counters, etc.) are provided at strategic locations to assist all users

2. Educational service desks or kiosks are located next to a waiting area, public restrooms and amenities

3. Queuing and interaction areas are located out of the flow of traffic

4. Educational service areas support direct communication with staff members and also provide self-service forms of information delivery

5. Educational service areas allow all patrons to have face-to-face communication with the educational service staff in either standing or seated positions

6. Text versions of all primary information related to educational service is available online in a form accessible to screen readers

7. Self-service interactive terminal or kiosk available in the service area is used to answer frequently asked questions as well as obtain information on services and products available, schedules and directions

8. Educational service areas are equipped to handle patrons who need to wait for assistance

9. Seating areas are provided for those who need to rest or sit, especially if long periods of waiting are expected

10. Tracking system provides service on a first-come, first-served basis

11. Entertainment and pleasant surroundings are provided where long waits are expected

12. Educational service areas allow patrons to communicate and conduct business in private, if necessary

13. Separate alcove or area where individuals can talk discreetly to staff when they wish to have a private conversation is available

14. Privacy partitions or private rooms are available where transactions require confidential information to be exchanged

15. Background noise is controlled to ensure that quiet talking is understandable by all parties

16. A child care facility is provided in facilities that cater to large numbers of families

17. Supervision by qualified staff in a safe and secure location is provided

18. Play facilities are available for children of all abilities

19. Staff for helping and occupying lost children are present

20. Communication with supervisory staff by telephone is available

1
Photo by: SSA- Google

5
Photo by: SSA- Google

9
Photo by: Flickr

Campus Web Presence

1. Website(s) are accessible and have simple and intuitive interfaces with alternate formats

2. Website(s) meet W3C standards and are tested regularly for continued compliance

3. Language options are available

4. Text only option is available

5. Feedback on all actions in visual and auditory modes is provided

6. Back-up and cancel modes are available to correct mistakes

7. Navigation is intuitive and easy to use

8. Security systems (e.g., logins and security codes are simple and intuitive) are provided

9. Navigation is designed so that people can enter the site through any page, not just the homepage

10. Navigation is designed for a minimum of clicks and for one-handed use

11. Search options and access to a site map are available from every page

12. Navigation feedback lets users know where they are and have been on the site

13. Both automated and live individual support is provided on the website

14. A 'contact us' page in multiple formats that includes e-mail, telephone (including TTY), live chat, fax, and mailing addresses is provided

15. A dedicated 24/7 chat with service staff is available

16. Voice over Internet Protocol (VoIP) offers real-time support services through website

17. Frequently Asked Questions (FAQ) or troubleshooting page

18. Individuals can choose, purchase, and track the status of their products and services at any time

19. Online descriptions of products and services are offered

20. Online reservation and purchasing options are offered

21. Purchase and delivery process is clearly and thoroughly explained prior to purchase action

22. As much choice as possible is offered in the reservation and purchasing process (e.g., hotel room selection or seat selection for flight reservations)

23. Variety of payment methods are instituted (e.g., PayPal)

24. Confidential individual information is secure

25. Product deliveries and service updates are tracked

26. A continual relationship with patrons is established through online individual support

27. Tutorials on the use and care of products and services are available

28. Multiple ways for patrons to provide feedback on products and services is provided

29. Surveys are conducted on products and services

30. Guarantees are offered with products and services

FREQUENTLY ASKED QUESTIONS

CENTER FOR SCIENCE EXCELLENCE

17
Photo by: Contra Costa Community College District

1
Photo by: Contra Costa Community College District

Telephone Service

1. All patrons are able to effectively communicate with service representatives on the telephone

2. Text telephone (TTY) formats are available for those who are deaf or hard of hearing

3. Telephone is answered immediately and estimated time to obtain service is provided every few minutes when waiting

4. Enough individual service representatives are available to keep waiting time below five minutes

5. A language option is provided during the initial phase of the call

6. A live operator option is available during the initial phase of the call

7. Voicemail systems provide no more than three options at one time

8. If an individual is put on hold, messages or music provides assurance of a continued connection

9. Information about the individual and reason for the call is collected only once and available to all service representatives who may be involved in the case

10. Hours of operation are announced

11. At least two language options are available

Contact Us

Sally Swanson Architects, Inc.

800.533.8771 / TTY 711
ssa@swanarch.com

2
Photo by: SSA

5
Photo by: Harbor Medical

Access to Instructional Material

1. All patrons are able to take possession of merchandise with minimal effort

2. Carry-out service, *or* Delivery service is offered

3. 'Personal shopper' service is available

4. Call-in or internet service is available for pick-up or delivery

5. Individuals are notified when orders are ready
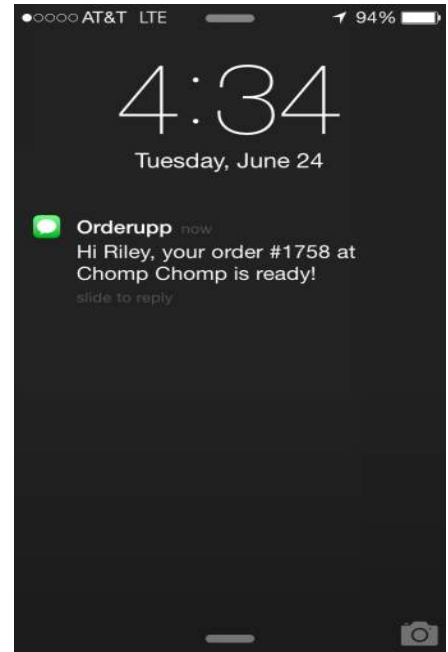
5
Photo by: Orderupp

2
Photo by: SSA- Google

ACCESSIBILITY & UNIVERSAL DESIGN

Facilities Management

- Parking and Transit Policies

- Building Maintenance

- Life Safety and Evacuation Plan

Parking and Transit Policies

1. Incentives are provided to use alternative transportation and transit

2. Discounts are offered for individuals using transit

3. Parking shuttle service to transit stops and off-site services is provided

4. Transit-oriented development policies are utilized to encourage walkable communities

5. Payment can be used in lieu of parking to fund transit station accessibility improvements and public parking facilities

6. Off-street parking requirements are reduced

1

Photo by: Santa Monica College

3

Photo by: National Park Service

4

Photo by: Clean Technica

Building Maintenance

1. Facilities are well-maintained to provide an accessible, safe, clean, and comfortable environment for everyone

2. A comprehensive quality control program is implemented where all building spaces user interfaces and equipment are tested or checked on a monthly, quarterly, biannually or yearly cycle

3. A 24/7 rapid response practice is implemented to address any maintenance issue or equipment breakdown immediately

4. Policies and practices for general service and repairs are implemented to prevent failures and extend the life and reliability of spaces and systems

5. Maintenance standards are established that are flexible enough to meet the specific program and service needs of all users

6. New hire and annual training is provided to maintenance workers to provide consistency and implement improvements in practices

7. Training and programs are implemented to keep maneuvering spaces open and clear of obstructions

1
Photo by: Service Master Cleaning and Restoration

2
Photo by: Sotcher Blog


3
Photo by: US Department of Labor

Life Safety and Evacuation Plan

1. Facility provides support for medical emergencies

2. An automated external defibrillator (AED) program may be developed based on the needs of the organization

3. A life safety and evacuation plan may be installed in an accessible place- at least one AED per building

4. Signage indicating the availability of AEDs is provided

5. Interactive training taught for specified employees by certified instructors (e.g., American Red Cross) is provided

6. Practice sessions of using AED are conducted every 3-6 months for trained employees

7. Local emergency telephone numbers are posted at all public telephones and staff areas

8. Ensure an orderly and safe evacuation of all occupants in the event of fire or other emergency

9. Evacuation plan is in place to facilitate the immediate evacuation of building occupants

10. Training, exercises and evacuation drills are conducted annually for employees to ensure that all elements of the plan are effective

11. Procedures are in place for notifying staff or visitors who have a hearing impairment of emergencies

12. Procedure to safely evacuate individuals with disabilities or those who cannot negotiate stairs is implemented

13. Clear chain of command and designation of the person authorized to order an evacuation is in place

14. Maps from floor plans or diagrams are posted prominently on each floor that designate the most effective exit route plus alternative routes

15. Higher capacity exit design is provided to afford more rapid evacuation

5
Photo by: American Red Cross
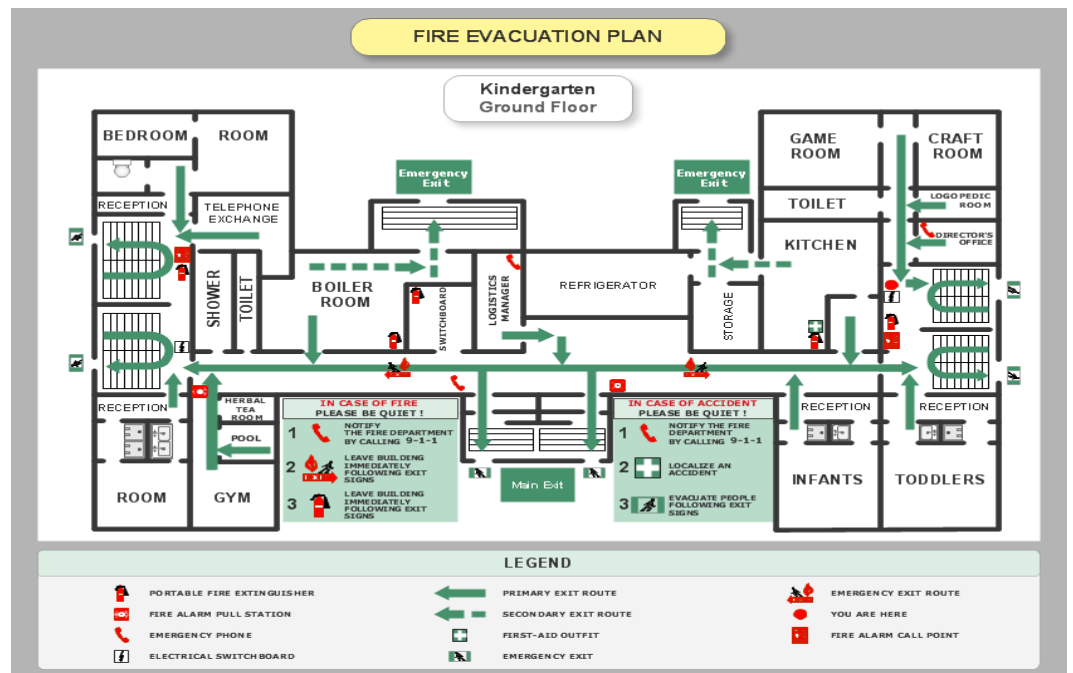
9
Photo by: Concept Draw

4.5
Health & Safety

"Building design has a responsibility to promote the health and safety of occupants."

Health & Safety

PROTECT OCCUPANT SAFETY AND HEALTH

Some injuries and illnesses are related to unsafe or unhealthy building design and operation. These can usually be prevented by measures that take into account issues such as indoor air quality, electrical safety, fall protection, ergonomics, and accident prevention.

- Safety and health risks created by designers will be mitigated at the highest level practical using the hierarchy of controls methodology.
- Provide guardrails and barriers that will prevent falls from heights in both interior and exterior spaces, and if not feasible provide certified tie-off points for fall arrest systems.
- Provide interior and exterior floor surfaces that do not pose slip or trip hazards.
- Design for safe maintenance, replacement and modifications of equipment to reduce the risk of injury to operations and maintenance staff.
- Provide appropriate signage and materials storage facilities in Evacuation Assembly Areas.

PLAN FOR FIRE PROTECTION

Planning for fire protection for a building involves a systems approach that enables the designer to analyze all of the building's components as a total building fire safety system package.

- Design buildings with intuitive wayfinding that enable firefighters to locate an area quickly.
- Accommodate the access of fire apparatus into and around the building site.
- Require more than code compliance or meeting the minimum legal responsibilities for protecting a building. Building and fire codes are intended to protect against loss of life and limit fire impact on the community but do not necessarily protect the mission or assets of the institution, or solve problems brought upon by new projects with unique circumstances.

PROVIDE SECURITY FOR BUILDING OCCUPANTS AND ASSETS

Effective secure building design involves implementing countermeasures to deter, detect, delay, and respond to attacks from human aggressors. It also provides for mitigating measures to limit hazards to prevent catastrophic damage and provide resiliency should an attack occur.

Depending on the building type, acceptable levels of risk, and decisions made based on recommendations from a comprehensive threat assessment, vulnerability assessment, and risk analysis, appropriate countermeasures should be implemented to protect people, assets, and mission.

Buildings should be designed to incorporate Crime Prevention Through Environmental Design (CPTED) principles:

- Natural surveillance follows the premise that criminals do not wish to be observed; placing legitimate 'eyes' on the street, such as providing window views and lighting, increases the perceived risk to offenders, reduces fear for bona fide occupants and visitors, and lessens reliance on camera surveillance.
- Natural Access Control supplements physical security and operational measures with walls, fences, ravines, or even hedges to define site boundaries, to channel legitimate occupants and visitors to designated entrances, and to reduce access points and escape routes.
- Territoriality involves strategies to project a sense of ownership to spaces such that it becomes easier to identify intruders because they don't seem to belong. Clear differentiation between public, semi-public,

and private spaces by using signage, fences, pavement treatment, art, and flowers are examples of ways to express ownership.

- Maintenance is a key element to preserve lines of sights for surveillance, to retain the defensiveness of physical elements, and to project a sense of care and ownership.

DOCUMENT REVIEW

Each District project is subject to appropriate review by the District Office of Environmental Health & Safety to ensure the integration of Health

BEST ↑ | BEST ↑

ELIMINATION
Design it out

SUBSTITUTION
Use something else

ENGINEERING CONTROLS
Isolation and guarding

ADMINISTRATIVE CONTROLS
Training and work scheduling

PERSONAL PROTECTIVE EQUIPMENT
Last resort

Control effectiveness | Business value
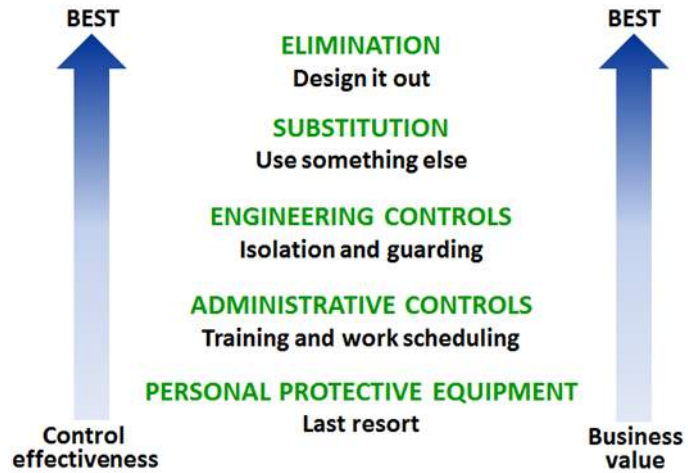
CROSSOVER ITEMS

Addresses issues of Health & Wellness Design, Security, Occupational Health & Safety, Maintenance, and Fire & Life Safety throughout multiple areas in the document

Sustainability

Health & Wellness Design	Health & Wellness Design Principles
	Water Management
	(Architectural & Technical Guidelines)

Demonstration Classrooms

Security	Mass Notification
	(Security Technical Guidelines)

Furniture, Fixtures + Equipment

Occupational Health & Safety	Ergonomics

Signage + Wayfinding

Fire & Life Safety	Evacuation Assembly Area Monuments
	(Signage family in Design Guidelines)

Site + Landscape

	Guiding Safety Principles
	(Master Plan and Site Guidelines)

Architectural Design

Occupational Health & Safety	Guiding Safety Principles
	Construction Safety
	(Architectural Design & Technical Guidelines)
Maintenance	Health & Wellness Design Principles
	(Technical Guidelines)
Fire & Life Safety	Guiding Safety Principles
	(Technical Guidelines)
Health & Wellness Design	Health & Wellness Design Principles
	(Architectural Design Guidelines)

ADA + Universal Access

ADA	ADA & Universal Access
	(ADA Design Guidelines)

Health + Safety

Security	Security
	Lighting
	Mass Notification
	CPTED
	(Security Technical Guidelines)

Health & Wellness Guiding Principles

Create environments that support:

- Health, Safety & Wellbeing
- Learning and Productivity
- Culture and Collaboration

     using...

- Sustainable Strategies
- Smart Use of Funds and Facilities
- Information and Empowerment

INITIATIVES

WORKING AND LEARNING

Variety in
Working and
Learning Options

Healthy Food
and Dining
Options

Active
Circulation

ENVIRONMENTAL QUALITY

Lighting
Quality

Air
Quality

Noise and
Sound Quality

ACTIVE DESIGN PRINCIPLES:

- Buildings promote physical activity
- Eligibility for LEED Physical Activity Innovation Credit
- Clinton Global Initiative, American Society of Interior Designers (ASID), and 12 design and architectural firms (including Gensler) partner to integrate health and wellness protocols

WELLNESS IMPROVING DESIGN ELEMENTS:

- Lighting
- Ventilation
- Acoustics
- Texture
- Color
- Use of Space
- Ergonomics
- Universal Design
- Incorporating Nature
- Use of Art
- Sustainability

Safety Guiding Principles

Facilities should be designed to:
- Protect occupant safety and health
- Plan for fire protection
- Provide security for building occupants and assets
- Mitigate risks associated with natural hazards

Consider more than code compliance or meeting the minimum legal responsibilities for occupational safety, fire/life safety, disaster mitigation and security

Consider how facilities can be constructed, cleaned, maintained, remodeled, and decommissioned or demolished safely

Refer to: National Institute of Building Sciences, Whole Building Design Guide
(https://www.wbdg.org/design/secure_safe.php)

SAFETY EXAMPLES

NIBS-WBDG	Code	Safe Cleaning

Conduct preliminary hazard analyses and design reviews to eliminate or mitigate hazards in the work place

Provide certified tie-off points for fall arrest systems

Analyze work requirements and provide ergonomics work places to prevent work-related musculoskeletal disorders

4.6
Mechanical /
Electrical /
Plumbing

Overview

Principles

MEP systems explored for the Sonoma County Junior College District campuses will be selected to adhere to the following principles:

- Provide a comfortable and healthy learning and working environment for students, faculty, and college staff in general
- Minimize energy and water use
- Take advantage of energy and water use synergies
- Minimize maintenance of MEP systems
- Balance project capital cost with long term operational cost

COMFORTABLE AND HEALTHY ENVIRONMENT

MEP systems are key in providing built environments that promote learning and productivity. MEP systems are to be designed, built, and operated to deliver thermal and lighting delight, and promote healthy learning environments via good Indoor Air Quality (IAQ).

MINIMIZE ENERGY AND WATER USE

MEP systems are key in determining how much water and energy is used in the built environment. MEP systems are to be designed, built, and operated to minimize energy and water use while providing healthy and comfortable environments to learn.

TAKE ADVANTAGE OF ENERGY AND WATER USE SYNERGIES

MEP systems can be designed use synergetic relationships with other aspects of the built environment in a way that benefits the SCJCD's goals. MEP systems are to be designed, built, and operated to strategically use campus level synergies that leverage the climate, campus infrastructure and project design in a way that lowers project energy, water, maintenance, and first cost.

MINIMIZE MAINTENANCE OF MEP SYSTEMS

MEP systems that are simple and require low maintenance can be designed to provide comfortable and healthy built environments. MEP systems are to be designed, built, and operated to provide intuitive and simple to operate systems that require minimal maintenance.

BALANCE PROJECT CAPITAL COST WITH LONG TERM OPERATIONAL COST

MEP systems' value is to be maximized over the life of the system and the building. MEP systems are to be designed, built, and operated so as to minimize total cost of ownership to SCJCD.

Goals

MEP systems explored for the Sonoma County Junior College District campuses will be selected to achieve the following goals:

- ZNE (Zero Net Energy) ready by 2016
  ZNE BY 2030
- Lowest Carbon footprint feasible by 2016
  Carbon Neutral by 2040
- ZNNPW (Zero Net Non-Potable Water) ready by 2016
  ZNNPW by 2030 and meet Districts Watershed budget by 2030

Energy and water strategies recommended for Tier 1 through Tier 4 are included in Figure 1. The following measures are critical to achieving the energy and water efficiency required to achieve the Vision Plan.

- Improved building envelope

- Ventilation Heat Recovery

- Energy Sub-metering

- Low flow Plumbing fixtures

- Dual Plumbing for NPW use

MEP STRATEGIES		CAMPUS BUILDING	TIER I	TIER II	TIER III	TIER IV
Energy Efficient Windows (Solar Control)		Building (Renovations)				
Daylighting and Efficient Light Fixtures		Building (Renovations)	✓		✓	
Ground Source Heat Pump		Building (Renovations)	✓			
Improved Building Envelope		Building (Renovations)	✓			
Reduced Lab Ventilation		Building	✓	✓	✓	
Ventilation Heat Recovery		Building (Renovations)	✓			
Energy Sub-Metering		Campus	✓	✓	✓	
Low Flow Plumbing Fixtures		Building (Renovations)	✓	✓		
Dual Plumbing for NPW Use		Building (Renovations)	✓			

Figure 1:
Building Level
Recommended Strategies

MEP Design Guidelines

Figure 2 includes the proposed values to be use on any of the SCJCD campus buildings for energy and water performance on new construction and major renovation projects. The proposed values included in the table below are to be used as the targets for energy and water performance for new and major renovation projects so that the Vision Plan goals can be achieved. The energy and water performance targets are provided in absolute units per area of building rather than a percentage better than code because the Vision Plan goals require this type of metric, and because the California Energy (Title 24, Part 6) and Sustainability (Title 24, Part 11) codes will move towards absolute values that can be measured and tracked over time. Note that the energy and water performance values are proposed at the building level (site EUI and WUI) and therefore exclude parking lot lighting energy and irrigation water use.

SCJCD Energy & Water Design Guidelines											
Project Program	EUI (kBtu/SF-Yr)				Potable Water Use Density[5]						
					Benchmark[1]		Code[2]		Net Zero NPW[3]		Proposed[4]	
	Benchmark	Code EUI	ZNE EUI	Proposed EUI Range	(Gal/ SF-Yr)	(Gal/ Ppl-Yr)	(Gal/ SF-Yr)	(Gal/ Ppl-Yr)	(Gal/ SF-Yr)	(Gal/ Ppl-Yr)	(Gal/ SF-Yr)	(Gal/ Ppl-Yr)
Classroom	50	30	20	**18**	84.15	1683	58	1168	4	89	**50**	**1002**
Lab	273	164	20	**60**	42.075	1683	29	1168	2	89	**25**	**1002**
Office	58	35	20	**16**	16.83	1683	12	1168	1	89	**10**	**1002**
Library	85	51	20	**20**	33.66	1683	23	1168	2	89	**20**	**1002**
AV, TV, Radio	68	41	20	**22**	42.075	1683	29	1168	2	89	**25**	**1002**
Physical Education	141	85	20	**30**	112.2	1683	78	1168	6	89	**67**	**1002**
Assembly	42	25	20	**12**	112.2	1683	78	1168	6	89	**67**	**1002**
All other	46	28	20	**16**	16.83	1683	12	1168	1	89	**10**	**1002**

Notes:
Water
1. Benchmark is based on LEED v9 baseline fixture flow rates & daily uses.
2. Code is based on CalGreen fixture flow rates & daily uses.
3. Net Zero NPW based on onsite treatment and non-potable water reuse for all flushvalves. Water usage is based on low flow potable water fixutres and CalGreen daily uses.
4. Code is based on high effiecncy low-flow fixture flow rates & CalGreen daily uses.
5. Assumed 340 operating day per year (excluding holidays only).
6. Program includes indoor water usage for lavatories, water closets and urinals only. Food service, cooling tower, swimming pools & irrigation water usage is not included in this table.
Energy
1. Benchmarked values obtained from LBL BPD (Building Performance Database).
2. Code values were estimated as being 40% better than Benchmarked data as suggested by CEC studies.
3. ZNE values were calculated as the required EUI to perform at ZNE at the building level assuming buildings 3-stories or less.
4. Proposed values were calculated as the feasible EUI values to achieve ZNE at the campus level assuming buildings 3-stories or less.
How to use this data:
1. For any new or renovation project, use the "Proposed" column values on for Energy or Water use and multiply by the area of each program listed on the table. If the program listed does not exactly match the program of the project, use the closest program value (as it relates to energy or water use) For example, a project that has a program mix 40% Office, 30% Lab, and 30% Classroom would pursue the following values for energy and water performance:
    Energy: (40% x 16) + (30% x 60) + (30% x 18) = **29.8 kBtu/SF-Yr EUI**
    Water: (40% x 10) + (30% x 25) + (30% x 50) = **26.5 Gal/SF-Yr WUI**

Figure 2:
Proposed Energy and Water Performance Values

In addition to meeting the water use values proposed on the table above, the plumbing design for any new or major renovation project is to have plumbing fixtures installed that meet or exceed the values proposed in Table 1..

Fixture Type	LEED v9 Baseline	CalGreen Baseline	Low Flow Fixtures
Water Closet	1.6 Gal/Flush	1.28 Gal/Flush	1.28 Gal/Flush
Urinal	1.0 Gal/Flush	0.5 Gal/Flush	0.125 Gal/Flush
Lavatory	0.5 GPM	0.5 GPM	0.35 GPM
Shower	2.5 GPM	2.0 GPM	1.5 GPM
Kitchen Faucets	2.2 GPM	1.8 GPM	1.5 GPM

Table 1:
Proposed Plumbing
Fixture Performance

MEP Goals

2030 ENERGY AND WATER GOALS

The Vision Plan is a masterplan that calls for Sonoma County Junior College District to achieve as set of sustainability and other goals, i.e. the goals of the Vision Plan, as set out by the SCJCD 2030 committee.

This section, is focused on exploring MEP strategies that allow the College to achieve the energy and water use goals of the Vision Plan, and how to achieve them. The Vision Plan aims to achieve the following energy and water use goals by the year 2030:

- Zero-Net Energy (ZNE) operation by 2030

- Carbon Neutral operation by 2030

- Zero-Net Non-Potable Water ready by 2030

- Maximize the use of non-potable water at the campus and building level by using available alternate water sources for toilet and urinal flushing, and landscape irrigation, and process cooling.

These broad energy goals above are similar to the Architecture2030 Challenge. The 2030 Challenge goal is that "all new buildings, developments, and major renovations shall be carbon-neutral by 2030". In order to achieve this goal, the program set intermediate targets.

While the water goals set by the Vision Plan are ambitious, they are in line with the state of California sustainability goals, and achievable with commercially available technology and construction methods.

Additionally, the Vision Plan includes goals that are focused on individual buildings. These specific goals are included in the Design Guidelines section of the 2016 Facilities Master Plan. The MEP strategies analyzed and recommended in this report represent the most economically feasible path to achieving the SCJCD 2016 Facilities Master Plan Vision Plan goals.

While this report is focused on a path to achieve the energy and water efficiency required by the Vision Plan, the MEP strategies explored in this report are also intended to provide occupants with a built environment that is thermally comfortable, and with spaces that promote learning, health, and wellbeing by providing improved Indoor Air Quality (IAQ) and Indoor Environmental Quality (IEQ). The industry standard for thermal comfort is set by ASHRAE standard 55 while for IAQ it is set by ASHRAE standard 62.1. PAE recommends that these standards be met on every renovation and/or new SCJCD project. IEQ does not currently have an industry standard, but good IEQ is achieved by providing buildings with comfortable design in the following areas:

Good IAQ specifically and good IEQ in general has been linked to increased human health, cognitive performance, and by proxy to increased learning in schools and productivity in the work place. William Fisk, PhD, from the Lawrence Berkeley Laboratory has shown the correlation of improved productivity with improved IAQ over the past 10 to 15 years. Recently, a study from the Harvard T.H. Chan School of Public Health confirmed and expanded on this correlation. This study demonstrated that people in "green buildings" (Low rates of indoor VOC's) perform cognitive functions 60% better, and in "enhanced green buildings" (Low rates of indoor VOC's + increased ventilation) perform cognitive functions 100% better than in traditional building (Buildings designed to code).

While the Vision Plan represents where SCJCD wants to be in 2030, SCJCD campuses are currently operating at various levels of energy and water performance, and the current bond Measure H is intended to take SCJCD about three-quarters of the way towards the Vision Plan performance goals.

Thermal   Lighting   Acoustics   Ergonomics   Biophilia   IAQ

MEP Strategies

Proposed MEP Upgrades

PAE examined the potential energy and water saving of the following mechanical and electrical strategies:

CAMPUS

MEP STRATEGIES	
Geothermal Heat Exchange	
Modular Campus Central Plant	
Solar Thermal Arrays	
PV Arrays	
Cogeneration and Fuel Cell (Micro Turbine)	
Microgrid	
Energy Storage Systems (Battery and Electric Vehicle)	
Thermal Energy Storage Systems	
Energy Sub-Metering	
Drought Tolerant Landscape	
Rainwater Treatment and Reuse	
Greywater Treatment and Reuse	
Blackwater Treatment and Reuse	

BUILDING

MEP STRATEGIES	
Energy Efficient Windows (Solar Control)	
Daylighting and Efficient Light Fixtures	
Ground Source Heat Pump	
Improved Building Envelope	
Reduced Lab Ventilation	
Ventilation Heat Recovery	
Energy Sub-Metering	
Low Flow Plumbing Fixtures	
Dual Plumbing for NPW Use	

Energy Upgrades

CAMPUS CENTRAL PLANT

The Santa Rosa and Petaluma campuses have the size and diversity of buildings that are favorable to the implementation of a central plant. To limit the implementation cost of a large single central plant given the existing conditions, we recommend considering distributed condenser water plants.

Condenser water central plants have the following advantages:

•   The condenser water loop allows to recover heat between buildings

•   The central loop only has 2 pipes

•   The geothermal systems, top up cooling towers and boilers can be located anywhere on the loop. The condenser water loop would take advantage of the existing geothermal field and cooling towers.

•   It is a flexible system allowing warmer chilled water and colder hot water systems

•   The use of condenser water allows heat recovery at building level

•   Condenser water loop allows for the use of traditional (VAV Reheat) and more modern (Chilled beam, radiant) systems.

The geothermal systems were assumed to be sized large enough to handle all of the heating loads, removing the need for boilers which would help achieving carbon neutrality.

Each of the modular plants shown on the maps below was sized at 1000 Tons of cooling capacity, since this size allows for modular and phased implementation in the Santa Rosa and Petaluma campuses.

BUILDING HVAC SYSTEM OPTIONS

Water Source Heat Pumps, Water Cooled VRF

Heat Pump Chiller

Radiant Systems

TERTIARY CW PUMPS

CW LOOP

PRIMARY CW PUMPS

FLUID COOLER

SECONDARY CW PUMPS

BOILER

GEOTHERMAL LOOP PUMP
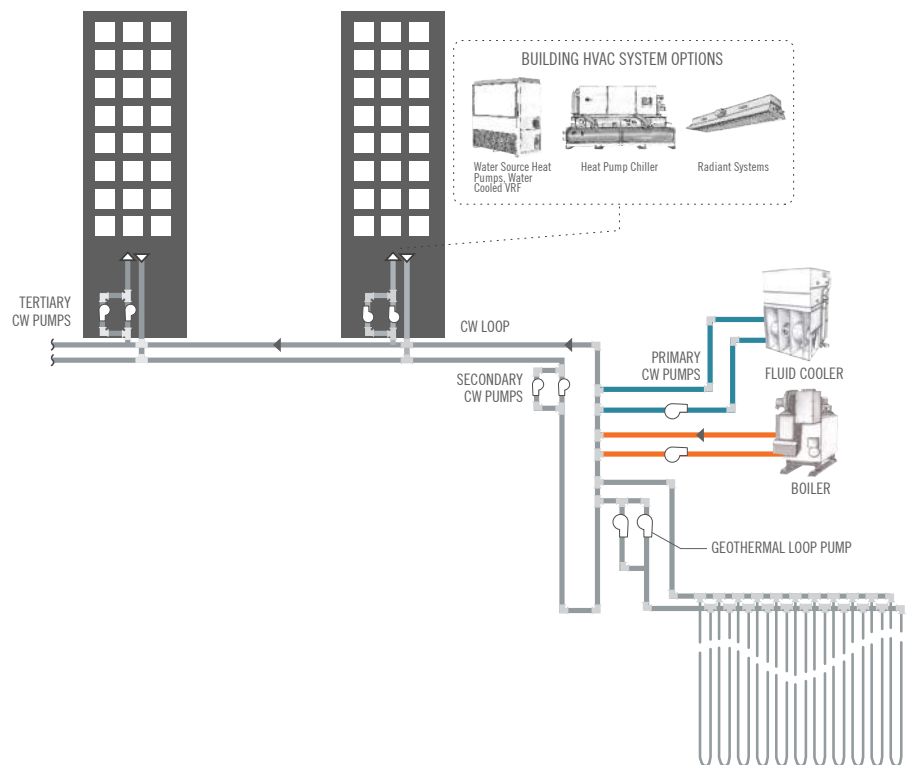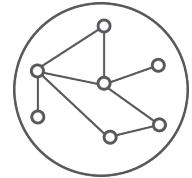
Diagram of a Condenser Water Chiller Plant

MEP Strategies

Energy Upgrades

GEOTHERMAL HEAT EXCHANGE

A geothermal system has already been implemented on the Santa Rosa Campus and used at the Bertolini Building. Additional geothermal systems serving the campus condenser water loops would be sized to meet the heating loads and could eliminate the need for boilers, further moving along the goal to be carbon neutral. The location and size of the geothermal heat exchange fields shown on the maps in this section are conceptual, with areas showing possible locations. The size of each modular geothermal field is intended to include approximately 350 to 400 bores and provide 500 Tons of capacity.

COGENERATION AND FUEL CELL (BLOOM, MICRO TURBINE, OTHERS)

An existing cogeneration system was used to generate power while providing heating for the swimming pool. Due to a fire incident the plant is currently not in operation. Replacing the cogeneration plant would be a cost effective solution as a lot of the existing infrastructure could be reused but considerations to achieve carbon neutrality might suggest other solutions.

PV ARRAYS

Solar thermal arrays are an alternate solution to cogeneration to provide heating for the swimming pool. The solar thermal array offers the advantage of having no carbon emissions. In order to provide sufficient heating to the swimming pool at Santa Rosa, 3,600 ft2 of panels would be required.
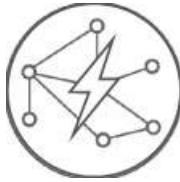
MICROGRID

Microgrid technology allows a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries to acts as a single controllable entity with respect to the macro or utility grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island-mode, and decide when to buy or sell energy from the utility grid based on electrical needs and economic conditions.
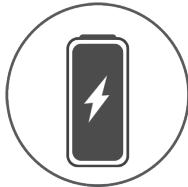
ENERGY STORAGE SYSTEMS (BATTERY AND ELECTRIC VEHICLE)

Energy Storage Systems provide a storage medium that store energy for later use. Renewable energy sources, such as PV, must be used as it is produced and actual production is subject to variations. ESS can be introduced to store the renewable energy production and have the ability to be discharged during peak power use times to reduce the overall peak electrical demand (reducing utility upcharges for time of day use) or when needed for grid resilience.
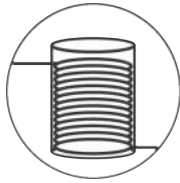
THERMAL STORAGE SYSTEMS

Thermal storage systems take advantage of lower outdoor wetbulb temperatures and lower electricity rates to generate either chilled water or ice overnight and use the stored energy throughout the day to meet or shave off the peak cooling loads. An existing small ice storage system is already in operation on the Santa Rosa Campus.

ENERGY SUB-METERING

One of the key energy efficiency measures is to provide sub-meters at every building. This will allow to identify buildings with high energy consumptions and potential candidates to energy retrofits. At a minimum electrical, gas, chilled water, hot water, domestic water meters should be provided.

MEP Strategies

Energy Upgrades

ENERGY EFFICIENT WINDOWS
Currently, the majority of buildings on campus have single pane windows. As renovation and new construction projects are being conducted, using glazing that meets at least the energy code prescriptive requirements will help control solar heat gains while allowing natural daylight. Windows with higher insulation properties and lower leakage will reduce heating energy.

DAYLIGHTING AND EFFICIENT LIGHT FIXTURES
As shown in the weather analysis in the appendix, Santa Rosa benefits from abundant natural light throughout the year. Replacing existing light fixtures and implementing daylight dimming controls is a measure that has a short payback period. During the design of new construction projects, attention to building orientation and access to natural daylight (floor plate depth, ceiling height, glare control, etc.) will help maximize energy savings.

GROUND SOURCE HEAT PUMP
Water source heat pumps or water cooled VRF will be using the central condenser water loop allowing transfer of energy between campus buildings. To reduce maintenance, water to water heat pumps or heat pumps at the AHUs are recommended rather than individual water to air heat pumps at each zone.

IMPROVED BUILDING ENVELOPE
Investing in a building envelope with high insulation (continuous insulation, thermal breaks), low infiltration and low absorptivity (white roofs), will not only reduce peak loads and associated HVAC first costs due to smaller mechanical equipment, it will help save on annual energy use. At a minimum, the envelope should meet the latest energy code (Title 24) prescriptive requirements.

REDUCED LAB VENTILATION

Laboratories spaces used to be typically designed with high volume airflows (12 air changes per hour or more). Proper management of hazardous products and providing dedicated manipulation areas with variable air volume fume hoods can dramatically reduce the required ventilation. Many campuses have dropped the minimum ventilation rates to 6 air changes an hour when occupied and 4 air changes when unoccupied or even lower. Fume hood face velocities can also be reduced with proper certification (e.g. ASHRAE 110) and setbacks can be used as well depending on occupancy.

VENTILATION HEAT RECOVERY

Heat recovery provides significant savings especially when trying to achieve Net Zero Energy goals. When combined with a high performance envelope, the heating demand at space level is greatly reduced.

Water Upgrades

LOW FLOW PLUMBING FIXTURES

Installing low-flow plumbing fixtures and aerators saves water and money. It reduces costs for water use, sewer costs, pumping, and water heating Table 12 provides the recommended low-flow plumbing fixture water consumption rates, which all new plumbing fixtures would be required to meet..

DROUGHT TOLERANT LANDSCAPE

Water consumption for irrigation use can vary greatly depending on the type of vegetation used and the irrigation system installed. Certain plant types require significantly more water than others. By installing plant types that are native and thrive in the area with minimal water usage, less water is required to keep them alive and healthy.

The two main types of irrigation systems are overhead and subsurface sprinkler systems. Overhead spray sprinkler systems are inefficient and loose water through splash and evaporation. Subsurface drip irrigation systems water directly are the source. Less water is required and less is wasted, making subsurface are more efficient than overhead spray sprinklers. In addition to being more efficient, subsurface irrigation is required if non-potable water is used for irrigation.

MEP Strategies

Water Upgrades

RAINWATER TREATMENT AND REUSE

Rainwater can be collected and treated for non-potable water reuse. Rainwater contains a range of organic, microbial and particulate substances that need to be treated properly. When reused for drip irrigation only, the treatment process is less than when the non-potable water is used for flush-valves and cooling towers.

A rainwater collection, treatment, and reuse system involves the following. The rainwater from roofs and hardscape surfaces (roadways would be excluded) are collected and routed, via gravity whenever possible, through a pre-filter and into a rainwater storage tank. This tank is relatively small because the rainwater can't be stored for more than 3 days unless it goes through the full treatment process. Then this collected storm water will be pumped from the tank through a filtration and disinfection treatment system. From here the water is pumped to serve the non-potable water needs. Refer to Figure 29 for a diagram of a typical rainwater treatment and reuse system.
If a project desires to collect more than 3 days' worth of rainwater, a separate storage tank and additional treatment system is required after the filtration and disinfection system. This tank is typically quite large in order to meet the non-potable water demand.
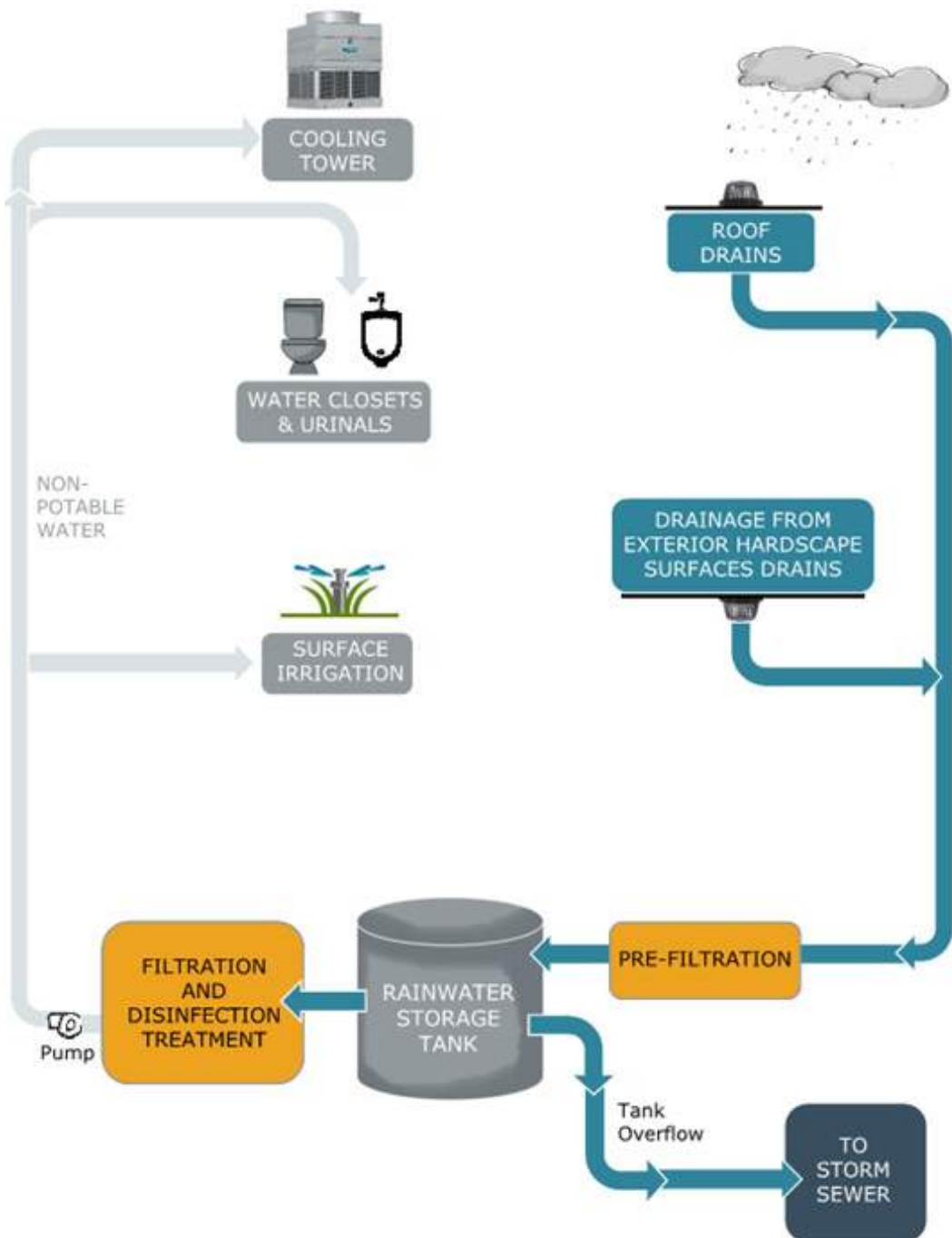
Figure 29: Rainwater Treatment Systems

MEP Strategies

Water Upgrades

BLACKWATER TREATMENT AND REUSE
Blackwater treatment systems collect the wastewater from all plumbing fixtures including water closets and kitchen waste. By collecting and treating blackwater (all wastewater) it eliminates the need to dual plumb the drainage piping, which is required for a graywater system. By capturing, treating, and reusing the blackwater for the non-potable water demand, wastewater is being diverted from the sewer and the potable water demand is reduced.

For a blackwater treatment system, the blackwater is collected and routed, via gravity whenever possible, to one centrally located blackwater treatment system. It will first spill into a collection tank. The blackwater will then be pumped from the collection tank through the treatment system which consists of sequential steps/processes to produce the desired effluent quality. It is then pumped into a treated water storage tank. From here the water is pumped to serve the non-potable water needs. Refer to Figure 31 for a diagram of a typical blackwater treatment and reuse system.

There are a number of different blackwater treatment systems. All offer their own advantages and disadvantages. The proposed and priced blackwater treatment system is based on Membrane Biological Reactor (MBR) technology. The treatment process is similar but more robust than that of the graywater MBR treatment system. It offers a compact footprint for the equipment required, and produces a high quality effluent that can be reused for non-potable water. The following describes the treatment process through an MBR system which consists of sequential steps/ processes to produce the desired effluent quality.

• Step 1: Aerobic Screening – Reduces the insoluble material to a negligible residue. This residue can either be discharged to the sewer or de-watered and disposed of as solid waste.

• Step 2: Biological Treatment – Bacteria consumes the impurities in the water. This is done by diffusing air into the water to create optimum conditions for the bacteria. The bacteria metabolizes almost all of the incoming waste, resulting in a negligible amount of sludge being produced.

• Step 3: Filtration – The water passes through a stationary membrane that prevents particles, bacteria and viruses from passing through.

• Step 4: Ultraviolet Disinfection – Ultraviolet lamps provide additional treatment to the water to ensure pathogens have been removed.

• Step 5: Chlorination – The last step in the water treatment is adding a chlorine residual into the water. This protects the water while it is being stored for reuse.

• Step 6: TDS & Nutrient Removal – This step is only required if the water will be reused for cooling tower make-up or other technologies that have specific water quality requirements.
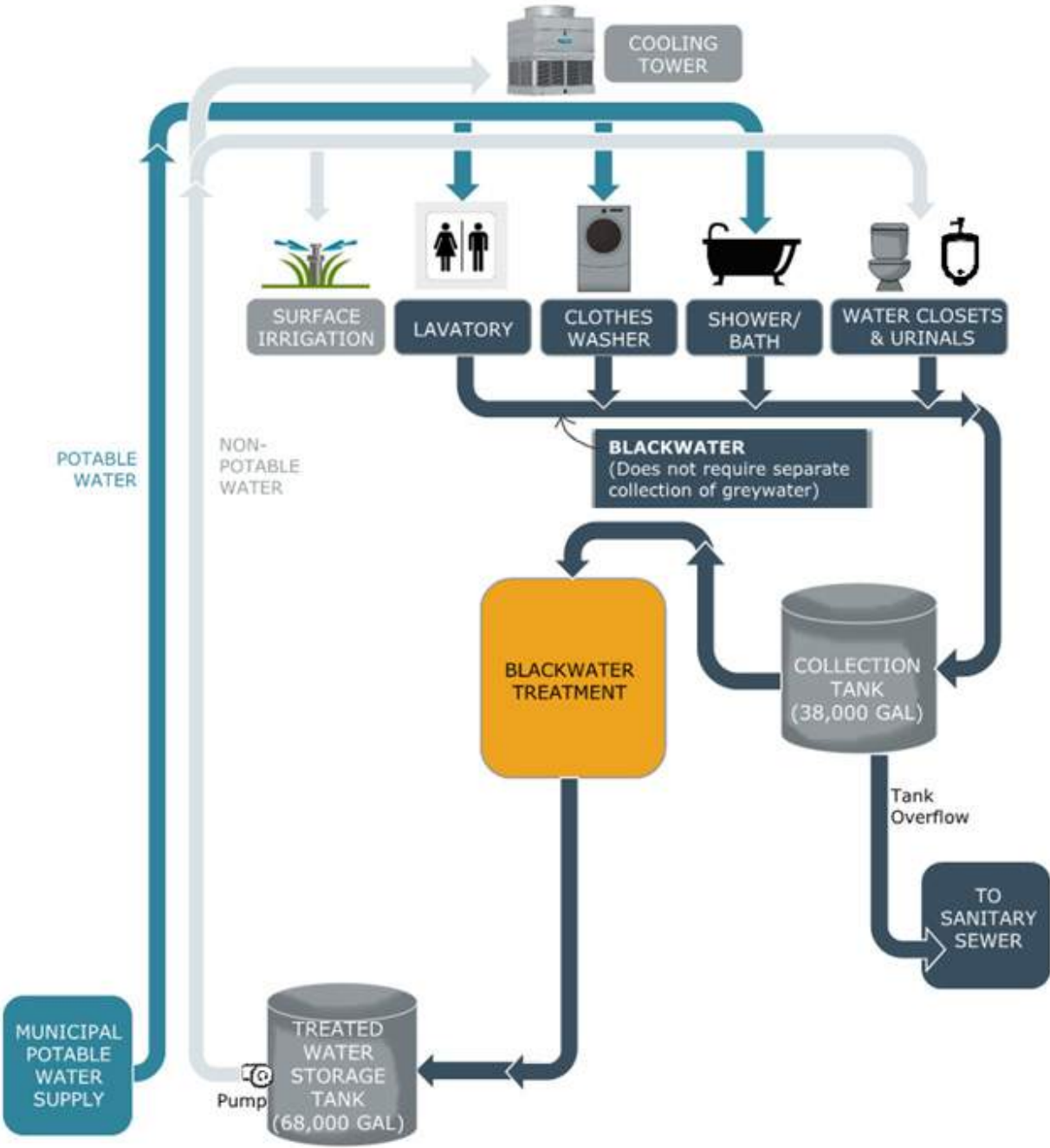
Figure 31: Blackwater Treatment System

MEP Strategies

Water Upgrades

DUAL PLUMBING FOR NPW USE

Dual plumbing for Non-Potable Water use is required at the building level to integrate with a graywater or blackwater treatment plant (campus level strategy). Blackwater treatment is recommended in this report for Santa Rosa Campus, Petaluma Campus, and Shone Farm. Buildings in these campuses need to be dual plumbed in order to be able to connect to and use the non-potable water the blackwater treatment plant will treat and distribute back to the buildings. This strategy is also recommended for other campuses that benefit from a future non-potable water (also known as Purple Pipe) utility.

Critical MEP Strategies

Critical MEP Strategies to Achieve 2030

As outlined in the sections above and on the summary table to the left, the following are critical strategies to achieve Vision Plan goals:

MODULAR CENTRAL PLANT

▪ Modular Central Plant - For the Santa Rosa and Petaluma campuses. This strategy can be combined with geothermal heat exchangers, thermal energy storage (PCM – Phase Change Material), Solar thermal arrays, pool heating systems, and other heat sources and sinks available on each of the campuses.

PHOTO-VOLTAIC ARRAYS

▪ PV's are the workhorse of energy generation and with the technology becoming more efficient and less expensive they are likely to continue to be the most effective way to generate electricity.

COGENERATION PLANT

▪ This strategy is not absolutely required and presents carbon neutrality problems, but makes economic sense. This strategy can be used temporarily to heat the pools at the Santa Rosa Campus and phased out as 2030 approaches to be replaced by solar thermal arrays or additional PV that will allow pool heating to be done electrically (via water-to-water heat pump), in combination with the Central Plant strategy and geothermal heat exchange.

MICROGRID & ELECTRICAL ENERGY STORAGE

▪ These strategies should be considered long term as they are likely to become mature technologies with 10 years, and will play a key role in energy generation, transmission, and management in the near future. The rise of electrical cars will allow their batteries to be used as an extension of the grid to charge or draw power from depending on Microgrid management.

ENERGY SUB-METERING

▪ This strategy is critical to understand where energy and water us being used, so it can be managed. Not knowing with certainty where the energy hogs are and what strategies are working well results in blind sighted decision making. Sub-metering and an Measuring and Verification (M&V) plan should be deployed in every building to understand, track, and manage energy and water use by the following end uses:

ENERGY

- Lighting
- Plug loads
- HVAC
- Domestic Water
- Electric Vehicle charging
- Conveyance equipment
- Process loads (theatrical, kitchen, etc.)

WATER

- Potable indoor
- Potable outdoor (pool)
- Non-potable indoor (irrigation, water features)
- Non-potable process (cooling towers)
- Other

CONTROLS, MEASURING & VERIFICATION (M&V), COMMISSIONING

Implement Controls strategies for the measurement, data recording, and monthly report production to summarize energy and water use by building and by campus

▪ Commissioning of individual buildings and campus MEP systems to meet LEED fundamental and Enhanced as well as California Energy Code Commissioning

▪ Post-Occupancy period for the verification of building users thermal comfort, building energy use, and building water use.

- Post occupancy period shall last 12 months after full occupancy

- Monthly reports shall be generated and provided to SCJCD Facilities Management Group

▪ Buildings will be Retro-Commissioned every 5 years

Critical MEP Strategies

IMPROVED PERFORMANCE ENVELOPE

- The current energy code (Title 24) envelope performance is quite good and increased thermal performance above code should be considered on a building-by-building basis. Envelope leakage control should however be added to all projects.

DROUGHT TOLERANT LANDSCAPE

- While not an MEP strategy, this is highly recommended since it has a major impact on campus water use reduction.

LOW FLOW PLUMBING FIXTURES

- This strategy is recommended for every project new, or renovation since without it the Vision Plan goals cannot be achieved.

BLACKWATER TREATMENT AND REUSE

- Given the water use distribution for SCJCD campuses, blackwater treatment is the only way to achieve the water goals of the Vision Plan.

DUAL PLUMBING

- This strategy is required for new buildings and major renovations to allow the blackwater treatment strategy to be implemented.

The table to the left also includes estimated simple payback period information for the strategies studied.

STRATEGY		CAMPUS BUILDING	DESCRIPTION	FIRST COST ($)	ESTIMATED SAVINGS ($/Year)	ESTIMATED PAYBACK (Years)	PAE RECOMMENDATION	SRJC CAMPUS	PETALUMA CAMPUS	PSTC	SHONE FARM	SOUTHWEST CENTER	TIER I	TIER II	TIER III	TIER IV
ENERGY EFFICIENCY MEASURES — CAMPUS																
Geothermal Heat Exchange		Campus	Vertical Bore Geo-Exchange (180 FT/Ton, $25/Ft)	~$5,700/Ton	TBD Design Dependent	TBD Design Dependent	✓	✓	✓	✓	✓					
Modular Campus Central Plant		Campus (SRJC x4) (Petaluma x1)	Modular Central 30' x 50' Bldg, 1,000 Tons / Cooling Towers (1000 Ton) / CW Pumps (3,000 GPM) / Boilers (7.5 Million Btu) / HW Pumps (750 GPM) / Campus central controls / 500 Feet of utilities / $25/SF Offset cost for HVAC within Buildings.	~$500/SF ~$7,000,000/Plant + Util. ~$1,000,000 Net Plant Cost	~120,000/Yr	~9 Yrs	✓	✓	✓							
Solar Thermal Arrays		Pools (SRJC)	Solar thermal arrays for pool heating, 3,600 SF	~$40/SF ~$145,000/Solar Thermal Array	~12,500/Yr	~12 Yrs										
PV Arrays		Campus Building	Photo-Voltaic solar arrays for electricity generation (rooftop)	~$4.37/Watt	~0.27/W-Yr of PV Installed	~16 Yrs	✓	✓	✓	✓	✓	✓				
Cogeneration and Fuel Cell (Micro Turbine)		Campus (SRJC)	300 kW Micro-turbine plant	~3,200,000/Cogen Plant	~200,000/Yr	~16 Yrs	✓	✓								
Microgrid		Campus (SRJC)	Power monitoring and controls of 800 kW Grid	~$6,400/Watt ~$5,120,000/Microgrid	TBD Design Dependent	TBD Design Dependent	✓	✓								
Energy Storage Systems (Battery and Electric Vehicle)		Campus	200 kW / 400kWh (2 hours)	~$1,175/kW ~$235,000/Energy Storage	TBD Design Dependent	TBD Design Dependent	✓	✓								
Thermal Energy Storage Systems		Campus	TBD - Dependent on Campus Plant and Building Design. Preliminarily Recommended for SRJC, Petaluma.	TBD - Design Dependent	TBD Design Dependent	TBD Design Dependent	Furhter Study Required	✓	✓					✓		
Energy Sub-Metering		Campus	Recommeded for Condenser Water Plant and loop distribution. Required to achieve Vision Plan.	TBD - Design Dependent	TBD Design Dependent	TBD Design Dependent	Recommended to achieve Vision Plan	✓	✓	✓	✓	✓			✓	
ENERGY EFFICIENCY MEASURES — BUILDING																
Energy Efficient Windows (Solar Control)		Building (Renovations)	Match T24 prescriptive windows (double pane, low-e)	~$35/SF (Bldg)	~285,000/Yr	~173 Yrs										
Daylighting and Efficient Light Fixtures		Building (Renovations)	Match T24 prescriptive lighting (LED, daylight dim.)	~$10/SF (Bldg)	~518,000/Yr	~27 Yrs	✓	✓	✓	✓	✓	✓	✓		✓	
Ground Source Heat Pump		Building (Renovations)	New Const Premium / Renovation Cost (Ground source heat pump)	~$29/Ton ~$32/Ton	TBD Design Dependent	TBD Design Dependent	✓	✓	✓	✓	✓	✓				
Improved Building Envelope		Building (Renovations)	Match T24 prescriptive envelope (Roof, walls, windows)	~$95/SF (Bldg)	~500,000/Yr	~268 Yrs	✓	✓	✓	✓	✓	✓				
Reduced Lab Ventilation		Building	Select Fume Hoods with lower face velocity and have EH&S agree to reduced but safe ventilation rates	TBD - Design Dependent	TBD Design Dependent	TBD Design Dependent	✓	✓	✓	✓	✓	✓			✓	✓
Ventilation Heat Recovery		Building (Renovations)	New Construction Premium / Renovation Cost (Plate and frame)	~$2.83/CFM ~$3.54/CFM	TBD Design Dependent	TBD Design Dependent	✓	✓	✓	✓	✓	✓				
Energy Sub-Metering		Campus	Recommeded for Condenser Water Plant and loop distribution. Required to achieve Vision Plan.	TBD	N/A	N/A	✓	✓	✓	✓	✓	✓	✓		✓	
WATER CONSERVATION MEASURES — CAMPUS																
Drought Tolerant Landscape		Campus (Renovations)	Replace all existing landscape and all new landscape with plants with low water use and drip irrigation systems and controllers	$22/SF	~$26,000/Yr	No Payback (over 50 Yrs)	✓	✓	✓	✓	✓	✓			✓	
Rainwater Treatment and Reuse		Campus (SRJC x5) (Petaluma x1)	30k Gal Rainwater Cistern / 10k Gal/day treatment system / 500ft of storm main to cistern / 500ft of NPW piping to flushvalves	$330,000/System	~38,000/Yr	~34 Yrs										
Greywater Treatment and Reuse		Campus (SRJC x2) (Petaluma x1) (Shone x1)	2.5k Gal collection tank / (2) 5k Gal treated water tanks / 5k Gal/day MBR treatment sys / 500ft of greywater main to tank / 500ft of NPW piping to flushvalves	$210,000/System	~29,000/Yr	~14 Yrs										
Blackwater Treatment and Reuse		Campus (SRJC x9) (Petaluma x2) (Shone x0.25)	10k Gal collection tank / 10k Gal bio-reactor tank / (2) 20k Gal treated water tanks / 20k Gal/day MBR treatment sys / 500ft of blackwater main to tank / 500ft of NPW piping to flushvalves / 500ft of NPW piping to drip irrigation	$505,000/System	~660,000/Yr	~6 Yrs	✓	✓	✓		✓					
WATER CONSERVATION MEASURES — BUILDING																
Low Flow Plumbing Fixtures		Building (Renovations)	Provide replacement cost for low flow fixtures: / Water Closet – 1.28 gpf / Urinal – 0.125 gpf / Lavatory – 0.35 gpm	$3.8/SF	~246,000/Yr	~18 Yrs	✓	✓	✓	✓	✓	✓	✓	✓		
Dual Plumbing for NPW Use		Building (Renovations)	Re-plumb existing buildings to allow for NPW water use for flushing toilets and urinals.	TBD	N/A	N/A	✓						✓			

4.7
Security

Security Planning

Executive Overview

This Security Master Plan document consists of findings, recommendations for remediation, and a road map to industry Best Practices regarding security policies and procedures, Crime Prevention Through Environmental Design (CPTED), police operations, and security technology.

Introduction

For many, the true value of a physical security program can be difficult to assess. Often seen primarily as either a tool for regulatory compliance or as a vehicle for the mitigation of risk, it is viewed by some executive decision makers as little more than an unavoidable expense.[1] Traditional approaches to evaluating an organization's security posture tend to focus almost exclusively on the deterrence of criminal activity. While deterrence of crime is certainly relevant, it is difficult to define any enterprise's value purely in terms of the absence of unwanted activity.

Viewed in the proper light, an organization's physical security program is understood to be much more than a mere cost center. Sixty years ago, the founders of the American Society for Industrial Security (ASIS) began their pioneering work with the observation that personnel in the field of commercial security have come to the realization that the need to provide a system of protective services for each and every organization is as important as the product or service delivered by the organization itself. Fast forward to 2016 and with 40,000 members, ASIS International has grown to be the preeminent organization for security professionals and corporations thanks to

their philosophy of integrating security into the business processes and needs.

Considered from this perspective, it is clear that a successful security program must support the broader mission of the institution that it serves. As one security industry executive has observed, "The leadership of a security program must "develop metrics that are important, valued and aligned with the company's goals and objectives."[2]

The Sonoma County Junior College District, dedicated to providing a safe and secure option for all employees and students, has recognized the critical importance of their physical security program as a contributing factor to the achievement of its strategic goals. To this end, as part of the development of the 2030 teaching site future plans it has included the development of this Master Plan for its physical security program.

This Security Master Plan report reflects the results of that process. It incorporates strategic recommendations to assist the College in the further development of system-wide security guidelines. Those guidelines are intended to aid the leadership in maximizing the effective use of its existing resources, and to create a road map regarding security technology, security policies and procedures, physical security as well as security operations with an eye on business integration, program efficiency and effectiveness.

Methodology

The formulation of a Security Master Plan inevitably involved an in-depth evaluation of the College's Police Department. The Department's management, organization, staffing, training,

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1   Bill Zalud, *"A Strong Relationship…Except,"* in *Security*, May 2009, p. 24.

2   Bill Zalud, *"Quality Response,"* in *Security*, February 2008, p. 23.

policies, procedures, and practices were examined in detail. Attention was paid to the interaction of District Police with employees and visitors. The Department's use of technology was considered, with an emphasis on how that technology can best support the College's commitment to providing a safe and secure environment for faculty, staff, and students.

Although a great deal of attention was paid to the Police Department, "Security" as an organization-wide concern cannot be treated as if it were exclusively – or even primarily – the concern of a uniformed officer force.

Guidepost Solutions' assessment is also based upon in-depth inspections of the various teaching site locations throughout Sonoma County. Findings and observations from those surveys were compared to common practices, benchmarks and future trends employed at other community colleges, and to Best Practices common throughout the security industry.

During the course of this exercise, each individual structure and/or support building was examined in detail. Virtually every floor, roof, basement, public hallway, and suite perimeter door was checked. Tours of the parking areas, grounds, and building perimeters were included as a part of each survey as well.

Preliminary and follow-up interviews with members of the Health and Safety Subcommittee and District Police were conducted as a part of this assessment. These interviews included members of the College leadership team with system-wide responsibilities within their areas of expertise. Several impromptu discussions were held with individuals representing these teams. Additional information was obtained from staff and management cooperating with the inspection tours. Opinions volunteered by staff

and management during the course of this process are referenced in this report only to the extent that they appear to be relevant to, and are validated by, Guidepost Solutions' own findings.

The College's practices and conditions were examined with respect to compliance with federal and state regulatory guidelines and standards. Innovative security and safety practices employed by other organizations - as well as recent advances in security technology - were considered as well.

While this document includes several recommendations, there is a danger inherent in viewing it as simply a point-by-point list of action items. No organization is capable of doing everything at once. As one change expert has noted, having too many goals is asking to "standing in front of dartboard with three targets in mind. Hitting just one target is difficult enough; hitting three targets simultaneously with one dart is impossible."[3] At the same time, it is manifest that the College is presently pursuing initiatives at several levels that are of great potential importance to the organization's physical security program. An effort has been made to consider such activities in the context of how they can contribute to the continuing enhancement of the College's overall security posture, as part of a strategic Master Plan.

One final cautionary note is in order. An exercise of this type, by its very nature, seeks to identify and describe problem areas, to analyze topics of concern, to uncover evidence of undesirable conditions, and to suggest avenues of improvement. Far less attention has been expended on lauding the great many things that are already done well.

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3   Douglas Vermeeren, *"Why People Fail to Achieve Their Goals"*, in <u>Security</u>, October 2007, p. 83.

CPTED Principles & New Projects

During the project's site assessments, Guidepost Solutions' surveyors paid special attention to the physical layout of the College locations with reference to the prevailing philosophy of Crime Prevention Through Environmental Design, known more simply as "CPTED". CPTED is based upon the belief that the "physical environment can be manipulated to produce behavioral effects that will reduce incidence and fear of crime, thereby improving the quality of life."[4] A basic goal of CPTED is to design or provide passive and unobtrusive physical features that inhibit those with intent to do harm. CPTED is much more far-reaching than the simple use of cameras or card readers. It is a comprehensive approach to the protection environment. CPTED principles can often be applied easily and inexpensively to new construction or remodeled buildings, and have been implemented in communities across the nation. The results have been impressive; in some CPTED communities, criminal activity has decreased by as much as 40 percent.

The key to CPTED involves designs that eliminate or reduce criminal behavior and at the same time encourages individuals to "keep an eye out" for each other. The four basic elements of CPTED are:

1. **Natural Surveillance** – This is a concept directed primarily at keeping intruders easily observable. It is promoted by features that maximize the visibility of people, parking areas and building entrances. Examples are doors and windows that look out on to streets and parking areas, pedestrian-friendly sidewalks and streets, front porches and clear observation areas, and uniformly distributed and adequately maintained lighting at night time and in enclosed areas.

2. **Territorial Reinforcement** – This occurs when a physical design creates or extends a sphere of influence. Users then develop a sense of territorial control while potential offenders, perceiving this control, are discouraged. This concept is promoted by features that define property lines and distinguish private spaces from public spaces through the use of landscape plantings, pavement designs, gateway treatments, and inoffensive fences that are blended into the overall location design.

3. **Natural Access Control** – Natural access control decreases criminal opportunities by denying access to potential targets and creating in offenders a perception of risk. This is accomplished by designing streets, sidewalks, building entrances and neighborhood gateways to clearly indicate public routes and by discouraging access to private areas with structural elements.

4. **Target Hardening** – Often pursued to the exclusion of the three principles outlined above, target hardening is best used as a supplement to a properly managed environment, rather than as a panacea or cure-all. Target hardening involves prohibiting entry or access through the use of things such as automated controls, deadbolt locks, interior door hinges, walls, fences, gates, and berms.

As a general rule, shrubbery and trees should be trimmed to eliminate growth between 3' and 8', as well as any growth blocking views of

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4   Timothy Crowe, Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts, (Boston: Butterworth-Heinemann, 1991), pp. 28-29.

doors, windows, and pathways. Lighting should be routinely inspected at night to judge its effectiveness under required operating conditions. Potential areas of physical isolation should be subject to routine inspections and then eventually eliminated.

The College's current CPTED posture is rated good to very good. Additional compensation for the limited application of CPTED principles at certain sites can be achieved by implementing the additional controls recommended in this Master Plan. At the same time, the College should ensure that all new construction and renovation projects continue to embrace CPTED designs. This involves designing future security controls around "the normal and expected use of the space, and the predictable behavior of both bona fide users and offenders."[5] This will both enhance the level of security at project locations and lessen the needs for expenditures on security technology systems and personnel.

Security Technology

An essential attribute of any institutional security program is the common application of consistent standards. Security in a modern commercial environment is built upon a foundation of a coherent philosophy, strengthened by the requisite policies and procedures. These policies and procedures are supported by a variety of physical elements - such as perimeter fencing, walls, doors, locks, landscaping, and traffic circulation patterns – and implemented by staff. Electronic security systems – all too often viewed as solutions by themselves – make up the final element in

5   Crowe, Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts, p. 35.

a protection program. All aspects of a security program must be properly integrated to provide the organization with an appropriate overall level of security. The deployment of security technology should be seen not as a goal in itself, but as an adjunct to and back up for the operational elements (people, policies, and procedures) of a security program, as well as a post-incident investigation tool.

The present state of security technology at the teaching sites reflect a successful multi-year investment effort by the College leadership. New, cutting-edge technologies have been implemented at almost every teaching site, but is only as far reaching as the newer construction projects. Quality components have been installed at these locations, however, maintenance agreements have not been put in place to proactively keep systems up and running. The College rightfully realizes that fixing what's broken (as opposed to keeping systems working at all times) offers a window of opportunity to prospective perpetrators with intent to commit crimes undetected. Additionally, organizations that possess non-functioning security systems/devices increase their exposure to liability due to the implied sense of false security. Employees and visitors would have security expectations that the College could not honor, which in turn could increase the company's exposure to the negative consequences that are inherent with crimes committed.

The guiding aim for College's physical security program should be to extend human senses to the maximum extent possible through the affordable application of technology, in order to simulate a ubiquitous presence and allow for the most efficient use of the human resources it must deploy. Simply put, it should be possible to protect more assets on a permanent basis using fewer resources, as one-time capital expenses are employed to replace recurring operating costs.

IDENTIFICATION BADGES & ACCESS CONTROL SYSTEMS

Identification badges for members of the College community are not currently printed on the programmable proximity cards used to control access to buildings, and sometimes doors inside buildings, elevators as well as select parking areas. The card stock is adaptable to a wide variety of applications, and can be configured to work within different systems. Badges should be issued with the picture and name of their owner and be visibly displayed while on premise.

The interfacing of cameras with access control alarms (camera call-up) would represent a major improvement compared to how the Software House system is used today. Today when a door is forced open or held open the access control system triggers an alarm in the form of an alphanumeric notification at the officer viewing station. Enabling camera call-up would allow for the officer to also view video from a nearby camera without delay. The access controlled door and nearby CCTV camera would be married to each other to increase overall ease of use and to decrease response times.

Other recommendations are the consistent incorporation of electronic locks and access control devices and the programming of Software House to allow for immediate lock-down capability of buildings, classrooms and offices.

CLOSED CIRCUIT TELEVISION CAMERAS (CCTV)

The current use of CCTV cameras at College is less than adequate. Though CCTV cameras are deployed at most teaching sites, they are sporadically located, providing coverage in some locations, but many critical areas of the teaching sites are left without CCTV coverage. Guidepost Solutions does have a number of recommendations that would increase the adequacy to industry Best Practice.

1. Consistently deploy CCTV cameras at all building entrances, parking areas and common outdoor quad spaces.

2. Increase the quality of the recorded video to continuous recording (as opposed to recording motion only), 15 fps, 4 CIF or 720×480.

3. Do not configure PTZ cameras to "auto-tour". Program the PTZ camera to a "home view" instead. Auto tour is really pointless. It increases storage space requirements, it stresses the mechanical components of the camera, and finally PTZ cameras that are in auto-tour rarely catch a perpetrator because always rotating away from the area of interest during after the fact video footage searches performed by the property managers.

4. Trim the trees in the areas of the CCTV cameras to allow for adequate exterior camera views.

5. As older equipment is replaced, deploy cameras in a standardized fashion from a placement, camera performance and video recording point of view.

INTRUSION ALARM

Alarms positioned at egress points and at select interior areas are designed to detect exceptional conditions in cases where access should be denied. Properly employed, they can be of great use in identifying breaches in perimeters, unauthorized entries into interior secured areas, and tampering with safes and high-value equipment.

Intrusion alarms at entry portals are typically local alarms activated by door contacts that are hard-wired or networked to a head end, where they can be monitored in real time. Peripheral devices other than door contacts that can generate alarms include glass breaks, motion detectors, sonic sensors, and infrared beams. Local, monitored alarms can be directed by a variety of means to either a third party monitoring station or to an in-house control center.

The College employs intrusion alarm systems at perimeter doors at several buildings in order to detect unauthorized after-hours access.

There is cause for concern with the manner in which intrusion alarms are used – or not used – at the teaching sites. Specifically, several sites have building perimeter doors that have not been equipped with intrusion alarms nor card access controls, and thus have no means apart from physical inspections to detect after-hours breaches.

Apart from the seemingly obvious caveat that alarm systems actually need to be armed to be of use, intrusion detection devices need to be remotely monitored in real time, routinely inspected to ensure that they are functioning properly, and deployed as part of an overall protection matrix.

Guidepost Solutions recommends that all site intrusion alarm systems be integrated with

Software House to allow for a single source of alarms, as well as added functionality such as video call-up.

Security Operations, Policies & Procedures

Commentary and recommendations concerning the College's security operations, policies, and procedures are based in part upon first hand observations obtained during site surveys and management interviews.

The importance of policies and procedures should not be underestimated. The potential value of such materials as training tools and operational guides is directly related to their accuracy and clarity.[6] The items listed below – excluding some simple errata - were identified during the course of Guidepost Solutions' review of operations as those that may need to be corrected, addressed, or revised, or those that may be subject to further consideration:

ID BADGING

- The College's access control badges should also serve as immediate visual identification of authorized personnel. Access cards that also serve as visual ID badges, while often seen as a privilege, are perhaps better understood by management as a means of control. Given that, it is desirable that the College should expand their scope of control over contractors and consultants by widening the field of those individuals who are issued badges. A standard of credentialing

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6   Charles A. Sennewald, _Effective Security Management_, 2nd ed., (Boston: Butterworth-Heinemann, 1985), p. 104.

all contractors and consultants who access teaching sites an average of one-month worth of work days in any one calendar year is recommended.

- Badges that are reported lost should be immediately deactivated, concurrent with the issuing of a visitor or temporary badge.

- The College should consider adopting a policy that does not acknowledge circumstances in which an employee might "forget" their mandatory badge. Other organizations that have struggled with a plethora of such instances have found that once they adopt a policy of complete compliance employees will very quickly learn to "remember" their badges, just as they would remember any other resource that is absolutely essential to the performance of their duties. More stringent requirements applied to lost and "forgotten" badges can be reinforced with a system of escalating management approvals, applied to individuals who lose or forget their badges on multiple occasions.

- Once the inactive status of a badge is confirmed, it is preferable that the badge should be destroyed "immediately", preventing its misuse.

KEY CONTROL

- There are many ways for an adversary to attack a door secured by a mechanical lock, including a variety of means of forced entry. Nevertheless, the surreptitious circumvention of a lock through the unauthorized use of a key constitutes the greatest threat most organizations will confront, in that the incident itself and any continuing vulnerability is likely to go unnoticed.[7] The best course for

the College to follow may be the continued expansion of a single platform based automated access control system, coupled with the progressive elimination of reliance upon hard keys. Indeed, given the fact that master key systems by definition are entirely compromised whenever a key at the highest level is lost, the best strategic approach may well be to move entirely away from the requirement for a master key system.[8]

- The security of hard keys can be greatly enhanced through the use of automated key control systems. Such systems would curtail the removal of keys from the premises, and thus reduce the risk of loss or unauthorized duplication. Because keys in an automated system can be programmed to be released only to predetermined users at predetermined times, the potential for misuse can be further reduced. Lastly, this type of system would provide a far more efficient audit trail of when keys were actually used, should such a need arise. Key control should be a Facilities Management function with Security establishing the key processes.

INCIDENT REPORTS

Incident reports should be completed for all security and emergency incidents occurring at the College's Teaching Sites. A simple standard by which to judge the value of incident reports is whether or not they are intelligible to someone who is unfamiliar with the location and individuals described in the report.

- A standardized common format for all

7   Lawrence J. Fennelly, *Effective Physical Security*, pp. 140-150.

8   Russell L. Colling, *Hospital Security: Complete Protection for Health Care Facilities*, 2nd ed., (Los Angeles: Security World Publishing, 1977) p. 258.

incident reports – whether completed by police officers or completed by non-police personnel - should be adopted by College. This format should be customized to the College environment.

- The single common incident report format should reside in a web or server based professional report writing software. All reports entered into this program would require the completion of mandatory fields, and be available in a searchable system wide database.

- All officers should be required to meet a standard for the timely submission of incident reports. The simplest and most effective approach is to establish a requirement that all reports must be submitted before the end of an officer's shift.

- The timely submission of draft reports should be supported by an internal process for the timely review of all reports. In order to be of value, this process should include the return of reports for correction and the addition of omitted details. The process should apply equally to reports turned in by police officers and non-police personnel. A process of this type is quite possibly the most powerful tool available to the College for improvement in the quality or reports, as it would reinforce the understanding among all parties that all incident reports must meet minimum requirements.

POLICE SERVICES

District Police occupy some, but not all, College teaching sites. Depending on the needs of each teaching site, coverage is either 24x7 (around the clock), or limited primarily to day and modified evening shifts, Mondays through Fridays. Staffing appears to be adequate in performing roving patrols and responding to incidents. The current staffing does not however afford the abilities to actively monitor the electronic security systems.

- The College might explore opportunities in providing additional resources to actively monitor access control, intrusion detection and closed circuit television systems in an effort to proactively identify and swiftly resolve security incidents. With the consistent deployment of security technology, there could be a potential that physical roving duties can be scaled back and accomplished statically by monitoring and administering the electronic security systems.

EMPLOYEE AWARENESS AND OWNERSHIP OF THE SECURITY PROGRAM

Ultimately, the safe regulation of the College's employees, visitors, customers, assets, and facilities is more dependent upon employee awareness than upon any technological or operational security enhancements the organization may choose to adopt.

Security awareness on the part of employees is one of an organization's most valuable, but also most often overlooked, resources.[9] Precedent can be found with Environmental Health and Safety programs that have long been familiar with the importance of building relationships and improving communications with workforces, with the ultimate goal of building a "culture of safety."[10]

9   Duane Jones, *"Low Cost Security Tools: Employee Awareness",* in Security, November 2007, pp. 90-91.

10   Stephen G. Minter, "2007 National Safety Survey: Small Steps for a People Business," in Occupational Hazards, Vol. 69, no. 10, October 2007, pp. 30-38.

The challenge for College is to establish and maintain an equivalent "culture of security."

Efforts at creating a strong institution-wide acceptance of a physical security program often fail to make the distinction between employee awareness and employee ownership. Many successful security programs take pride in their ability to make non-security constituents aware of security issues and concerns. They provide information and training programs, promote safe workplace practices, and engage in awareness promotions. These are fine initiatives, and are necessary components in the development of a strong program. Yet, awareness is only one rung on what some have termed the "ladder of involvement."[11]

Progressive security programs encourage their community members to move beyond awareness and then acceptance to embrace ownership, or responsibility, for sharing in the organization's security program. As one industry pundit recently put it: "There's not an owner in the world that doesn't take security seriously."[12] One may use the analogy of locking one's home when departing for work. People typically lock their doors when leaving home – an act of demonstrating ownership – because they are aware that an unlocked home is an invitation to burglary. Yet these same individuals may not show the same degree of diligence in locking up organizational assets or reporting suspicious activity while on the job.

A lack of ownership, which can be characterized as an assumption of non-shared responsibility,

inevitably leads to an atmosphere of fatalism. Taken to an extreme, it promotes beliefs throughout the community being served that security controls are ineffectual, when in fact it may be the case that the employee population could be passively thwarting the controls that are already in place.

A number of creative and effective programs can foster employee ownership of the security program. These include public recognition, a system of rewards, sponsoring contests for full compliance, providing additional training classes, and coupling security awareness with emergency preparedness. The overriding message of such a campaign should be that "the responsibility for good security falls on everyone in the organization."[13]

Return on Investment

As previously noted, some may say that a physical security program is "a necessary evil." Others might concede that an effective security program can bring value to an organization's overall bottom line, although they may find it difficult to explain how. As a result, most see "Security" largely as a function of hiring police officers, installing cameras, and forcing everyone to adhere to a set of access protocols. Yet, it can and should be much more. A physical security program should serve as a resource that allows employees, students and visitors to conduct their business in a safe environment designed to mitigate injury or loss. In doing so, the College's security program can assist in the maintenance and enhancement of a professional and caring environment.

11   Carl A. Roper, Joseph A. Grau, and Lynn F. Fischer, _Security Education, Awareness, and Training: From Theory to Practice_ (Boston: Butterworth-Heinemann, 2006), pp. 74-78.

12   Karen M. Kroll, "_Making the Case for a Security System Upgrade,_" in _Building Operating Management_, January 2007, p.72.

13   Carl A. Roper, Joseph A. Grau, and Lynn F. Fischer, _Security Education, Awareness, and Training: From Theory to Practice_, p. 176.

"Security" as an organizational function is not an ancillary activity. It is essential to employee and student satisfaction. As such, it is one of the necessary prerequisites to the success of any organization. The return on investment to be obtained by implementing the strategic steps recommended in this Master Plan is tangible, and central to the College's mission.

The benefits include:
- A more orderly environment and enhanced control
- The availability of information in real time for assessment and response, and in archive form as an audit tool
- A safer environment, and greater employee and student satisfaction
- A reduction in losses
- The mitigation of risk
- A diminution in potential liability
- Common expectations for students and staff
- A decrease in operating costs, on-going maintenance, and repairs
- Freeing up security personnel for roaming activities by automating static surveillance tasks
- Increased flexibility to accommodate current systems and future advances in technology
- Improved management oversight
- More reliable data for forward planning

The Cost of Maintaining Status Quo

It is often feared that change can be disruptive, expensive, and risky. When considering any significant alteration in course, it is reasonable to consider all available alternatives, including the likely consequences of maintaining the status quo. This can be described somewhat simplistically as "doing nothing." The reality is that College will do "something", because the organization cannot avoid the need to respond to changing conditions and circumstances. Evolving regulations and new community-based challenges, as well as new construction and renovation projects, will continue to occur on a regular basis. The real question one must ask is "how will the College manage change?"

The cost of maintaining a "status quo" approach to change can entail missed opportunities in four specific areas:

- **Cost Savings**: Centralization of operations and the deployment of one single standard body of security technology should result in an eventual decrease in overall security related expenditures.

- **Improved Performance**: By consolidating the College's existing investments with future security enhancements, the effects of improvements will be tangible and predictable. Information that is presently being collected but remains unused will be put to practical use.

- **Flexibility**: Renewed commitment to a consistent standard for security technologies will allow the College to adjust to the needs of future growth while still supporting current operations, rather than maintaining the latter

at the expense of the former.

- **Resilience**: A broad global approach to security will result in more reliable system-wide capabilities.

Ultimately, the most important consequence of maintaining a business-as-usual approach to College's security needs is the impact that such a posture can have upon College's employees and students. Individuals hold their safety and security needs to be non-negotiable.

Conclusion: A Note on Sustainability

The strategic steps recommended in this Master Plan do not have a fixed life expectancy. Once achieved, each interrelated step must be sustained. Simply put, the College's physical security program should be on-going and continuously relevant. It must not be treated as an ancillary activity. The program itself must have an autonomous voice at the table in future strategic planning and organizational initiatives.

To sustain itself, the physical security program needs to remain supportive of College's vision, mission, and overall business plan. This is particularly important as the College continues to expand its services and contemplates new horizons. To maintain the security program's relevance, its management must actively seek collaboration with, and direction from, other managers within the organization. This type of collaboration and direction is required in order to routinely test the program's value and viability. In the case of the uniformed contract security staff in particular, such a process is essential to their posture as a visible, client-focused, customer-service oriented workforce.

Sustainability also involves working with external agencies such as professional associations, law enforcement, and regulators to stay abreast of changes in legislative requirements or case law, new regulations from underwriters and government agencies, and industry best practices. Activities such as these keep stakeholders aware of what is unfolding globally and what experts anticipate as the next generation of threats. This is an often overlooked but important element in the search for program excellence.

Finally, sustainability requires an on-going commitment to change in the management process. This includes examining new ways to measure the efficiency and effectiveness of current programs. It challenges traditional assumptions and tests the impact they have on the organization. The very notion of taking a best practices approach is a prime example of sustainability. Its underlying spirit is captured in the well-known words of Aristotle:

> *"Excellence is an art won by training and habituation. We do not act rightly because we have virtue or excellence, but we rather have those because we have acted rightly. We are what we repeatedly do. Excellence, then, is not an act but a habit."*[14]

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14 Aristotle, *Nicomachean Ethics*, Book II, 4.

Security Guidelines

The goal of the security planning and design guidelines is to implement a consistent deployment of security technology, achieving operational and visual unity of each of the Sonoma County Junior College District's teaching sites. This technology represents the District's commitment to establish a safe and secure campus environment for students, staff and faculty.

The guidelines are the result of a study of the existing security systems and technology at each site and evaluating these measures against industry standards and faculty, staff and student security concerns. These guidelines provide direction for future security component implementation that not only integrates with the current security systems, but also establishes a holistic and consistent approach in creating a safe and secure atmosphere.

The goals of the security guidelines are:

- Automate building locking and unlocking functions
- Consistent deployment of video surveillance coverage throughout each teaching site
- Secure classrooms and offices during emergency situations
- Consistent deployment of emergency call station throughout each teaching site
- Leverage existing systems, while consolidating into a consistent IP deployment, which will simplify operations, maintenance, and testing

Santa Rosa Campus

The current security posture at the Santa Rosa Campus incorporates a mixture of access control, video surveillance, intrusion detection, and emergency call station technologies. The campus has incorporated security technology in alignment with industry standards on newer construction and renovation projects, such as Doyle Library and the Zumwalt Parking Pavilion. While these facilities include automated access control, video surveillance technology, and emergency call stations, buildings such as Baker Hall and Lark Hall do not. The objective of these guidelines is to ensure that future construction and building rehabilitation efforts follow the same approach to security and include the same technology in achieving consistency.

Petaluma Campus

With the majority of the Petaluma Campus being of newer construction, a well rounded and consistent approach to security has already been accomplished. The majority of building perimeter doors currently include access control and video surveillance technologies. Very few security enhancements are required in delivering a safe and secure environment at the Petaluma Campus.

Southwest Center

The Southwest Center is not currently outfitted with electronic security capabilities. Consistent security guidelines are recommended to be incorporated at the Southwest Center in providing consistency and achieving the holistic approach.

However, due to the size of this facility this undertaking will be minimal.

Public Safety Training Center

The Public Safety Training Center currently incorporates access control on the majority of facility doors that should incorporate this technology. Video surveillance cameras and emergency call stations are also deployed at this teaching site. The addition of a few video surveillance cameras, one or two emergency call stations, and door monitoring capabilities is all that is needed in achieving the safe and secure guidelines.

Shone Farm

Most of the facilities at Shone Farm do not include an abundance of electronic security measures. The Dutton Agricultural Pavilion does employ access control technology and the teaching site itself is outfitted with sporadic video surveillance cameras. With Shone Farm being the only teaching site within the District that includes student housing, exterior high resolution cameras at the main gate and other key areas should be considered.

The guidelines for the college are organized to address all of the following security elements:

(A) Access Control

(B) Video Surveillance

(C) Securing Spaces

(D) Emergency Communications

Access Control

The Sonoma Junior College currently utilizes a Software House CCure system as its access control platform. The Software House platform is a reliable and robust application that is scalable and capable of integrating with video surveillance, and intrusion detection systems.

The continued use of Software House now and into the future will aid in accomplishing key steps in establishing safe and secure teaching sites and accomplishing goals of securing classrooms and offices during emergency situations, providing capabilities of automating the locking and unlocking of buildings and providing a consistent solution to aid with ongoing operations, maintenance and testing.

All interior and exterior doors leading to staff only areas as well as all building perimeter doors used for entrance purposes should be equipped with access control technology and report through the Software House platform. Each of these doors should incorporate a card reader in which individuals will present their credential to gain access, electronic locking hardware to secure these doors and that unlock when prompted from a valid credential read or when scheduled unlock periods are activated. These doors should also be equipped with a door position switch to monitor whether the door is open or closed and a request to exit device to ensure the shunting of alarms occurs when exiting through these doors. These automated access control features not only aid in securing the buildings in unwanted access, but also allow for quick lock-down during emergency situations, simplify operational locking / unlocking procedures and reduce the risk of theft.

Video Surveillance
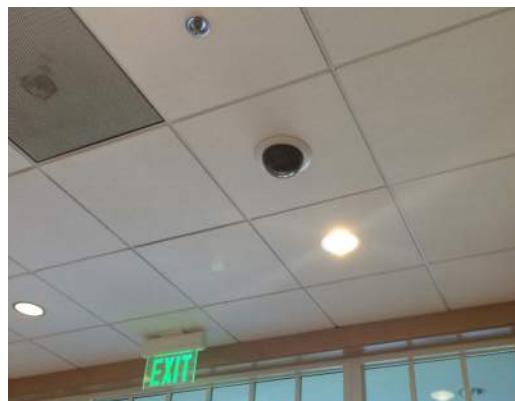
The goals for the college is to simplify operations by consolidating existing video surveillance systems into one common platform and to enhance monitoring and tracking capabilities by deploying security cameras in a consistent fashion across all teaching sites.

The college currently operates on two separate video surveillance platforms, one being an archaic analog system and the other an extremely powerful, scalable, and integratable IP video surveillance system known as Genetec.

Minimum recommendations for video surveillance are as follows:

- The college should consolidate use to the Genetec IP video solution and phase out the analog video surveillance system by replacing the analog cameras with newer and better IP cameras and restore functionality of inoperable cameras.
- Deploy interior fixed view cameras at all building main entry and exit doors, lobby's, and cash handling / storage areas.
- Deploy exterior fixed view cameras at dark and / or secluded areas.
- For the long term focus in achieving monitoring and tracking capabilities, the following enhanced recommendations are provided.
- Deploy a mixture of exterior fixed view and pan-tilt-zoom cameras in quad areas and parking lots to monitor, track and assess situations.

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- For the long term focus in achieving monitoring and tracking capabilities, the following enhanced recommendations are provided.

- Deploy a mixture of exterior fixed view and pan-tilt-zoom cameras in quad areas and parking lots to monitor, track and assess situations.

- The following drawings represent the minimum and enhanced recommended exterior video surveillance coverage for each teaching site.

Existing Cameras

Recommended Measure H Additional Cameras

Existing Emergency Call Stations

Recommended Measure H Additional Emergency Call Stations

Additional Recommended Cameras Beyond Measure H (Future Vision)

Additional Recommended Emergency Call Stations Beyond Measure H (Future Vision)
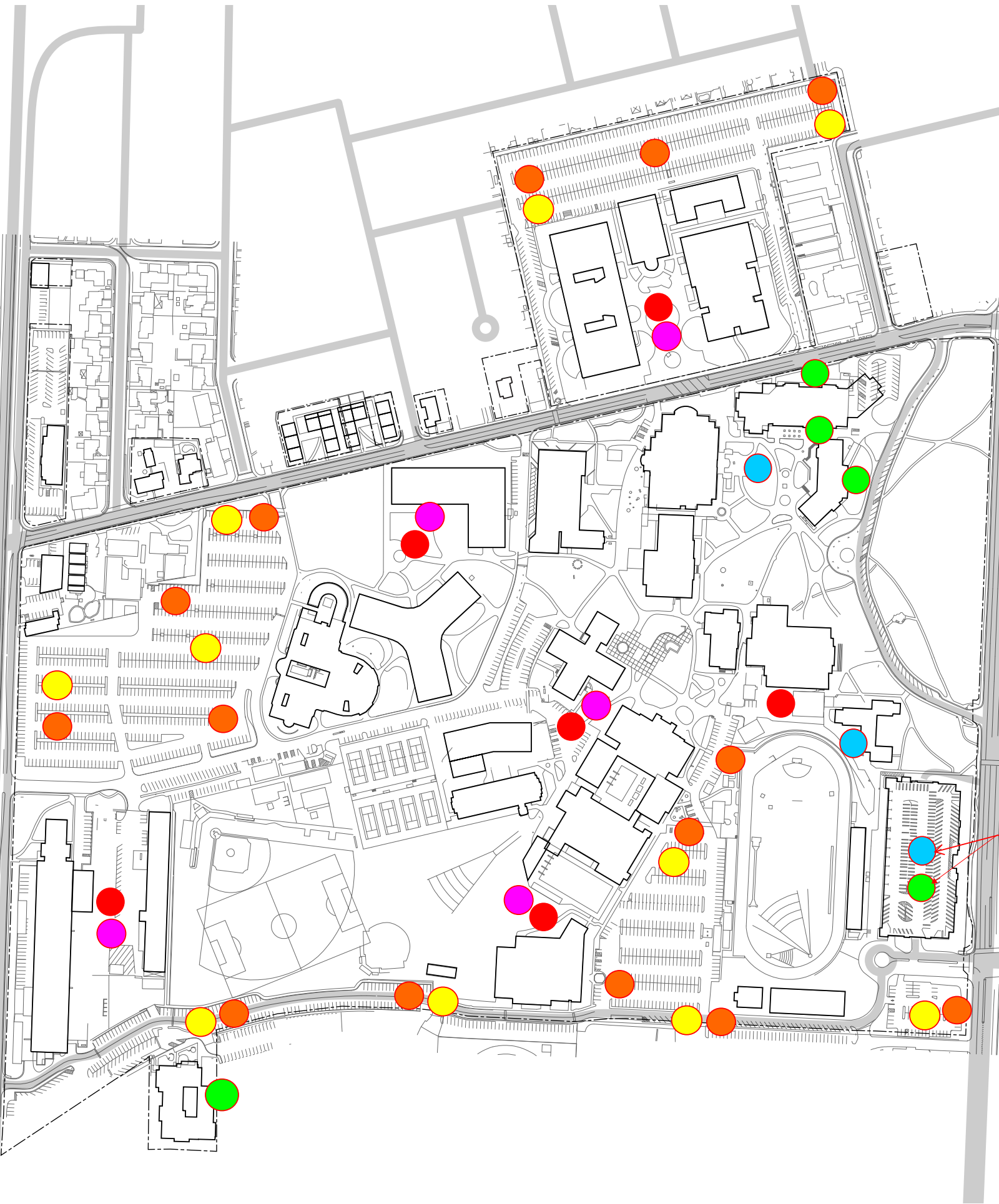
Multiple Existing Cameras & Emergency Call Stations Located Within Zumwalt Parking Pavilion
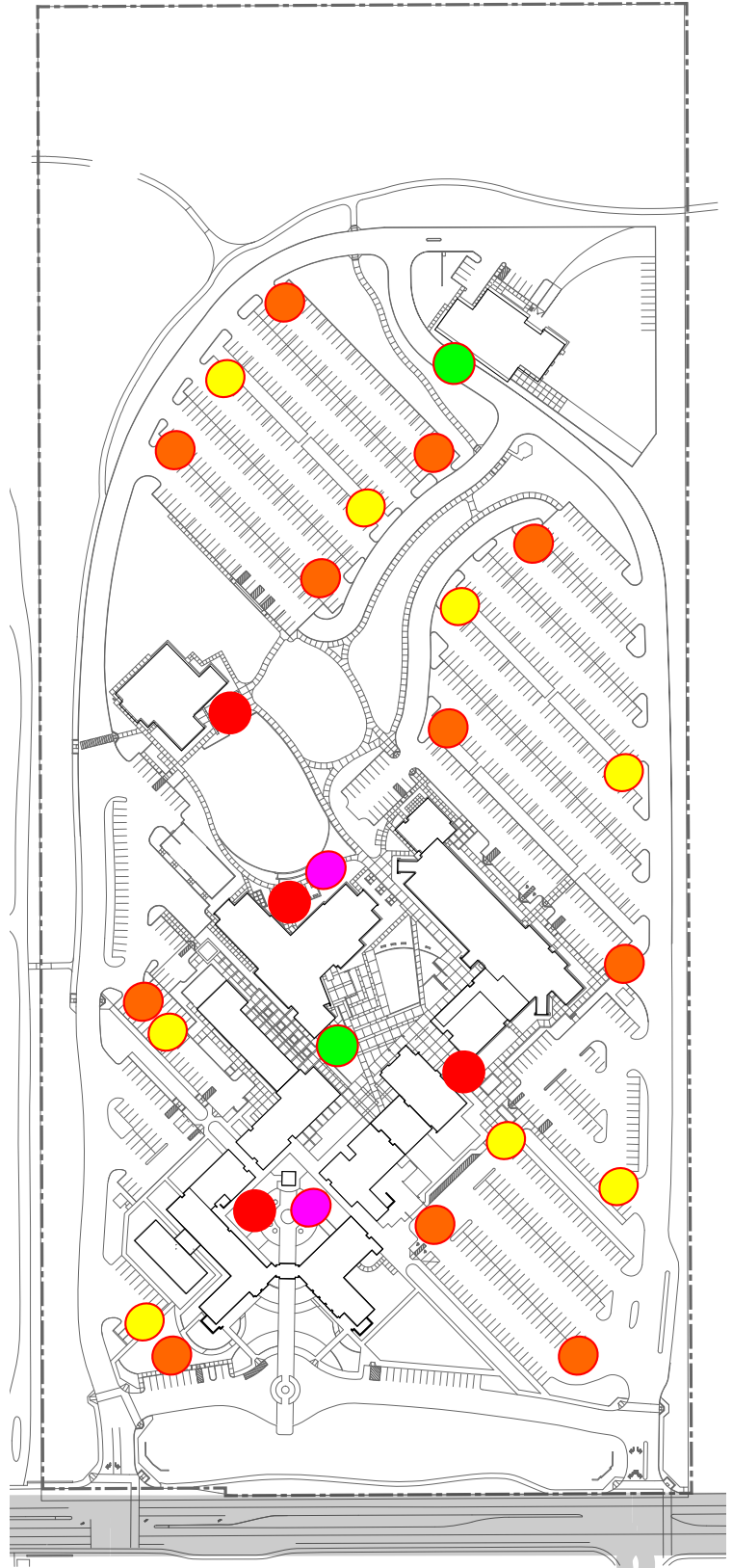
Petaluma Campus

Legend:
- Existing Cameras
- Recommended Measure H Additional Cameras
- Existing Emergency Call Stations
- Recommended Measure H Additional Emergency Call Stations
- Additional Recommended Cameras Beyond Measure H (Future Vision)
- Additional Recommended Emergency Call Stations Beyond Measure H (Future Vision)

Southwest Center

Existing Cameras

Recommended Measure H
Additional Cameras

Existing Emergency Call Stations

Recommended Measure H Additional
Emergency Call Stations

Additional Recommended Cameras
Beyond Measure H (Future Vision)

Additional Recommended Emergency
Call Stations Beyond Measure H (Future
Vision)

Public Safety Training Center
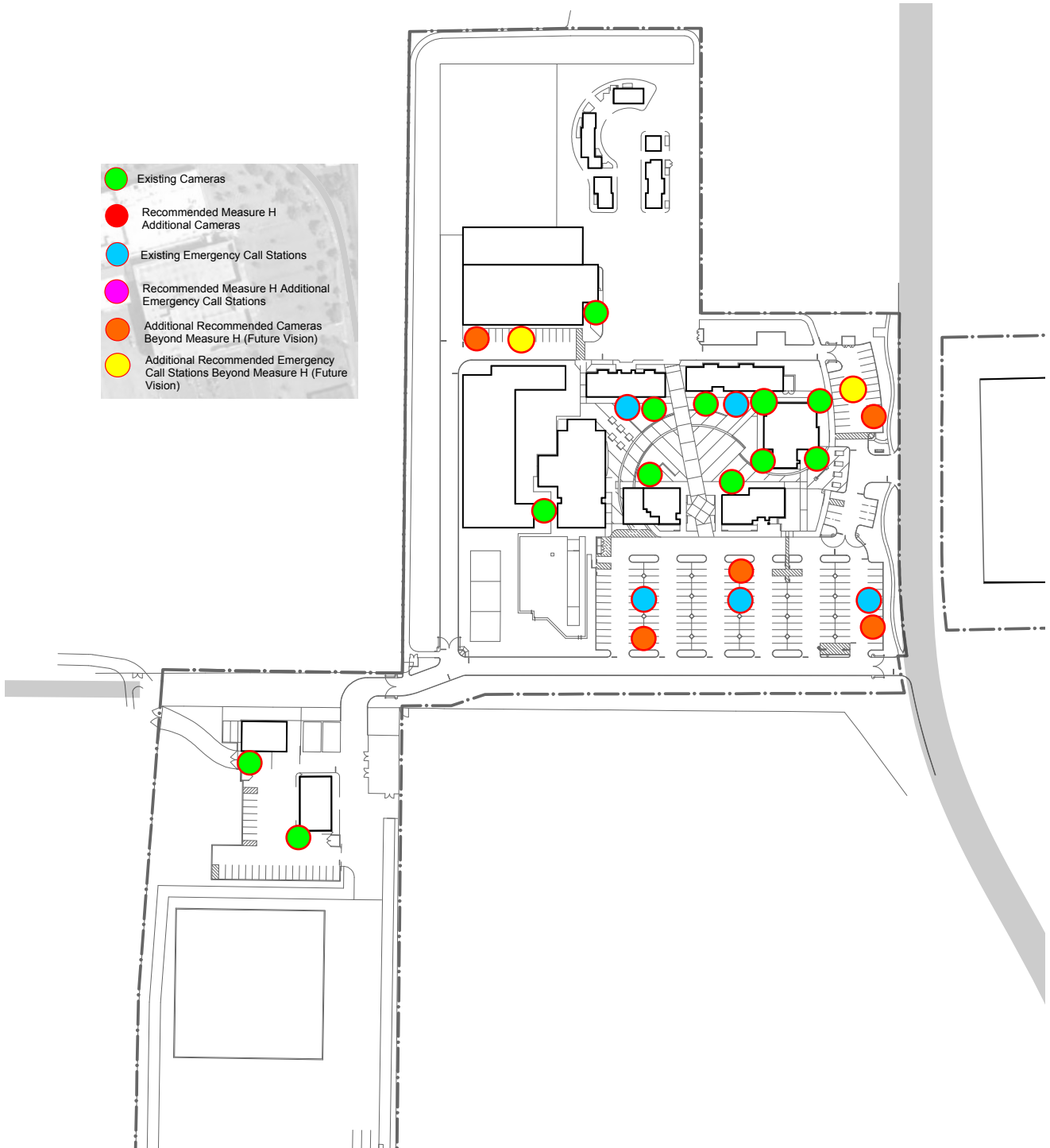

Existing Cameras

Recommended Measure H
Additional Cameras

Existing Emergency Call Stations

Recommended Measure H Additional
Emergency Call Stations

Additional Recommended Cameras
Beyond Measure H (Future Vision)

Additional Recommended Emergency
Call Stations Beyond Measure H (Future
Vision)

Shone Farm

Existing Cameras

Recommended Measure H
Additional Cameras

Existing Emergency Call Stations

Recommended Measure H Additional
Emergency Call Stations

Additional Recommended Cameras
Beyond Measure H (Future Vision)

Additional Recommended Emergency
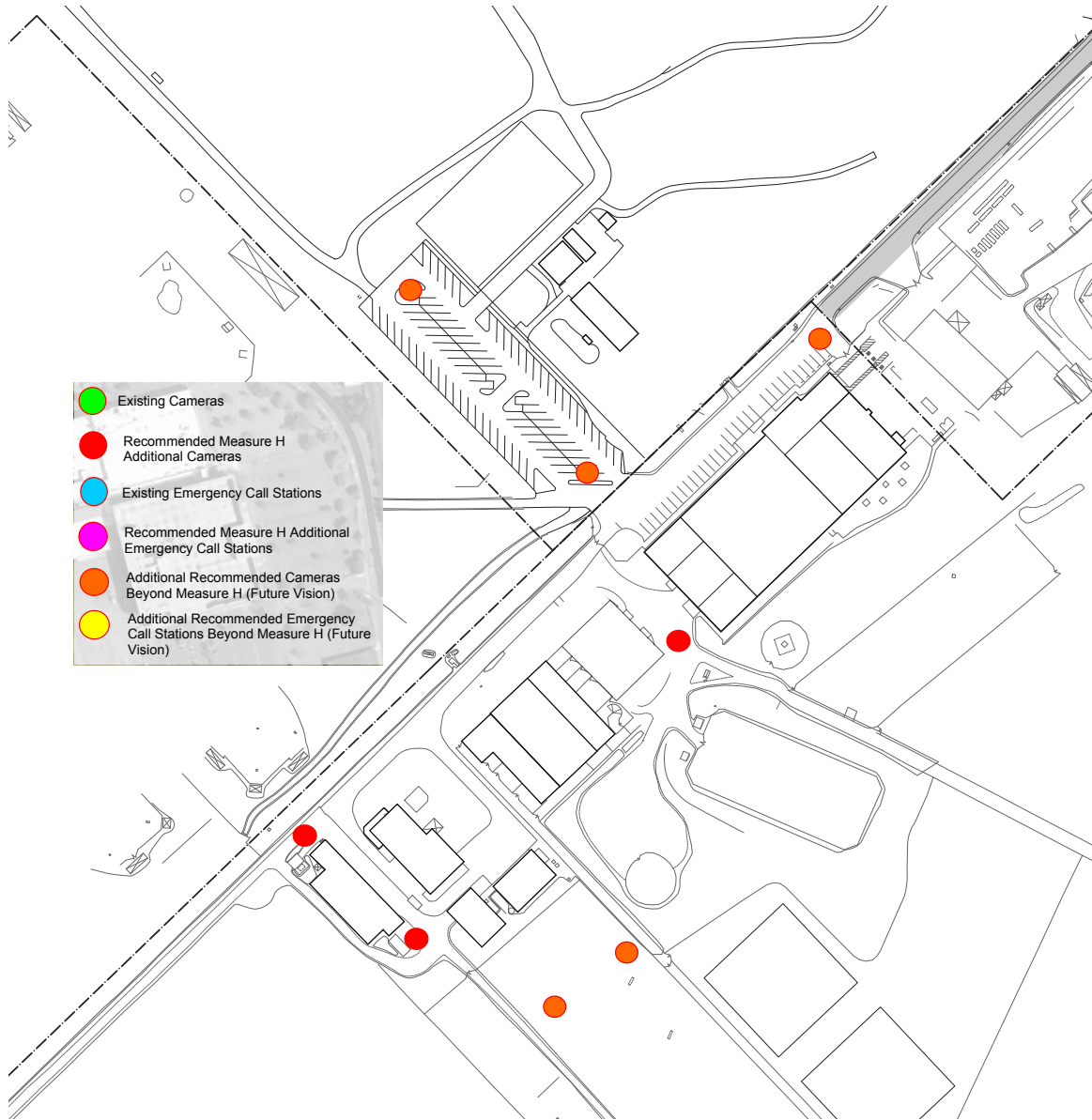Call Stations Beyond Measure H (Future
Vision)
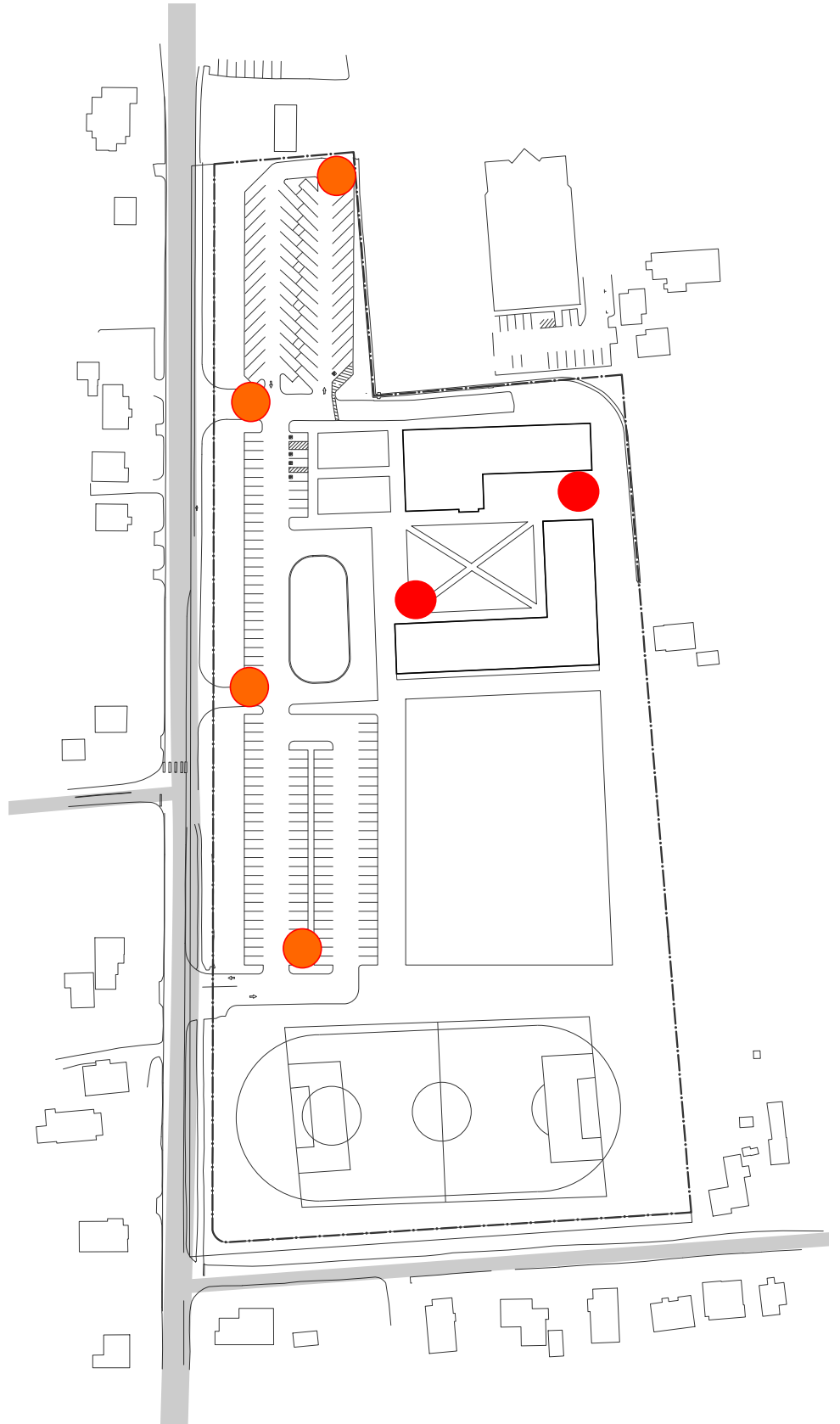
Securing Spaces

- ✓ Classrooms
- ✓ Offices
- ✓ Perimeter Doors

Classrooms / Offices

All classroom and office doors should be equipped with locksets offering capabilities of being quickly locked from within each room. This can be accomplished cost effectively with the use of a mechanical and manual lockset. A more costly approach is the use of electronic locking mechanisms that provide additional capabilities, such as remote locking capabilities from the access control system. Electronic locksets that operate from internal batteries and communicate wirelessly are an alternate and less costly approach to traditional hardwired solutions, but still more costly than mechanical solutions. Either selection of these technologies will greatly mitigate risk in an active shooter scenario. The activation of these locksets will secure the space, restricting access and provide great potential in saving lives.

Classroom and office windows should also be equipped with window glazing that restricts individuals from the outside looking in, but also allows for individuals within the space to see out.

These technologies together restrict access and viewing capabilities within the space and are proven methods in deterring unwanted individuals from attempting access.

Perimeter Doors

All perimeter doors used for building entry should be equipped with electronic access control measures to allow for remote lock-down capabilities to restrict access to individuals as part of an active shooter threat. These features should also be leveraged in normal day to day activities, such as automated scheduled locking and unlocking of doors.

All perimeter exit doors that are not used for entry, but can be used for exiting a building should be locked at all times. These doors should be equipped with egress hardware for exiting purposes and include door position switches that are monitored through the access control system.

Emergency Communications

✓ Emergency Call Stations

Emergency Call Stations

The college currently uses Talk-A-Phone emergency call stations for individuals requiring emergency assistance. These units are identifiable by a blue light to indicate their location and when activated establish communications with District Police. Santa Rosa and the Public Safety Training Center are the only teaching site within the District that are outfitted with the emergency call stations. The majority of the units are located within the Zumwalt Parking Pavilion (Santa Rosa) with a few located in common outdoor areas (Santa Rosa & PSTC). Most of the units operate on analog communications circuits and as such, do not have check-in capabilities to notify the District Police if they are operational or not.

Minimum Recommendations:
- Perform maintenance on existing call station units to restore functionality and conduct routine ongoing testing and maintenance of units.

Optional Recommendations:
- Refresh the existing analog units to communicate with IP technology allowing for unit status check-in features.

- Incorporate emergency call station units at dark and secluded outdoor areas. In parking lots and parking structures, the emergency call stations should be placed at locations no further than 300 feet (traveling distance) apart.